# Proceedings of the

# 2008 Library Assessment Conference

## Building Effective, Sustainable, Practical Assessment

August 4-7, 2008

Seattle, Washington









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Edited by
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Published by the

Association of Research Libraries
21 Dupont Circle, NW, Suite 800
Washington, DC 20036-1543
P (202) 296-2296 F (202) 872-0884
http://www.arl.org/
pubs@arl.org

ISBN 1-59407-814-9

EAN 978-159407-8149

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# Conference Overview

The 2008 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment took place from August 4-7, 2008, on the campus of the University of Washington in Seattle. Interest in library assessment continues to grow and we were immensely gratified to see an increase in the number of registrants from 220 at the 2006 Conference in Charlottesville to 380 in Seattle! Indeed, participants were a part of the largest library assessment conference ever held—coming from 43 US states and Puerto Rico, 6 Canadian provinces, and 4 continents outside North America.

The exhilarating program included four days of presentations, workshops, engaging speakers, poster sessions, and many opportunities for informal discussion. Of course, the conference would not be possible without the contributions of our speakers, presenters and workshop leaders.

Among the conference highlights were:

- an opening keynote session featuring three University Librarians who are known for their forward looking and challenging perspectives: Betsy Wilson (U. of Washington), Rick Luce (Emory), Susan Gibbons (Rochester);
- a plenary session on evaluating quality with Paul Gregutt, noted Northwest wine author and columnist;
- the conference reception set in the stunning Olympic Sculpture Park against the backdrop of Puget Sound and the Olympic Mountains;
- and career recognition awards to three pioneers in library assessment: Amos Lakos, Shelley Phipps, and Duane Webster.

We view participants' commitment to library assessment as critical to the process of demonstrating the impact and connection of the library to the research, teaching, and learning process. One of our primary goals has been to nurture and grow a library assessment community that serves as a catalyst and supports libraries in evaluating and measuring their contributions to the broader organization. This volume is testimony to the growth of that community and the diverse approaches used effectively in library assessment.

Other activities beyond the Library Assessment Conference that support the assessment learning community include:

- Library Assessment Forum—A community gathering organized by the Association of Research Libraries that takes place twice a year in conjunction with the American Libraries Association meetings (usually held on Fridays from 1:30pm to 3:00pm). Information on the Forum can be found at: http://www.arl.org/stats/statsevents/laforum/index.shtml.
- Library Assessment Blog—Post-conference discussion on library assessment issues takes place in the Library Assessment Blog. Discussion focuses on activities that seek to measure the library's impact on teaching, learning, and research, as well as initiatives that seek to identify user needs or gauge user perceptions or satisfaction. The overall goal of these discussions is the data-based and user-centered continuous improvement of our collections and services. For more information or to join, go to http://libraryassessment.info.
- ARL-ASSESS E-mail List—This e-mail list is a communication mechanism for those individuals interested in ARL's work to support a learning community of people

interested in assessment. For more information or to join, go to https://mx2.arl.org/Lists/ARL-ASSESS/List.html.

- Building "Effective, Sustainable, and Practical Library Assessment"—With the assistance of Visiting Program Officers Steve Hiller (University of Washington) and Jim Self (University of Virginia), ARL established a service for helping libraries develop effective, sustainable, and practical assessment activities. The service involves a site visit to each participating library, a report to each library with recommendations on practical and sustainable assessment, and follow-up assistance in implementing the recommendations. For more information, go to http://www.arl.org/stats/initiatives/esp/index.shtml.
- Service Quality Evaluation Academy—The Service Quality Evaluation Academy, originally established as an outcome from the widespread success of LibQUAL+®, addresses a community-wide need for new strategies and methods of library assessment by pursuing the following goals: (1) enhance the pool of librarians with advanced assessment skills by teaching quantitative and qualitative methods for assessing and improving outcomes and service quality; (2) create an infrastructure for libraries to design and develop outcomes-based library assessment programs; and (3) build capacity for assessment through advocating its use and providing model programs and projects to the broader library and museum communities. For more information, go to http://www.arl.org/stats/statsevents/sqacademy/index.shtml.
- The 2010 Library Assessment Conference will take place in the Washington, DC-area. Program information may be found online at http://www.libraryassessment.org.

Finally, we express our deep appreciation to the sponsoring organizations—Association of Research Libraries, University of Virginia Library, and the University of Washington Libraries—for their unstinting commitment to and support of assessment and this conference.

We look forward to seeing the community gather together again in 2010.

Best regards,
Steve Hiller, University of Washington, Conference Co-Chair
Martha Kyrillidou, Association of Research Libraries, Conference Co-Chair
Jim Self, University of Virginia, Conference Co-Chair

And the rest of the 2008 Conference Planning Committee:
Colleen Cook, Texas A&M University
Francine DeFranco, University of Connecticut
Margaret Martin Gardiner, University of Western Ontario
Debra Gilchrist, Pierce College
Irene Hoffman, OCLC Eastern
Kristina Justh, Association of Research Libraries
Megan Oakleaf, Syracuse University
Joan Stein, Carnegie Mellon University
Stephen Town, University of York
Stephanie Wright, University of Washington

## Announcement

## 2010 Library Assessment Conference

The Association of Research Libraries, the University of Virginia Library, and the University of Washington Libraries are once again pleased to announce that the next Library Assessment Conference will be held in fall 2010 in the Washington, DC area.

The Call for Papers will be in October 2009.

Forthcoming information available at: http://www.libraryassessment.org

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# Keynote Panel and Reaction:

# The Most Important Challenge for Library Assessment

Assessment helps libraries justify their operations and demonstrate the value these organizations bring to their communities. In an academic environment, assessment demonstrates the value of the library to the research, teaching, and learning processes. Over the last decade, library assessment has emerged as an important process in rethinking traditional roles and responsibilities. A multiplicity of methods has been used in libraries both locally and across different institutions, and a multiplicity of areas have been studied systematically from learning outcomes, to instruction, and digital libraries. For this conference we asked three prominent library figures, Susan Gibbons, Rick Luce, and Betsy Wilson, who have been influential in the transformation taking place in libraries over the last few years, to address the topic of the most significant challenge facing academic libraries in the future and the role assessment can play in helping libraries meet that challenge. Our speakers have demonstrated commitment over the years to establishing a strong library assessment culture that stresses understanding of user communities and the development of key metrics for success. Their three papers emphasize key elements that are important for library assessment in the coming years.

In addition to the keynote panelists, we had two panelists who offered their reactions to the keynote panelists' presentations: Joan Rapp and Stephen Town. Both active in library assessment, they bring international perspectives into their comments as they react to the observations of the keynote panelists.

## Keynote Panelists

Three visionary library leaders each present what they see as the most important challenge for library assessment in the future.

- Susan Gibbons (Vice Provost & Dean, River Campus Libraries, University of Rochester);
- Rick Luce (Vice Provost and Director of Libraries, Emory University); and
- Betsy Wilson (Dean of University Libraries, University of Washington).

## Reaction Panelists

Two visionary international leaders provide international perspectives on the challenges posed by the keynote panel.

- Joan Rapp (Executive Director of Libraries, University of Cape Town) and
- Stephen Town (Director of Library & Archives, University of York).

# Keynote Panel:
# The Most Important Challenge for Library Assessment

## Broadening Library Assessment to Understand the "Why"

**Susan Gibbons**
University of Rochester, USA

## Abstract
Traditional assessment in academic research libraries in the United States has been quantitative. Librarians seem to find comfort in numbers—they are exact, precise, and can be automated. Unfortunately, the articulation of the value-added and return on investment of an academic library is not easily captured, and still harder to convey. Since 1961, annual statistics describing collections, circulation, and expenditures have been gathered by the Association of Research Libraries. When asked for some measure of assessment, the ARL statistics are an easy data set for library administrators to pull tables, ratios, and ranked lists to make their case. Unfortunately, those annual numbers can provide very little insight into the true accomplishments and impact of an academic library on its local campus. The ARL statistics focus on that which can be counted, but much of what makes an academic library successful is uncountable.

While quantitative measures are certainly useful, meaningful qualitative assessment should be paired with the quantitative data. At the University of Rochester, River Campus Libraries, it is qualitative, internally-focused, and frequent assessment methods that have proven to be the most useful and effective.

### Anthropologist in the Library
In 2003, the River Campus Libraries (RCL) hired an anthropologist, Dr. Nancy Fried Foster. This was not an accidental hire. Dr. Foster came onto the RCL staff as part of a grant to improve the University's institutional repository.[1] Although faculty had indicated they would use an institutional repository, once one was available, the faculty's participation levels were quite low. The purpose of the grant was to conduct a work-practice study in order to better understand the faculty's needs. A work-practice study is a method of fine-grained observation and documentation of people at work based on traditional anthropological participant observation; two examples of work-practice study are Wenger[2] and Godwin.[3]

During the one-year grant, Dr. Foster lead a team of library staff through a work-practice study in order to better understand how an institutional repository might fit into the existing work practices of faculty. The project exceeded all of our expectations. Using various anthropological and ethnographic techniques, the project team gained incredible insight into how faculty in different disciplines conducted their research. From this information, RCL has been able to identify ways to improve its institutional repository and, more importantly, better align RCL with the needs and existing research practices of its faculty.[4]

The success of the faculty project, led to a second project—a two-year study of undergraduate students, focused on how the students did their academic work. The undergraduate research project, which involved more than thirty members of the RCL staff, used a mixture of methodologies, including photo elicitation, mapping diaries, and retrospective interviews, to develop a holistic picture of the lives of Rochester students. From this larger picture, RCL then tried to understand how the libraries' services, facilities, and digital presence fit or could fit into the students' academic and social lives.[5]

Recognizing that there was still a significant user population not represented in the research thus far, RCL began a study of graduate students in 2006. Scheduled to be complete in September 2008, this project focuses very specifically on how graduate students research and write their dissertations so that RCL could create better tools and services to meet their needs.[6]

### Apply Qualitative Data
The qualitative data that RCL has collected through its three work-practice studies has proven to be

tremendously powerful in ways that the quantitative data (e.g., ARL statistics) have not. Significant changes have been implemented to RCL's services, facilities, and digital presence to address deficiencies that the quantitative data could not adequately articulate. A few examples are noted here.

Between 1996 and 2006, the number of reference queries that RCL received each year has dropped from 97,850 to 47,950—a decrease of nearly 50,000 queries. While this is useful information, the numbers fail to answer the question "why?" Most of us would guess that the Web has taken the place of the reference librarian as a means for answering ready-reference questions. But, should all of this decrease be attributed to the Web? According to the qualitative data, at least at RCL, the answer is "no." And more importantly, there are things librarians can do to reverse some of this trend.

Buried within the hundreds of pages of students interview transcripts that the RCL projects collected are indications of some of the barriers that prevent students from approaching the reference desk for assistance. For example, there is frequently a queue of students waiting to use the public computers in the libraries. Consequently, a student at a computer who needs reference assistance might not want to risk losing his/her spot at the computer by walking away from it to go to the reference desk. To not surrender his/her public computer might violate a behavioral norm that students expect from one another. The need for reference assistance is still present, but the requirement of physically visiting the reference desk is no longer an adequate solution.

Another partial answer to the puzzle of why reference queries are dropping was supplied by a student diary exercise. The RCL project team asked a group of student volunteers to map their days onto an enlarged map of campus. The students noted their movements across the campus, recording where and when they went and why.[7] This revealed that the lives of Rochester students are incredibly scheduled and busy. From early morning until late in the evening, the students move between classes, tutoring sessions, group project meetings, club activities, part-time jobs, etc., with few gaps of unscheduled time. Consequently, it was not until late in the evening, usually between 11pm and 1am, that many students had an unscheduled block of time to work on their homework, research papers, and other academic activities. However, the RCL reference desks close at 9 pm, a full two hours before it seems the students really need reference assistance. RCL has been experimenting with longer reference desk hours (called Night Owl Librarians) during peak research periods in the semester to see whether the hours of the reference desk has been another barrier to student use.[8]

In another exercise with undergraduate students, the RCL project team recruited volunteers to take pictures of very specific things, such as a place in the library where they felt lost or where they preferred to study.[9] One of the photos was a picture of the items that students usually carried around with them. Included in every photo was the student's cell phone. While it was not a great revelation that students often carried their cell phones around campus, seeing those photographs forced the RCL project staff to recognize that we were not leveraging a potential means of communication with students. Nowhere in the libraries was the phone number of the reference desk posted. The phone number was also missing from the bottom of the RCL homepage—an omission that students had to point out to the RCL project team. If the phone number of the reference desk were posted in the book stacks, around the public computer terminals and even in the student dormitories, would the number of reference calls increase? RCL hopes to find out.

Surveys are often relied upon as a way to do assessment, however, at their core, most surveys are quantitative—the counting of answers. It can be very difficult to craft an effective survey that gathers answers to the question of "why." The RCL project team studying graduate students, however, discovered that interviews can in fact provide those "why" answers. For example, when graduate students were asked what tool they most needed, it was often one that could help to manage references and citations.

But RCL had already purchased licenses to RefWorks and EndNotes; was more marketing needed? Perhaps, but that still was not the complete solution. It was only when the RCL project team began interviewing graduate students that the true problem was brought to light. Once graduate students began working on their dissertation, they did not want to experiment with a new tool, such as RefWorks, even though they could recognize that the tool would help them. The graduate students were unwilling to learn something new or take the time to experiment with a new tool once they began

writing their dissertation—it seemed too risky. They needed to learn about RefWorks and EndNotes at the very beginning of their graduate school classes. Those early semesters proved to be the best, and perhaps only, window of time that the graduate students were open to learning about bibliographic citation tools. Once that window closed, the students' research processes were largely fixed. This realization is causing RCL to recognize the importance of a discipline-tailored orientation program for graduate students and is providing insights into the curriculum of that orientation program.

## Conclusion

Assessment is not a luxury, but a necessity for all academic libraries. With the exception of the most wealthy higher education institutions, all divisions on campus are competing in the allocation of scare dollars. Academic libraries need to be able to articulate their value add to campus and to provide evidence that they are using their allocations efficiently. Quantitative assessment measures, such as the ARL statistics, which compare one research library with another, reveal very little about the quality of a library. Academic libraries are accountable, first and foremost, to the users of their home institution.

Qualitative assessment techniques surface the level of explanation and detail that it takes to make meaningful changes, with a strong sense that those changes are the correct ones to make. Accountability is local, so too must assessment be local.

—Copyright 2008 Susan Gibbons

## Endnotes

1. Institute of Museum and Library Services, National Leadership Grant – LG-02-03-0129-03.

2. Etienne Wenger, *Communities of Practice: Learning, Meaning, and Identity* (New York: Cambridge University Press, 1998).

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# Keynote Panel:
# The Most Important Challenge for Library Assessment

## Raising the Assessment Bar: A Challenge to Our Community

**Rick Luce**
Emory University, USA

## Abstract
The most important challenges for library assessment in 2008 require that we take an objective and informed look at the practice of library assessment today, evaluating our progress in the context of the larger environmental shifts taking place inside and outside our institutions. Such an analysis points to the need to significantly raise the bar of assessment practice in research libraries, as we face the challenge to move beyond attempts to create a culture of assessment and evolve our efforts to creating organizational cultures that support continuous improvement.

Is such a conclusion regarding current assessment practice overly harsh? We might begin thoughtful consideration of this question guided by a heightened awareness of the contextual landscape that research libraries and our parent university institutions live in and compete in today. A quick environmental scan yields at least three significant developments that indicate our current assessment practices are going to be under increased scrutiny and will inevitably need to be raised.

### Macro Level Landscape Changes
First, the mission of the university is evolving with newer forces at work, namely the growing impact of internationalization and globalization coupled with the associated dimensions of competition on all fronts. Heightened awareness of the competitive position, strategy, and core capabilities of the university—and correspondingly for our interests, the library—hinges on effective assessment capabilities. Current financial realities will only heighten this reality as competition for scarce investment dollars increases.

Secondly our institutions face pressure to respond to calls for educational reform, with greater focus and responsiveness that address concerns about outcomes and accountability. One example of this, which will no doubt manifest itself with many permutations over the next decade, is the Spellings Commission on the Future of Higher Education with a focus on preparing students for the 21st century workplace. Regardless of whether the Commission itself survives or not over time, the socio-political concerns that gave birth to the Commission will not disappear with a new administration in Washington, rather it will wind its way through assessment reporting and university accreditation. As our institutions increasingly come under pressure to ramp up their ability to provide meaningful outcome assessment metrics, those pressures will also be directly felt in the world of research libraries as well.

Thirdly, the rise of new research methods in a networked world heralds new methods of scholarly work, with correspondingly new user needs and expectations. What lays ahead for the 21st century research libraries given the evolution in eResearch? The rise of eScience and eResearch embody new ways of collaborative and distributed virtual work, and the related rise of data science and data scientists requires new organizational environments. These developments will create fundamentally different expectations for library support, and that brings an associated challenge to develop appropriate means to both understand these new needs and assess the effectiveness of our responses.

You can think about external change caused by at least three factors: a crisis, a shift in the market, or a technological development. We are living at this interesting point in time where we have all three factors operating simultaneously. If we simply stand and watch this take place, we'll be road kill.

### A Systems Approach for Assessment
To gain greater impact from our assessment practices today, it is imperative that we approach assessment from a systems perspective. Just as

good health is increasingly viewed from a holistic or systems perspective, likewise our complex library systems need to be viewed and evaluated in a correspondingly holistic manner. Research libraries are complex systems, requiring a management system to keep the various subsystems working together in concert to keep the whole organization healthy. Once we learn to see our organization as a system, we never again will feel satisfied with "improvement" initiatives that simply change staffing and the organization chart while failing to tackle the system itself.

Where does assessment fit into this approach? As a part of a continuous feedback loop, assessment is a method of planning for improvement. When implemented across the entire organization it can be a catalyst for deep organizational change (as opposed to a quick fix) and a method to gain staff understanding for needed improvements and commitment to shared improvement goals. Ideally, this is underpinned by a performance measurement matrix, which balances:

1. Quality – where the customer defines goodness, both internally and externally;
2. Time – the speed, or process response and agility of the organization; and
3. Cost – as measured by the resources spent on people, processes or organizational shifting and/or rework.

Performance measures are our organizational vital signs. Improvement goals or statements that are constructed without performance measures based on data are wishful thinking. Libraries are very good at collecting volume or transactional data, in part because they are relatively easy to collect and count. Unfortunately, those measures provide little to no insight about how well our processes are performing, nor whether our activities are achieving the desired impact. We would be well advised to move from measuring product metrics, such as how many books were catalogued or circulated, to process metrics that look from input through output. Measuring process performance is typically expressed statistically, thereby allowing us to look for variation using run charts, etc., and allowing us to determine whether that process is in control or not.

The challenge here is finding the "right metrics." We ought to be trying to answer questions such as: what is the value equation we provide?; how and how well do we differentiate ourselves?; and how well do we meet sponsorship or university drivers? It is often helpful to think about constructing a value equation matrix, which at a minimum focuses on a dimension for customers (e.g., metrics on satisfaction and loyalty), a dimension on process metrics, and a dimension addressing sponsorship metrics or drivers. Another variation on this theme can be found by adapting the "Hedgehog" view[1] which looks at the constancy of purpose of an organization by asking three questions: what are we best at?; what are we passionate about?; and what drives our value engine? Once those questions can be answered, it clarifies what ought to be measured and evaluated.

## Listening to Customers

I am unaware of a library that will not claim they are customer responsive, and most likely individuals in the respective institutions are. But for an organization to be customer focused, a systematic process is required. What does that look like for a research library?

While at Los Alamos National Laboratory's (LANL) Research Library, we deployed a variety of methods to obtain customer feedback, which is one dimension of a customer-focused organization. The customer base was surveyed like clockwork quarterly, pulsing one fourth of the laboratory user population each quarter, (resulting in one survey per user annually), for forty-four consecutive quarters. The results of that survey data were then enriched with a separate system for capturing unsolicited customer feedback. The unsolicited feedback was keyed verbatim into a database that categorized each comment, and then the data was distributed to appropriate parts of the library to resolve or follow up on. Those two mechanisms were a current status indicator, useful for knowing how we were doing.

To get out in front of our customers, trying to understand their future needs, a formal "Voice of the Customer" process was deployed to obtain feedback regarding future needs, which provided input into our software development activities. Newly developed software applications and new services were taken through extensive testing and focus groups. And, finally, an outreach process was used to both communicate what we were doing, as well as providing another listening mechanism. Essentially a constant feedback loop, built from multiple sources, was operating all the time.

These formal listening strategies were run in a coordinated fashion. They fed a set of user satisfaction metrics and process activities that

various teams in the organization were responsible for managing. The output of all this activity, both the customer data and the library's internal processes supporting our products were fed into a quarterly assessment process. As opposed to a for-profit business focused on quarterly financial results, the LANL Research Library focused on the quarterly customer satisfaction metrics and process behavior metrics, as well as a variety of other non-customer metrics important to other dimensions of the organization's health. Thus this focus is much like a business, with a different output focus, and this was done rigorously on a quarterly basis. The quarterly assessment fed a quarterly review of the organizational business plan and resulted in a quarterly update to that plan. Rather than having an annual business plan, which typically is filed away on a shelf, the quarterly business plan was reviewed and updated quarterly.

## Three Dimensions of Customer Satisfaction

For nearly two decades I've talked with a large number of libraries about measuring customer satisfaction. Far less than one-quarter of all the organizations I have talked with or surveyed have a formal expression of a general happiness metric. When this is collected on a regular basis, I'll label that level of insight a level one. Level one organizations typically ask questions in their surveys such as: how do you feel about the library; are you satisfied or not satisfied with library service X & Y. I refer to that type of data as a happiness meter and typically it is only collected every year or two at best. But what does it tell us when XX percent of some user population is happy—happy relative to what? Are they 85% happy because their expectations are quite modest, or because they have no other place to go? Often this only tells us that they are *relatively* happy and often without sufficient levels of gradations. If we are serious about improving our organizations, we're not interested in relying solely on happiness meters because they don't really tell us anything that we can productively use to improve ourselves.

The next level of sophistication on an evolutionary curve of customer satisfaction incorporates a ranking of what's important to the end user or our customer. This is coupled with an assessment of the satisfaction level related to what is important. To the extent that an organization begins to understand the tradeoffs here, this knowledge allows the organization to become more focused in terms of prioritizing services and level of effort.

The third level of sophistication, (and it is highly unusual to find a library at this level 3 stage), incorporates metrics which provide comparative data related to how the organization rates against the best in industry. Now we have a much better idea of what an 88% highly satisfied with some XYZ service really means. It should be apparent that this requires both a great deal of work and needs to be repeatable to manage systematically. The simple idea is to learn who is the best in the industry at whatever you are trying to do, study what they do, emulate what they do, and use that information to make your organization better. When you formally start to track that and measure how you're doing over time, then you're getting fairly sophisticated analysis of where you stand.

I've worked in every type of library except for school libraries. It seems that all libraries, regardless of size or type, have a phenomenal capacity to take on new things, however they can't seem to let go of low priority things. This results in an appetite for a big smorgasbord of activity but no focus on what we are really good at, or should be good at. That is problematic when you have to make difficult decisions.

So, what's the bottom line? I've tried to very generally describe the development and utilization of a formalized process for using customer feedback and customer satisfaction data to drive an organization. Clearly, this is just the beginning point, many other processes and metrics related to how to run an organization are needed. I strongly believe that if you don't measure performance against customer needs, you don't know how you are doing and that equates to wandering in the desert without a compass or map. One of our challenges is to see and evaluate our processes and activities through our customer's eyes, not our own library-centric eyes. It doesn't matter if we're the first, or if we think something is the best, it ultimately matters what our customers think.

## Using Baldrige Criteria

Following the leaders, which is sometimes referred to as emulating or adopting best practices, is another approach to organizational improvement. Established by Congress in 1987, the Malcolm Baldrige National Quality award recognizes organizations practicing the most effective management methods. NIST manages the Baldrige

National Quality Program and the American Society for Quality (ASQ) assists in administering the Award Program under contract to NIST. The sustained high performance of Baldrige winners is directly attributable to good management practices. An analysis of 600 winners over a ten-year period shows they were over 2.5 times as fast as their peers, and more than twice as profitable as their peers. The criteria have been structured to specifically address education and another specific set geared to non-profits. Baldrige assessment examines the approach, deployment and results of applicant organizations, and it requires a systems approach to do well overall.

The Baldrige performance excellence criteria are a framework that any organization can use to improve overall performance. The Baldrige criteria for performance excellence has seven categories, each category asks a set of non-prescriptive questions that must be addressed. The education criteria, detailed on the NIST site at www.baldrige.nist.gov, are comprised to address the following:

1. Leadership - examines how senior executives guide the organization and how the organization addresses its responsibilities to the public and practices good citizenship.
2. Strategic planning - examines how the organization sets strategic directions and how it determines key action plans.
3. Customer focus - examines how the organization determines requirements and expectations of customers and markets; builds relationships with customers; and acquires, satisfies, and retains customers.
4. Measurement, analysis, and knowledge management - examines the management, effective use, analysis, and improvement of data and information to support key organization processes and the organization's performance management system.
5. Workforce focus - examines how the organization enables its workforce to develop its full potential and how the workforce is aligned with the organization's objectives.
6. Process management - examines aspects of how key production/delivery and support processes are designed, managed, and improved.
7. Results - examines the organization's performance and improvement in its key business areas: customer satisfaction, financial and marketplace performance, human resources, supplier and partner performance, operational performance, and governance and social responsibility. The category also examines how the organization performs relative to competitors.

How effectively can use of the Baldrige criteria be for libraries? When the Baldrige criteria was adopted and utilized at LANL Research Library for the state level competition, several valuable lessons were learned. It accelerated organizational learning, both for leaders and for all staff members of the organization. A new system is tough to integrate all at once, and the words of Edwards Deming to "be patient, and have discipline" were appropriate. Unexpectedly, we learned to place greater attention and emphasis on building supplier partnerships. Predictably some of the Baldrige language was difficult to translate early on, but working through the language and underlying concepts proved highly valuable. Relevant benchmarking data, i.e., time series data for competitors, couldn't be obtained for from other libraries because such analysis hadn't been done in a useful manner.

By benchmarking data, I am referring to a process for gaining and applying knowledge to improve library/business process performance based on a study of current practices. It is a means of using data to identify magnitudes and reasons for variances in performance. The intent is to gather comparative process data, and to understand best practices.

## Starting a Journey: Emory as a Case Study

Upon arriving at Emory two years ago, it was immediately clear we needed to quickly recast and reshape our strategic plan to provide greater organizational focus, as well as to better connect with the university's strategic plan. Using an aggressive schedule, a new and completely rewritten strategic plan was produced and approved in three months. It is worth noting that these efforts didn't rely upon nor utilize ARL statistics, as that data is largely comparative transactional information.

As a follow on to the strategic planning effort, we initiated the implementation of an annual business plan with quarterly reviews. The quarterly reviews, a reporting mechanism on progress to date vs. plan expectations, coupled with metrics, are one form of ongoing assessment. The quarterly reviews are open meetings, attendance and participation by anyone in the organization is not only permitted, it is encouraged. At Emory we are still in the very

early stages of putting a new system in place, modifying for the specific needs of our organization. The focus incorporates assessment as the "Check" step in the PDCA cycle (plan, do, check, act) with an overall goal of continuous improvement.

> "The journey to truly superior performance is neither for the faint of heart nor for the impatient. The development of genuine expertise requires struggle, sacrifice, and honest, often painful self-assessment."[2]

It takes awhile to create enough momentum in the direction you're trying to move to get things flowing. A leader must have a compelling vision and strategy coupled with perseverance. For an organization to be customer focused, its leader also must be obsessively focused on the customer. It doesn't do any good to have a vision about where all the organization wants or desires to go. The organizational vision must be where you *need* to go, in terms of delivering value to the customer.

## Toward a Culture of Continuous Improvement

Creating a culture of assessment is certainly a good and worthy first step. However, assessment for assessment's sake is not the goal. The goal ought to be improving the organization constantly and at a rapid enough rate to be a little ahead of customer needs. The continuous improvement of a system requires optimizing all the discreet components, which includes the assessment process itself. Moreover, the evolution of our assessment capabilities should be placed in the context of knowledge about the relative degree of improvement in our entire system.

Much work remains to be initiated in this arena, and much of the learning ought to be shared so that we lift the level of current practice in libraries. Let's together build the bridge to a new level of assessment practice, supporting continuous improvement and focusing on outcomes and impact.

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## Endnotes

1. Jim Collins, *Good to Great* (New York: HarperBusiness, 2001).

2. K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely, "The Making of an Expert," *Harvard Business Review* 85 (2007): 115-121.

# Keynote Panel:
# The Most Important Challenge for Library Assessment

## Accelerating Relevance

**Betsy Wilson**
University of Washington, USA

When Steve Hiller asked me if I would be part of this opening plenary panel and told me that I would share the stage with Rick Luce, Susan Gibbons, and moderator Crit Stuart, I could not resist. Rick, Susan, and Crit are some of the most creative minds I know. I feel privileged to share the podium with them.

As part of my contribution to this opening plenary, I am going talk about "accelerating relevance." In doing so, I am going to ask three questions:

1. What is the most important future challenge for libraries?
2. How can assessment help?
3. And, what is, then, the most important challenge for library assessment?

Let's get started. Question number one: What is the most important future challenge for libraries? And, the answer is: Accelerating relevance.

Let me explain. By way of explaining, I am going to look to the past—always a good place to start when thinking about the future. Early in the last century, Henry Suzzallo was the president of the University of Washington, a fledgling institution way out in a rainy wilderness called Seattle in the state of Washington on the northwest coast of the United States.

President Suzzallo's vision was to build a "university of a thousand years." He knew that all great universities had great libraries, so his first action was to create a library to rival those in Europe. He called it a "cathedral of books." Up from the empty land arose a grand gothic structure with the Olympic Mountains and the Pacific Ocean off in the distance. Suzzallo's "university of 1,000 years" had its cathedral. Since then, the Suzzallo Library has became known as the "the soul of the university" and is a beloved symbol for University of Washington "Huskies" around the world. I should let you know that Suzzallo's "cathedral of books" ultimately would get him fired for having aspirations that the then Governor of Washington viewed as foolish and extravagant (Suzzallo would later become president of the Carnegie Foundation for the Advancement of Teaching).

President Suzzallo knew what the 20th century library should be—a magnificent building of inspirational architecture filled with the finest books from all around the world. It was all so simple then. Suzzallo had a clear vision how a library was relevant to the university. Books had primacy. Solitary reflection in the great reading room was the norm. And the library was an iconic building symbolizing knowledge.

Fast forward to 2008, and one thing remains the same. The future of the university is inseparable from the future of the library. Or as James Duderstadt, president emeritus of the University of Michigan has said, the library of the future may in fact "predict" the future of the university.

And, I believe that that future will be determined by whether or not libraries can "accelerate relevance." The networked environment and the accelerated pace of change have transformed libraries and higher education. Search engines like Google provide access to a vast array of content changing our daily information seeking behavior and expectations. The competition for attention is acute.

Scholars and scientists tell us that research is increasingly multi-disciplinary, maybe even transdisciplinary. Research partnerships are complex and distributed around the globe. One researcher told me that she works with collaborators in five other countries and in more than ten institutions. Researchers tell us that they are having difficulty managing the vast amounts of data they are generating.

The world of research and discovery and thus libraries has changed fundamentally—with all the inherent risks, opportunities, and impediments that

come along with such profound change. Libraries have been reshaped into flexible learning spaces to meet a variety of user needs—collaborative and individual study, hi tech hi touch instruction, and caffeine and chatter.

Many libraries and librarians have been persistent agents of change and innovation. In many ways, we have collectively put the 20th century library of Henry Suzzallo out of business. But at the same time, we haven't fully articulated the shape of the 21st century library.

Depending on our collective choices, I believe libraries in the 21st century will span a continuum of marginal to transformational. I chose transformational—a high impact library that both anticipates and accelerates discovery on a global, multi-institutional, and cross-sector basis. Our future will be determined in large part by how we collectively respond to anytime, anyplace expectations.

Education and research demands a complex, integrated, and increasingly global information infrastructure. Universities and colleges like ours will be measured by how well they disseminate knowledge. Our organizations need to find new ways to share intellectual effort in order to advance discovery and educate students for a future we can't even begin to imagine.

As we gaze into the assessment crystal ball, we should be asking

- What do our faculty and students value? What will the scholar in 2060 expect us to have selected and preserved? Blogs, mash-ups, genomics data?
- How can we support the expanding university mission in a technology enabled world?
- How can we accelerate and deepen research, learning, and discovery?
- How can libraries embed themselves "in the flow" of researchers and student work?
- How can we stem the data deluge and optimize a data infrastructure?
- We know that convenience trumps quality. How do we make quality information convenient?
- What value must we add to eScience, eResearch, eLearning, and eLiving?
- Where should we invest when we have limited resources, conflicting priorities, proliferating publics, and often competing clientele?
- Are we accelerating relevance?

Question number two: How can assessment help? Answer: Provide the fuel to accelerate relevance.

Well, I know I am preaching to the preached. You have all gathered here today because you already know that assessment can help. Assessment is fuel to accelerate relevance. If assessment is the fuel, then a culture of assessment is the environment in which that fuel is created and replenished.

Now, maybe I am taking this analogy a little too far. Seriously, assessment ensures that our libraries are relevant in the future. We must invest in continuously assessing the landscape, listening to our users, and looking for places where we can make a difference in connecting people with knowledge.

All assessment is local. We must become user-centric organizations, explicitly defining who our users were in order to determine if we are anticipating their needs. We must develop and exploit meaningful measures of relevance. We must demonstrate impact and outcomes, not inputs and investment. We must tell compelling stories. Libraries are houses of stories. We preserve the stories of others, but we are not skilled at telling our own story. Assessment enables wise reallocation of effort and honing our collective focus.

As the Dean of the Libraries, I draw daily on assessment work to tell stories of accelerating relevance. I cannot imagine being an effective—or responsible—library director without our assessment program. That would be like walking a tightrope without a net—initially exciting but ultimately foolish and even deadly.

Now for our third and final question: What is the most important challenge for library assessment? The answer: becoming the lifeblood of our organizations—something we can not live without.

We talk a lot about creating a culture of assessment. In fact the phrase was coined right here at the University of Washington by our very own Steve Hiller in 1994. Steve was inspired by Robert Hughes's book entitled *Culture of Complaint: the Fraying of America* when he suggested that instead of a culture of complaint, libraries needed to engender a culture of assessment.

Today, we have "culture of assessment" check lists, consultants, and even institutional quotient tests. But, when all is said and done, making

assessment the lifeblood of our libraries is darn hard work. That is why this conference is so important.

Over the course of the next few days, you will learn how to build requisite expertise, how to strengthen organizational capacity, and how to manage operational costs. Let's hope we all learn how to make our assessment data work harder. And when we make assessment part of the lifeblood of our libraries and listen to our users, we must do something with what we learn, unlike the suggestion box in hell.

I started my presentation today with Suzzallo's vision of a cathedral of books, and it is an appropriate place to end. We are not the first to wrestle with the future of the library. But, with meaningful assessment, we (you) might just ensure that libraries remain **relevant** because they truly **accelerate** learning, research, and discovery in the 21st century.

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# Reaction to Keynote Panel: The Most Important Challenge for Library Assessment

## Views from a Developing Country

**Joan Rapp**
University of Cape Town, South Africa

## Abstract

One key idea which underlies each of the preceding statements is the need for libraries to actively—and in the specific ways that matter—align themselves with the needs of their individual environments. Whether one conceives of this alignment as "value," "return on investment," or "relevance," a core reason for assessment is to ensure that this alignment happens in the best possible way. And the continuing work and progress of the assessment community help to ensure that alignment keeps improving.

I've been asked to respond to the panelists' presentations from my perspective as director of a research library in a developing country. South Africa has a very particular and well-known history and circumstances; but these comments will, I hope, be more broadly applicable.

These presentations, along with the abstracts of other conference papers and titles of poster sessions, spring from a North American/developed world context, which I'll call the "optimistic, grounded" view of library assessment. This view assumes certain preconditions:

1. On an ongoing basis, libraries can know their environment well enough to align performance with it.
2. Libraries can find accurate, credible data for assessment.
3. Libraries can find appropriate methods of assessment and a world sufficiently large and comparable to permit meaningful benchmarking.
4. Libraries can integrate the results of assessment into their ongoing work of implementing relevant change.

When these assumptions or preconditions are met, we have the confidence to "accelerate relevance" and ways to measure our impact.

But in considering library assessment in the framework of a developing country—in this case South Africa—we have to recognize that these preconditions and assumptions are not necessarily always easily met, so that assessment can either not take place or not take place as effectively as it might in the North American context.

### Question 1. To what extent can South African academic libraries know their environment? Specifically, is there a stable environment, and is there sufficient information about this environment to enable libraries to engage in a realistic way with the needs of the parent institution?

In the United States—despite differences among small and large, public and private, liberal arts and research institutions—the overall educational environment is both stable and well understood. There is a long history of reporting library and institutional data to professional and accrediting bodies. Regional and national accrediting bodies ensure consistency and report institutional quality to a wide spectrum of interested and accountable parties.

By contrast, the South African higher education environment is in a period of radical change and instability, exacerbated by the fact that institutional accreditation took place for the first time only in 2005. In the last five years, the thirty-six publicly funded tertiary institutions have been reduced to twenty-four. Universities and "technikons" (similar to community colleges), which were previously separated and defined by race and by language, have been merged in ways which have created multiracial institutions differentiated by mission.

But this has meant deliberate merging of strong and weak institutions, sometimes with campuses hundreds of miles apart and sometimes with

different principal languages. The process has all but paralyzed some institutions. Merging cultures, administrations, standards, pay scales, budgets, and functions in previously racially and linguistically divided institutions has created a highly uncertain and unstable environment. And information emerging from institutional reviews indicates many cases of serious misalignment between stated mission and aspirations, on the one hand, and levels of resourcing, staff skills, and teaching and research quality on the other.

In addition, it is only recently that higher education institutions have been publicly differentiated by designation as "research," "comprehensive," or "universities of technology" (the former technikons). And only recently has government funding for research begun to follow a differentiated strategy which recognizes and supports "centers of excellence" in research. External reviews and mission clarification, ensuing "improvement plans," and targeted funding have begun to realistically align institutional expectations and enable academic libraries to understand what they are realistically expected to do and on what areas to focus. It has given them their first opportunities to do strategic planning in a data-driven environment.

## Question 2. Do South African academic libraries have credible data to inform assessment?

The information collected from academic libraries via their parent institutions during the apartheid period was both suspect—with highly variable data definitions—and closely held. The previous government required collection of very little data from these libraries; the focus was on amount of money expended and number of volumes purchased in subject categories, as designated by the government. One could easily speculate two motives: (1) the intent to control the areas in which libraries were collecting and (2) ensuring that the policy of differentiated levels of funding by race and language was being implemented at the level of information resource provision and was working to strengthen some institutions and to keep others weak.

Clearly, one impact of the recently mandated institutional assessments will be to provide more credible data about institutions of higher education, enabling better benchmarking at both institutional and library level. But the data sets are still new, and data definitions are in flux, as the first full cycle of "accreditation" comes close to completion.

Because of historical funding and skills disparities, there has been some initial reluctance in the academic library community to adopt internationally accepted data definitions, assessment tools, and benchmarks. But things are moving forward rapidly. Associate Professor Karin de Jager of the University of Cape Town has coordinated work on developing model guidelines to help "jump-start" some libraries' assessment efforts. And several of the larger research libraries are working to develop a broad range of statistical measures based on decades of work done by professional bodies in Australia, the UK, and North America. The goal is to develop a model which all South African academic institutions can eventually adopt and which reflects international best practice while serving the specific needs of a developing country.

## Question 3. Can academic libraries in South Africa find appropriate methods of assessment and a world sufficiently large and comparable to permit meaningful benchmarking?

As is clear from the answer to question 2 above, prior to 1994 there was little history of sharing of data among libraries; there was not much consistent or meaningful data to share or interpret. Compounding these problems, there was no single national library association; separate associations were divided by race until 1998. In addition, the small size of the South African academic library environment restricts *de facto* the availability of peers. And the core group of research-oriented institutions includes both English and Afrikaans universities, with vastly different cultures, bureaucracies, and political histories.

However, in 2005 five academic libraries took an important step toward strengthening emphasis on assessment and benchmarking by pioneering South Africa's participation in the LibQUAL+® survey. In addition to providing massive amounts of comparable data, the mere fact of participation demonstrated a readiness on the part of these institutions to assess themselves using an internationally accepted, highly regarded, credible instrument. This experience has led to wider interest in the survey and additional peer pressure on those institutions which have been less willing than others to share information or to benchmark.

### Question 4. What special issues do South African academic libraries face in implementing relevant change based on assessment?

I have already noted a number of impediments related to the country's political history and its fallout in inequality of education. Skills development is a national imperative, and different academic libraries have staff with widely varying levels of education and experience.

In addition, education for librarianship is quite different; many, particularly newer, librarians come with a librarianship-only background, as a three-year undergraduate degree. Hence there is often no subject background, no experience of research, and no graduate degree of any kind. However, some academic libraries are beginning innovative programs to attract individuals who already have graduate subject degrees and then to provide experience and library education in a postgraduate diploma program.

## Conclusion

In summary, while South Africa represents an extreme case, many of the questions raised here are likely to be relevant to most developing countries. A low skills base, lack of appropriate data, no history of data collection, small comparator communities, an inward focus, few internal models of good practice, and lack of knowledge or understanding of international practice hamper library assessment and implementation of improvements in practice.

Even in North America there are sectors of the library community where not all preconditions for good assessment exist; but there are certainly a number of countries where none or almost none exist. South Africa has been the leader in library assessment on its continent, but our growing success has relied heavily on decades of work and sharing of expertise and data, particularly by the North American and UK assessment communities. That support has been multifaceted and has had enormous impact: seminal articles, reports of projects, networking and conference opportunities have strengthened the conceptual foundations and our understanding of good assessment practice. Instruments such as LibQUAL+®, consultative interventions such as ARL's "Effective, Sustainable, Practical Assessment" project, and, of course, the extensive, detailed, and invaluable benchmarking data collected over decades have provided specific tools and allowed us to "leapfrog" into a sophisticated quantitative and qualitative environment. The speed and quality of improvements in academic libraries in South Africa, and hence the advancement of the country's educational and research agendas, owe a great deal to the generosity and expertise of colleagues in the library assessment community in the developed world.

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# Reaction to Keynote Panel: The Most Important Challenge for Library Assessment

**Stephen Town**
University of York, UK

## Abstract

It is a great honour to be asked to react to such a distinguished and authoritative panel, and also to follow the heartfelt remarks of my colleague Joan Rapp arising from her experience in South Africa.

Perhaps the best way to start is to give my immediate reaction to experiencing the variety of ideas and approaches provided by the panel. It did seem to me that this exemplified the gender difference approach to performance measurement outlined in my dinner speech to the Northumbria Conference in Pittsburgh some years ago. This mischievously suggested that the hunter/gatherer and consequently male/female differences supposedly arising from our distant past could be applied to our library assessment field. This did seem to me to be borne out by Rick the hunter going straight for the strategic jugular, in contrast to the careful empathic detail gathering of Susan and Betsy!

### Reaction to Panelist Susan Gibbons

This presentation clarified some of the key enduring challenges in assessment, and ones I certainly share. I particularly liked the emphasis on the danger of "counting rather than thinking" and the critical question of "which way up is good?" Raising these issues may not always make one popular with the committed statistics collectors, but we should continually question what the data we gather is telling us, or if indeed it is telling us anything at all.

I think we would all would like to believe that we are creating or recreating "libraries which match patrons' behavior," but the careful study of real behaviour has often been lacking in the past, or based on false assumptions provided by what users tell us they do, rather than what they really do. The anthropological approach seems to me to offer a powerful new method for us.

I would also express strong support for the need to produce "finished capable products and services." Sometimes we may feel persuaded that this cannot be achieved, or that the current state of IT does not really allow this. To me, this is an easy excuse for inaction rather than a rational objection.

It is also a valuable reminder to hear that we all serve "unique communities and need to be locally accountable." However I would raise two cautions here. This should not mean that we cannot learn from each other, and expand our horizons from consideration of a diversity of situations and contexts outside our own. We must also not narrow our vision to only those things that our communities may be aware of now.

### Reaction to Panelist Rick Luce

This admirable contribution brought me back to the broader strategic challenges of our "new connected world." I applaud the simple truths that we need strategy and systems, and that we are seeking change not for its own self, but for improvement. As the Chair of the SCONUL Working Group on Performance Improvement, I welcome the chance to endorse the language of "improvement" in contrast to the potentially more neutral "assessment."

I confess to be being a little unsure about "passionate hedgehogs," but passion is something that we perhaps sometimes lack in our search for the rational and evidential. The fire and energy of passion is perhaps not traditionally associated with our profession, but if it is a missing aspect of our organisational cultures then progress may falter through boredom, if for no other reason.

The desire to achieve "competitive quality and value" certainly fits the aspirations of my own performance measurement system. It is perhaps a sad reflection to hear again that benchmarking process data is still lacking in our community. This remains a real challenge for our industry; I recall raising this in the 1990s when we first began systematic benchmarking. A decade on and we still have "missing measures for the complete system." Our collective effort is required to fill the gaps.

I applaud the "fanatical commitment" ideal; we

need to be fierce about achieving our vision sometimes. This also seemed to me to connect to Jim Neal's concept of the "feral librarian," raised in the wild outside the safety and comfort of traditional assumptions. Perhaps those of us brought up in the fold need to challenge ourselves to become at least sheep in wolves' clothing, if not the real thing.

### Reaction to Panelist Betsy Wilson

This presentation provided profound thinking cogently presented in some wonderfully pithy sound bites. "Accelerating relevance" is a key idea that encapsulates precisely not just what we need to do in the new information age, but how we might present the evidence and arguments to our parent institutions. The statement that "assessment is the fuel for relevance" seems also to me to clarify what sort of measurement data we should be seeking and collecting. "Meaningful measures" thus have their meaning defined *a priori*.

"Compelling storytelling" takes us back to Nancy van House's keynote at the first Northumbria Conference, and has therefore been a persistent thread in assessment and performance measurement since the first time we gathered internationally in this field. At the most recent of these conferences in South Africa last year, Peter Brophy spoke about the idea of "narrative" as a compelling tool for accountability and advocacy.

"Ambition for the soul" suggests a broader and almost spiritual dimension to our work, and I will come back to this metaphysical conception. I guess everyone here has "assessment in the blood," but it is a worthwhile contagion, and may make us immune to the worse diseases of complacency and unresponsiveness.

### A Personal Response

To build on the panel's ideas, I would add a few thoughts of my own. It seems to me that if we stay ahead of the game in assessment, we have a chance of controlling the future agenda, not just of assessment but of our continued existence. To do that I think we need frameworks and models for assessment which reflect our values and aspirations. We might choose to call this meta-assessment, in the sense of having defined metaphysical foundations which underpin and direct our measurements systems and efforts. This in turn might create a new type of scorecard (and not one limited to the assessment of stakeholder group interest), but based on the implicit values or beliefs we hold as librarians supporting learning and research.

As an attempt to identify what is important beyond obvious and immediate pressing concerns, I came up with a list of what I like about leading an academic and research library service, and these probably reflect a core set of values which I would like to see reflected in measurement and assessment activities:

- Living in interesting times
- Being in education
- Developing people
- Being curious
- Listening
- Being creative
- Squeezing out agility
- But most of all I like service above accountancy, management, planning, or technology

From this I think you can begin to see the measures which I would probably choose to reflect these values and tell the story in a way which accentuates these attributes of the Library.

This of course led me also to think about some current contextual issues (and their associated value systems) that I don't like:

- Dumbing down
  - Reducing value in pursuit of efficiency
  - Failing to measure our most special and niche attributes
  - Simple-minded reductionism
  - Failing to understand behavior
- Avoiding strategic opportunities and value propositions for short term expediency
- Speeding up for the sake of it
  - What about the 'Slow' movement?
- Being defensive about what we are

These might suggest some measurement and assessment (and indeed management) approaches to eschew. I particularly regret the tendency amongst some colleagues to suggest that libraries would not exist if we were starting from scratch in today's world. I think this is needlessly defensive about who and what we are. I am sure that we have always had to carve our own niche and earn our own respect, and the danger is, as always, in staying in our comfort zones within the traditional boundaries of our services.

## Summary and Conclusion

So what did I draw from the panel about the future of assessment? Or to put it another way, what kind

of story might we tell about the story that we should tell? In a similar panel discussion at the latest Northumbria Conference in South Africa, I suggested, perhaps mischievously, that what we need is more "intimacy" with our individual users, and more "engagement" with their communities. One challenge for us in performance measurement and assessment is what story ("narrative") we are to tell about our impact and worth in the digital age in terms of how deeply we understand our users and what we do about that? A key measure would be the degree to which our services play a part in the lifeflows and workflows of our users. This reflects perhaps the collective views of the panel about assessment focused on understanding and being relevant to ours users, their communities, the broader connected world, and being fiercely committed to a strategy which improves our services towards this vision.

I am grateful to one of my UK colleagues who at the recent SCONUL Strategic Planning meeting shared the idea from a student in a focus group who stated that libraries should be about providing a "utopian learning experience." I therefore leave you with the thought that the most important challenge for library assessment is related to achieving *and describing* this utopian learning experience.

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# Measuring the Impact of Networked Electronic Resources: Developing an Assessment Infrastructure for Libraries, State, and Other Types of Consortia

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## Abstract
As libraries are developing a larger Web presence, issues regarding the utility, accessibility, and impact of the usage of their networked resources and services are gaining critical importance. The need to assess systematically the networked electronic services and resources is great as increasing amounts of financial resources are dedicated to the Web presence of libraries. This project proposes to measure the impact of networked electronic services, building on MINES for Libraries®, in a scalable way across libraries and consortia to enhance digital library service quality and impact on learning by enabling the future allocation of resources to areas of user-identified need. Short, standardized Web surveys are placed at the point-of-use of networked electronic resources and services through a network assessment infrastructure that uses contemporary mechanisms of authentication and access, such as EZproxy, openURL, Shibboleth, federated searching and others as modules to interface with ARL's StatsQUAL®. A valid and reliable sampling method is proposed. Benchmarked reports about usage, users, purpose of use, and other variables are delivered to libraries. This project enhances and deepens the information gained from vendor supplied data.

## Introduction
Building, sustaining, and servicing digital library resources involve major expenditures for an institution. Collectively, ARL member libraries spent more than $2.5 billion in the past year on operating expenses, and costs continue to rise. The escalating costs of scholarly communication—especially the prices of scholarly journals and electronic databases—are among the most volatile in postsecondary education, increasing at rates higher than inflation for over the past two decades. The portion of the library materials budget spent on electronic resources is also growing rapidly, from an estimated 3.6% in 1992-93 to 46.55% in 2006-2007. In 2006-2007, 112 ARL university libraries reported spending over $536 million on electronic resources with $476 million of that total spent for electronic serials and subscription services. Fifty ARL libraries report spending over 50% of their materials budget on electronic materials.[1]
The goals of this ARL project are:

- To identify the various networked infrastructures that provide a gateway to networked electronic resources and services for college and university libraries and library consortia;
- To provide a set of valid and benchmarked questions by which libraries can learn about the

usage of their resources, and compare that usage to other similar libraries;
- To modularize a Web-based survey delivery system for the most popular authentication and access systems used in libraries to interface with StatsQUAL®, using a recommended set of survey rules and practices
- To provide valid and comparable data to libraries to help them make sound management decisions about the effectiveness of electronic resources and services.

This project will make it easier for libraries to assess the usage of networked electronic resources and services. Measuring the Impact of Networked Electronic Services (MINES for Libraries®) is a protocol ARL has been using locally at individual libraries and consortia, which gives them more information on the demographics and purpose of use of their library users. MINES is currently a locally implemented evaluation protocol. This proposal scales MINES across a much wider range of libraries, consortia, and different networked infrastructures in order to survey local usage, and to collect and analyze the data centrally at ARL.

Although a variety of authentication and access management systems are in use in libraries, including EZProxy (http://www.oclc.org/ezproxy/), Shibboleth (http://shibboleth.internet2.edu/), OpenURL servers (http://openurl.code4lib.org/tools, http://www.loc.gov/catdir/lcpaig/openurl.html), ERM (http://www.diglib.org/pubs/dlf102/), federated search engines with ILS authentication (http://www.libraryjournal.com/article/CA6571320.html), and others, ARL is initially focusing on EZProxy and OpenURL as proof of concept to collect user information on demographics and purpose of use across libraries. ARL has requested research funding from IMLS to support the development of assessment mechanisms for the collection of this type of information across libraries and consortia to help these institution make wise decisions and build a case about the effectiveness of their networked electronic resources and services.

## Brief History

The history of the protocol, Measuring the Impact of Networked Electronic Services (MINES for Libraries®), began in 1982 with the Peat, Marwick, and Mitchell library cost analysis study, designed by Brinley Franklin and Greg Baroni, to determine the costs that academic libraries incur to support sponsored research.[2] Academic research libraries support their institution's multi-faceted mission, including the school's educational, research, public service and, in some cases, patient care programs. In recognition of academic libraries' support of the sponsored research enterprise, the United States Government has federal regulations in place that permit educational institutions to perform a cost analysis study which results in an equitable distribution of the costs libraries incur to support an institution's major functions. US Office of Management and Budget (OMB) Circular A-21[3] sets forth the principles by which educational institutions and their libraries can quantify and seek reimbursement for costs incurred in support of sponsored research.

In 1986, Peat, Marwick and Mitchell and representatives of the US Department of Health and Human Services agreed on a standard methodology for the library cost analysis, including the random sampling of two-hour time periods, stratified monthly over an entire year. Following this methodology[4] print surveys were distributed to patrons entering the library, to ascertain the purpose of use of resources, services, and spaces in the library, specifically to assign costs to sponsored research.

However, as the Web became more prevalent, more networked electronic resources were made available through library Web sites. With the ARL New Measures retreat in 1999, the launch of the ARL E-Metrics project in May 2000, and the initiation of COUNTER in 2002, it was clear that libraries were dedicating increasingly large portions of their budget to electronic resources. Even as early as 2002, ARL was reporting that 110 ARL university libraries reported spending more than $171 million on electronic resources, and $20 million more were being spent in consortial purchases.[5] Anticipating the need for usage data from networked electronic resources, the indirect cost library study first surveyed MEDLINE and FirstSearch through CARL in a study of the University of Colorado at Boulder in 1998. In 2000, a number of possible methodologies for capturing usage of electronic resources were discussed in the library study at the University of Arizona in Tucson. Although vendor data, which later became COUNTER data, seemed a fruitful avenue, the requirements for collecting demographic data, usage frequency, and purpose of use data necessitated a different approach, and the MINES

for Libraries® methodology was born. The methodology was later christened MINES for Libraries® by Franklin, and then adopted by ARL into StatsQUAL® and the New Measures Initiatives in 2003.

Because MINES for Libraries® is locally implemented, it has undergone constant implementation refinement, depending on the capabilities of the participating libraries, and a number of talented IT staff have made significant, yet unrecognized, contributions to the protocol over the years, including Don Brunder, Associate Director for Academic Computing at the University of Texas Medical Branch, Galvaston, TX, and Sheryl Bai, Head of Network Systems, Lyman Maynard Stowe Library, University of Connecticut Health Center, Farmington, CT, and many others. Although the technical aspects of the implementation are constantly being adjusted, the MINES for Libraries® framework and survey have remained consistent.

The participation of ARL moved the MINES methodology to new levels. In 2005, as part of the study to evaluate the Ontario Council of University Libraries' (OCUL) Scholar Portal (http://www.scholarsportal.info) the ARL Statistics and Service Quality Programs section developed a statistical gateway to the data collected through the MINES for Libraries® protocol.[6] The interactive data was part of the StatsQUAL® framework, is transferable to other libraries and consortia, and is scalable to handle a large number of data sets. In 2007, ARL began talks with Chris Zagar of EZproxy to explore ways to simplify the technical implementation of MINES for Libraries®, to broaden the opportunity for libraries to participate, and to develop further the StatsQUAL® framework so that libraries can receive individual reports but also benchmark responses across similar libraries, similar to the OCUL data. These discussions have led to an IMLS grant application, and this paper reflects the thinking that went into that application.

## Literature Review

There is a growing need to systematically assess networked electronic services and resources as an increasing amount of financial resources is dedicated to libraries' Web presence. Much of this literature review is taken from the forthcoming chapter, "From Usage to User: Library Metrics and Expectations for the Evaluation of Digital Libraries."[7]

One productive approach to assessing the impact of digital content is through census counts such as the statistics of usage of networked electronic resources collected by external vendors conforming to codes of practice, like COUNTER (Counting Online Usage of Networked Electronic Resources http://www.projectcounter.org/) and standards-based expressions of them such as SUSHI (Standardized Usage Statistics Harvesting Initiative http://www.niso.org/workrooms/sushi), a standardized transfer protocol for COUNTER compliant statistics. The constantly updated Codes of Practice (http://www.projectcounter.org/code_practice.html) recommend that vendors produce library use reports containing such variables as the "Number of Successful Full-Text Article Requests by Month and Journal," "Turnaways by Month and Journal," "Total Searches and Sessions by Month and Database," and other reports. The SUSHI standard (NISO Z39.93-2007) has three supporting XML schemas posted to the National Information Standards Organization (NISO) web site and are retrieval envelopes for the conforming XML-formatted COUNTER reports. These data are analyzed by libraries, either by moving the data into electronic resource management systems (ERMs) or by creating spreadsheets. The purpose of the analysis is often to generate cost per use data. Although the calculation is simple, collecting meaningful cost data from the complex bundling offered by vendors is not trivial.

COUNTER is a tremendous step forward, but not the total solution. Baker and Read[8] surveyed librarians at academic libraries to determine how much effort is required to process the COUNTER data, how are the data used, and what data are the most meaningful. This survey is part of the MaxData project "Maximizing Library Investments in Digital Collections Through Better Data Gathering and Analysis" an IMLS-funded project from 2004-2007 in which three research teams are studying different types of usage data for electronic resources and will develop a cost-benefit model to help librarians "determine how best to capture, analyze and interpret usage data for their electronic resources."[9] They found that librarians still wrestle with inconsistent data, both from COUNTER compliant and non-compliant vendor reports, but also within COUNTER compliant reports. In general, the census data supplied by vendors external to the library is useful for cost-use studies,

although Conyers and Dalton[10] provide evidence that this analysis is more difficult than it appears. Combining these data with locally generated web logs or other user survey data will help analyze user behavior and motivation.

J. C. Bertot, C. R. McClure, and D.M. Davis have been pursuing a research agenda to assess outcomes in the networked electronic environment.[11] The approach developed for the Florida Electronic Library looks at functionality, usability, and accessibility, and combines a number of iterative methods to assess outcomes. Functionality is defined as a measure of whether the digital library works as intended. Usability assesses how users interact with the program. Accessibility measures how well the systems permit equal access for patrons with disabilities.[12] This project has focused on large state digital electronic resource collections, an important target for outcomes assessment. Part of the evaluation includes usage data from the resources.

The MESUR project[13] seeks to employ usage data to expand the possibilities of scholarly assessment. The purpose is to generate a model of the scholarly communication process involving usage, citation, and bibliographic data. It will create a reference set and generate a wider range of usage-based metrics than we presently use, with guidelines for their application. MESUR (Metrics from Scholarly Usage of Resources) identifies the current datasets, for example, harvestable usage statistics for scholarly journals (COUNTER and SUSHI); the Interoperability Repository Statistics Project (http://irs.eprints.org) defines usage data for OAI-PMH-compliant repositories and CiteBase (http://www.citebase.org) collects citation data.[14] The deliverables from this project are a survey and model of the scholarly communication process, a large scale reference data set for the investigation of viable usage-based metrics, an examination of the clusters of practices found in this data set, and finally the definition and validation of usage-based metrics of scholarly impact.

A useful literature survey of data collection of usage of networked resources at the local library level is found in White and Kamal.[16] Locally developed census counts are generated from click-through scripts, rewriting proxy server logs, Virtual Private Networks (VPNs), or openURL server logs, or other methods to capture data of networked electronic resource usage at the local level. White and Kamal also present some creative models of the network infrastructure necessary to collect these data locally, including Electronic Resource Management systems (ERMs) (99), VPNs (108), and re-writing proxy servers (109). The MINES for Libraries® protocol is in the tradition of locally developed data, although it is a sample, not a census count, and it is anonymous, despite sometimes using the local authentication for delivery. Unlike external vendor-supplied data, other local data studies can be mapped against authenticated users or internet protocol addresses to determine usage by local demographics such as client group, school or discipline. Library Web sites are routinely evaluated by Web server logs and Web traffic analysis software. Stemper and Jaguszewski point out that "local use data allows us to compare usage across publishers and disciplines." [16] They concluded that "it may be useful to occasionally compare local statistics with vendor statistics to understand usage in more depth" and "both local and vendor usage data have their own strengths and weaknesses. . . . Both have their place in the digital library's suite of quantitative evaluation measures."[17] We anticipate linkages between COUNTER/SUSHI data and the scaled and enhanced MINES for Libraries®, which will give libraries valid data about the usage and the users of networked electronic resources.

Transaction logs capture all local usage, yet because of the simplicity of the IP and HTTP protocol elements, they are not particularly useful. If the logs can be tied to a session, that is, one person searching over a period of time, they become more informative. The interaction within the electronic resource is unavailable to the locally collected data, but commensurable counts can be generated across disparate resources. Log files are especially attractive for closed environments, like digital libraries, OhioLINK, and OCUL's Scholar's Portal, and they have relevance to any gateway server, through which requests to e-journal vendors must pass. Jamali, Nicholas, and Huntington,[18] in a review of transaction log file analysis and Web log analysis, note that there are advantages and disadvantages to the technique and that researchers have taken both sides. The advantages include: log file data is collected automatically, data are collected unobtrusively, the data are good for longitudinal analysis, and are based on a census not sampling. Log analysis can provide data for the evaluation of digital library performance while providing useful data about information seeking behavior.[19] The disadvantages include the difficulty of differentiating user performance from system

performance. It is difficult to identify users, and IP address alone is not sufficient; sessions are hard to determine and many researchers assume thirty minutes is a session. Additionally, caching proxy servers may thin out the data, and activity by spiders and other crawlers should be segregated in the data. With log file analysis we do not know why the user did what he or she did.

Deep log analysis (DPA)[20] enriches Web log data with user demographic data, drawing from a user database or online questionnaires. Since log files provide little explanation of behavior, deep log analysis follows up with a survey or with interviews. DPA was developed by the Centre for Information Behaviour and the Evaluation of Research (CIBER) (http://www.ucl.ac.uk/ciber/). Deep log analysis technique is employed with OhioLINK[21] and is part of the MaxData project, described elsewhere in this paper. The technique is attempting to provide methods for obtaining good quality usage data through transaction logs, and in this method items used, viewed or requested are counted as use.

One of the best examples of locally developed census collection of usage data is Joe Zucca and the Penn Library Data Farm.[22] In this service oriented, data collection tool, information is pulled from the online catalog, acquisitions, circulation, electronic resource management systems, open URL link resolvers, interlibrary loan data, Web service logs, and rewriting proxy server logs, bringing together resources, services, and the data they produce when patrons use them. The basic concept is the desire to capture in a data warehouse library related events or interactions. Using these data, Zucca can track resources, people and location, creating a management information framework. A sample report from this system may produce for example a view of "Faculty Use of Electronic Journals by School by Journal Topic." This system is particularly useful for libraries assigning library resource and service costs to specific user groups. The possibility of extending this system through an XML schema of standardized event descriptors is under consideration.

## What is MINES for Libraries®?

This methodology deepens the institutional understanding of COUNTER/SUSHI data, and addresses some of the weaknesses of Web-based survey. Most Web surveys are nonprobability-based samples, and therefore not open to inferential statistical statements about the populations. The non-response rate for most Web surveys is high, and may introduce bias. Web surveys have in the past been used to collect data about users or about sessions, but not about usage. Therefore, the data they collect are not able to be related to the usage data collected by vendors of networked electronic resources. Web surveys, because they focus on users, are often collections of impressions or opinions, not of more concrete actual usage, and are therefore not trusted to yield reliable data that can be compared to itself longitudinally. They are often not based on actual, point-of-use usage, but upon predicted, intended or remembered use, introducing error. Web surveys may not appear consistently when viewed in different browsers, thus affecting the results in unanticipated ways. Because users have unequal access to the Internet, Web surveys introduce coverage error.[23]

Most sample counts are user studies, but are not linked to usage collected systematically, nor are the results comparable to peer institutions. Tenopir,[24] updated by Rowlands,[25] surveys user studies. One difference between the MINES approach and many of the other web-based user surveys recounted in Tenopir and Rowlands is the emphasis on usage. Although user demographic information is collected, this Web survey is really a usage survey rather than a user survey. The respondent must choose the Web-based networked electronic resource in order to be presented with the survey, therefore memory or impression management errors are prevented. Once the survey is completed, the respondent's browser is forwarded to the desired networked electronic resource. This approach is based on the random moments sampling technique. Each survey period is at least two hours per month, so each survey period in itself is only a snap-shot or picture of usage. Because the survey periods are randomly chosen over the course of a year and result in at least twenty-four hours of surveying, the total of the survey periods represents a random sample, and inferences about the population are statistically valid with a 95% confidence level and a low standard error (e.g., less than 2%). The MINES methodology is action research, historically rooted in indirect cost studies. It is a:

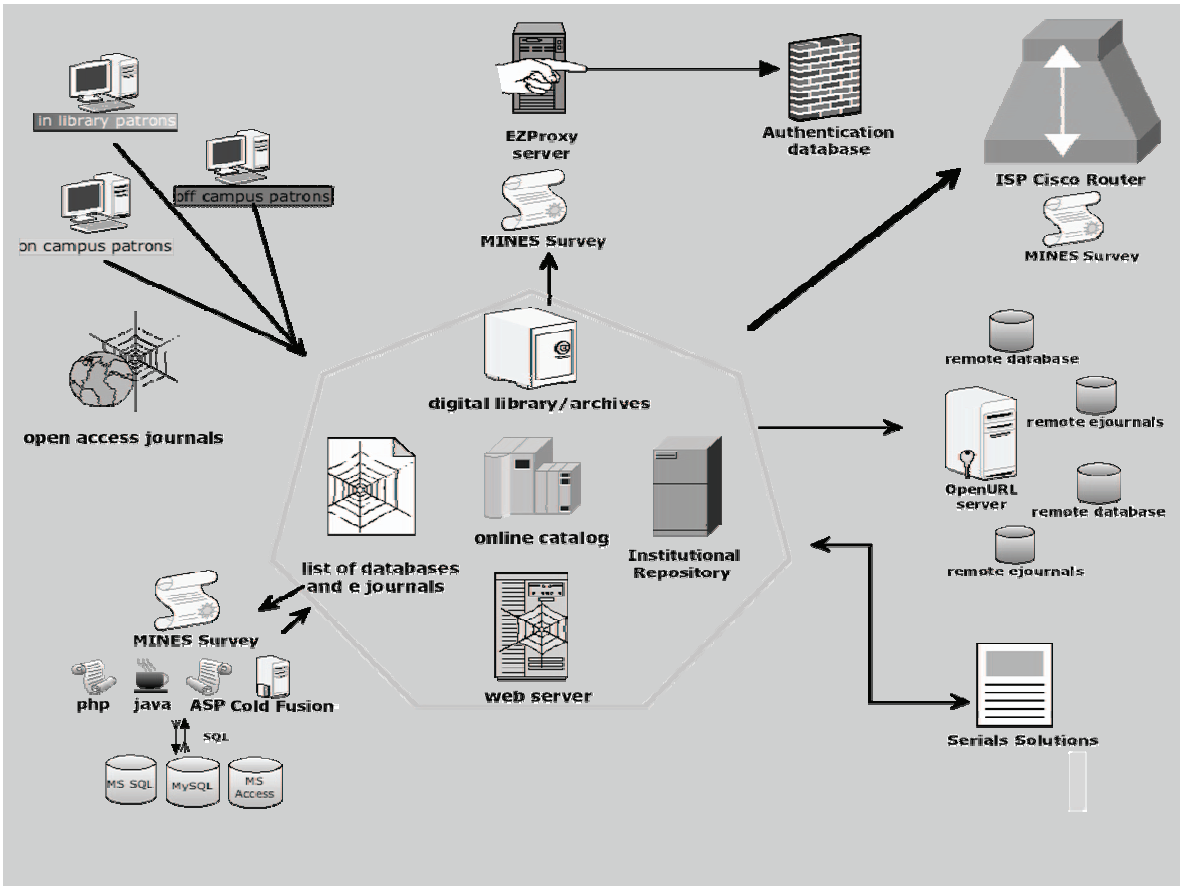
- set of recommendations for research design;
- set of recommendations for Web survey presentation;
- set of recommendations for information architecture in libraries; and
- set of validated quality checks.[26]

If scaled, this approach can serve as the basis for a plan for continual assessment of networked electronic resources, and an opportunity to benchmark across libraries

MINES has been administered at fifty North American libraries in the last five years through locally implemented indirect cost studies. More than 100,000 networked services uses have been surveyed at those fifty universities since 2003.[27] Under the aegis of ARL, the protocol has been administered at the above mentioned Ontario Council of University Libraries, where the study will be repeated and expanded in 2009. It has also been done at the University of Iowa, Iowa City,[28] and the University of Macedonia.[29] A similar study was done on the OhioLINK resources.[30]

MINES has followed the Web survey design guidelines recommended by Dillman,[31] which suggests a number of principles for the design of web surveys to mitigate the traditional sources of Web survey error: sampling, coverage, measurement, and non-response. To reduce the effects on the respondents of different renderings of the survey by different workstation browsers, the survey uses simple text for its questions. The survey is short, with only a few questions, easy to navigate, and plain. Questions are presented consistently, that is, with either radio buttons or drop down menus. A short paragraph explains the purpose of the survey, with IRB contact information, if required.

The MINES methodology also recommends a library Web architecture or a gateway in order to be certain that all respondents in the sample period are surveyed, and that Web pages other than the library website, bookmarks, short cuts, and other links all go through a central point. This networked assessment infrastructure is discussed in Franklin and Plum,[32] and has included rewriting proxy servers, openURL servers, federated searching, database-to-Web scripts for generating links, digital libraries, authentication systems, electronic resource management systems, and other gateways. However, because each solution must be implemented locally to enable the point of use survey, only libraries or consortia with strong IT departments can succeed with MINES. The following diagram illustrates the possibilities for redirects for a point of use survey.



In the different implementations of MINES, the survey has been placed at almost every node in this network topology, including the campus router.

MINES has a number of quality checks built into its implementation. The target population is the population frame, in that the survey surveys the patrons who were supposed to be surveyed, except in libraries with outstanding open digital collections. Usage is checked against IP or session ID to make certain that the survey is not tracking responses too promiscuously. The order of the questions are changed over time, particularly with the purpose of use. Workstation IPs are spot-checked against self-identified location. For the purpose of use questions, responses of undergraduates choosing sponsored research are spot checked to make certain that the undergraduate understood the question, thus mitigating measurement error. Sometimes the undergraduate sponsored research responses are mapped back to instruction. For sponsored research responses, there is an open-ended validity question asking for principal investigator, granting agency, name of the grant or some other piece of information about the grant to ascertain that the definition of sponsored research is being understood correctly. There are also discussions with the local librarians and pre-testing at every university to increase content validity. Finally, in some networked environments, turn-aways or the number of patrons who elected not to fill out the survey are tracked as a measure of non-response.

## Scaling of MINES for Libraries®

Currently, MINES for Libraries® is a strong beginning as a Web survey methodology and has been well documented. It has limitations however, and cannot fully meet the needs of different libraries to collect data about and assess the usage of their e-journals and databases by their local users. Additionally, the current protocol has limited scope that does not scale easily. It is currently measuring purpose of use, specifically, sponsored research usage, as distributed over status and affiliation of the users. Many libraries need different data about their users. A second major limitation is the information technology support required to implement MINES for Libraries® locally. Many libraries do not have an assessment infrastructure in place, and cannot be assured that a point-of-use, Web based survey would in fact capture all of the usage of networked electronic resources during the sample period.

The proposed project will have far-reaching impact by collecting data based on actual usage of networked electronic services and resources, and will provide libraries and consortia information about their user population and their reasons for using the resources. This project's overarching goal is to measure the impact of networked electronic services (MINES) in a scalable way across libraries and consortia in order to enhance digital library service quality and impact on learning by enabling the future allocation of resources to areas of user-identified need. To fulfill that goal, the project seeks to achieve the following objectives and outcomes:

1. To develop short, standardized Web surveys, based on initial work done for MINES for Libraries®, which can be placed at the point-of-use of networked electronic resources and services by (a) providing a set of valid and benchmarked questions by which libraries and consortia can learn about the usage of their resources, and (b) providing a recommended method of designing the Web-based survey, with a recommended set of survey rules and practices, also beginning with the work done on MINES, but expanded the protocol to include best practices.
2. To survey common network topologies and Web architectures in libraries and consortia and to construct an assessment infrastructure so that the Web survey can be administered at the point-of-use with the maximum number of users seeing the survey. This assessment infrastructure will (a) use popular authentication and access mechanisms such as EZproxy, openURL, ERMs, federated search, Shibboleth and others to develop a functioning survey gateway through which all user requests for networked electronic services and resources must pass. This gateway would redirect requests to the ARL StatsQUAL® servers to administer the survey, to collect and analyze data, and to return the request to the local resource. This approach is modular, based on existing technologies, but would set up a protocol between the gateway or authentication module and the StatsQUAL® servers.
3. To propose sampling methods for assessing the usage of networked electronic services and resources, which permit libraries and consortia to make valid and reliable inferences about their user populations by (a) analyzing the existing sampling method employed by MINES for Libraries and to develop other, equally or

more reliable and valid, sampling plans so that libraries and consortia can choose among several sampling plans for their particular environment, and (b) analyzing the differences between mandatory and optional surveys and survey questions, so that libraries and consortia can understand the differences between these possibilities.

4. To provide valid and comparable data to libraries and consortia based on the survey method to help them make sound management decisions about the effectiveness of electronic resources and services by (a) collecting the results of the surveys seamlessly on the ARL StatsQUAL® servers, (b) analyzing the results of the surveys and presenting them back to the participating libraries and consortia, and (c) providing tools for interpretation of the data and recommendations for actions that can be taken based upon the data.
5. To use (1) the recommended questions and survey design, (2) the recommended assessment modules, including EZproxy, openURL, ERM, Shibboleth, etc., (3) the recommended sampling plans, and (4) the ARL StatsQUAL® analysis to set up and implement simple and scalable survey methods for libraries to assess the usage of networked electronic resources and services that complement COUNTER vendor-supplied data. As the literature survey shows, a current trend is to enrich census data with deeper sample data. This proposal can build on COUNTER data to give libraries a richer picture of who is using which resource for what reason.

ARL has been working with authentication mechanisms such as EZproxy (which at present has a market penetration of approximately 2600 libraries and consortia) to explore the scalability of collecting user information on demographics and purpose of use across libraries. There are a number of universities that have implemented the survey through EZproxy, and it has proven to be one of the best mechanisms for administering the survey. Recently, the MINES survey has also been redirected from openURL link resolver such as III WebBridge, Ex Libris SFX, and Serials Solutions 360 Link.[33] If the library uses the openURL server to generate lists of journal titles in addition to links to articles, then the openURL topology is reasonably comprehensive, especially when coupled with other systems. Proxy rewriters and openURL applications are attractive survey points because they can be placed in front of many web resources and services, and they pick up both on campus and off campus activity.

Shibboleth (http://shibboleth.internet2.edu/), based on OASIS's Security Assertion Markup Language is a productive avenue for survey redirects, but to date Shibboleth is more common in consortial implementations outside of the US, despite the lengthy list of universities and colleges in InCommon (http://www.incommonfederation.org/participants). As Shibboleth becomes more inclusive of Web services in US university libraries and as it is adopted by more libraries, it would be a useful survey module to develop, but not in the first year.

Another opportunity for collaboration would be to arrive at a common understanding of the "session." ARL would collaborate with COUNTER and NISO to generate session definitions, perhaps similar to the definitions found in the COUNTER Code of Practice Release 3, which recognizes different definitions for a single resource and a federated search engine search. Session decisions would be made at the StatsQUAL® application servers.

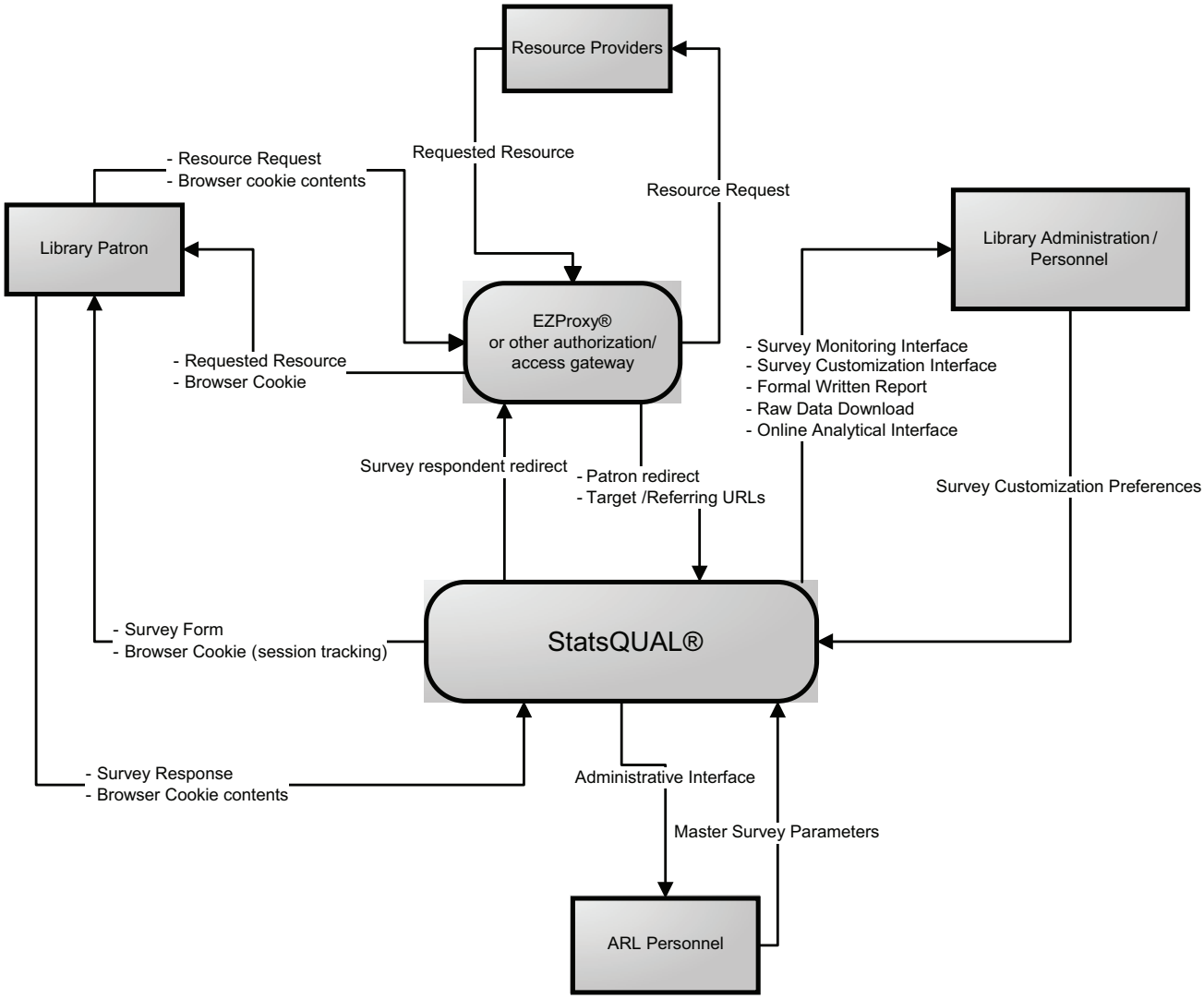
StatsQUAL® (http://www.statsqual.org/) is a mature statistical gateway for assessment tools for the library community. In addition to MINES for Libraries®, it now includes the following interactive datasets:

- ARL Statistics®, a series of annual publications that describe the collections, expenditures, staffing and service activities for ARL member libraries;
- LibQUAL+®, a rigorously tested Web-based survey that libraries use to solicit, track, understand, and act upon users' opinions of service quality;
- DigiQUAL®, a project for modifying and repurposing the existing LibQUAL+® protocol to assess the services provided by digital libraries; and
- ClimateQUAL®, Organizational Climate and Diversity Assessment, that measures staff perceptions about the library's commitment to diversity, organizational policies, and staff attitudes.

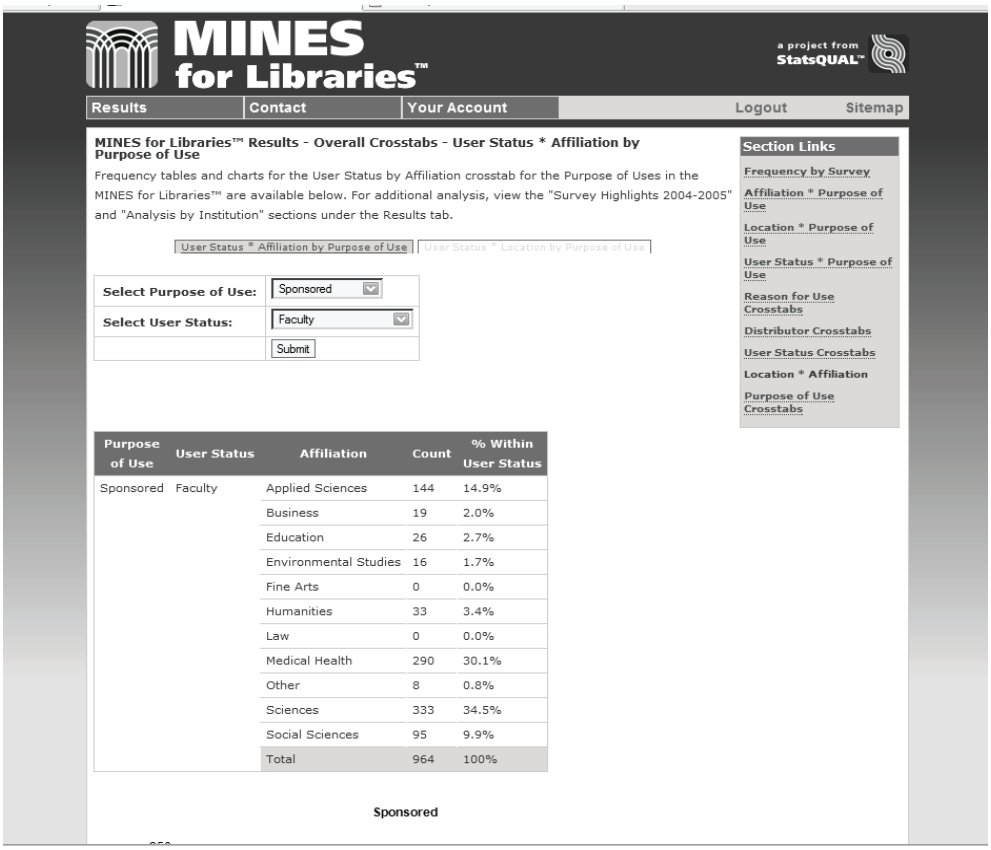
These tools help to describe the role, character, and impact of physical and digital libraries on teaching, learning, and research. The StatsQUAL® system allows for the presentation of these tools in a single interactive framework that integrates and enhances data mining and presentation both within and across institutions. This proposal would

establish a survey protocol for the values of the survey, session ID, new resource definition, which StatsQUAL® could ingest. The survey protocol would interact successfully from a number of different, currently used, authentication and access mechanisms in libraries. StatsQUAL® is a tool that allows for the authoring, mounting, administration, and management of Web-based surveys, the collection and storage of response data, and the dissemination and analysis of this data via export, reports, and online interactive capabilities for data analysis.

The following diagram is a model of how the different modules might work with StatsQUAL®, using EZproxy as the example module.




This project will collect data based on actual usage of networked electronic services and resources, and will provide libraries and consortia information about their user population and their reasons for using the resources. Based on these data, libraries and consortia can adjust their resources and services to better meet the needs of their users. These adjustments are more than collection development decisions—they are fundamental decisions about *who* the actual audience for these resources is, *where* that audience is working, *what* resources different client groups are using, and *why* they are using those resources. Here is an example of the interactive nature of StatsQUAL® reports developed specifically for the OCUL project.




Under this proposal, StatsQUAL® will accept Web-survey data from a variety of different modules, different institutions, and different questions, analyze them according to the needs of the participating libraries and consortia, and return that analysis to the institution. As data are collected, benchmarking categories will be developed so that institutions can compare their results to other similar institutions. These data will be of particular value to library consortia or digital state libraries, with a single point of entry or gateway. Online tutorials will be developed to support understanding and use of the results.

The evaluation of networked electronic resources and services are key elements in the delivery of digital library services. Building capacity for assessment and technical development in libraries is a critical element for delivering services effectively in the virtual world. Collaborative, iterative, and multi-dimensional assessment deploying mixed methods (qualitative and quantitative approaches) strengthens the role of libraries and their ability to meet the needs of their users. Point of use Web surveys holds considerable promise as key tool in the assessment toolkit libraries may deploy to improve the research, teaching, and learning outcomes of their users.

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# Building Frameworks of Organizational Intelligence: Strategies and Solutions Stemming from the Penn Libraries Data Farm Project

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## Abstract

At the University of Pennsylvania Libraries, staff have been experimenting with the development of an extensible schema for measuring library services at the event level. Events are comprised of predicable elements that can be shared over a wide range of interactions and include demographics, information about service genres, environmental variables such as time and location, and the programmatic features of scholarly activity that help describe the library's relationship to teaching and research. Known as Metridoc, this event schema provides a flexible XML expression of such data elements and allows for the integration of seemly disparate events (checking out a book or attending a library reference consultation) based on information about classes of users or the programmatic aspects of user activity. It also can be generalized across institutions to support collective measurement among different libraries.

This paper provides an overview of Penn's present MIS or Data Farm environment and current development toward the XML-based, Metridoc strategy for harvesting, storing and analyzing input from events.

## Overview

Since 2002, the University of Pennsylvania (Penn) Libraries have engaged in the construction of a management information system (MIS), as part of a wider organizational effort at evidence-based decision-making. The goal of this initiative has been to foster a culture of assessment, that is, an organizational habit, supported by staff at all levels, that employs quantitative and qualitative statistical methods in planning, evaluating, and carrying out service. To facilitate the inculcation of assessment practices, the Libraries established an office of Management Services; its charge: to find, structure, and organize a wide range of transactional data resources in formats that staff can easily access and use to improve service delivery.

The centerpiece of Penn's MIS activities is the Data Farm project. This paper summarizes the current design and implementation of Data Farm and contrasts the current framework with an evolving strategy that employs an XML data model, referred to as Metridoc, and a tiered architecture which supports data collection and processing within the Metridoc context.

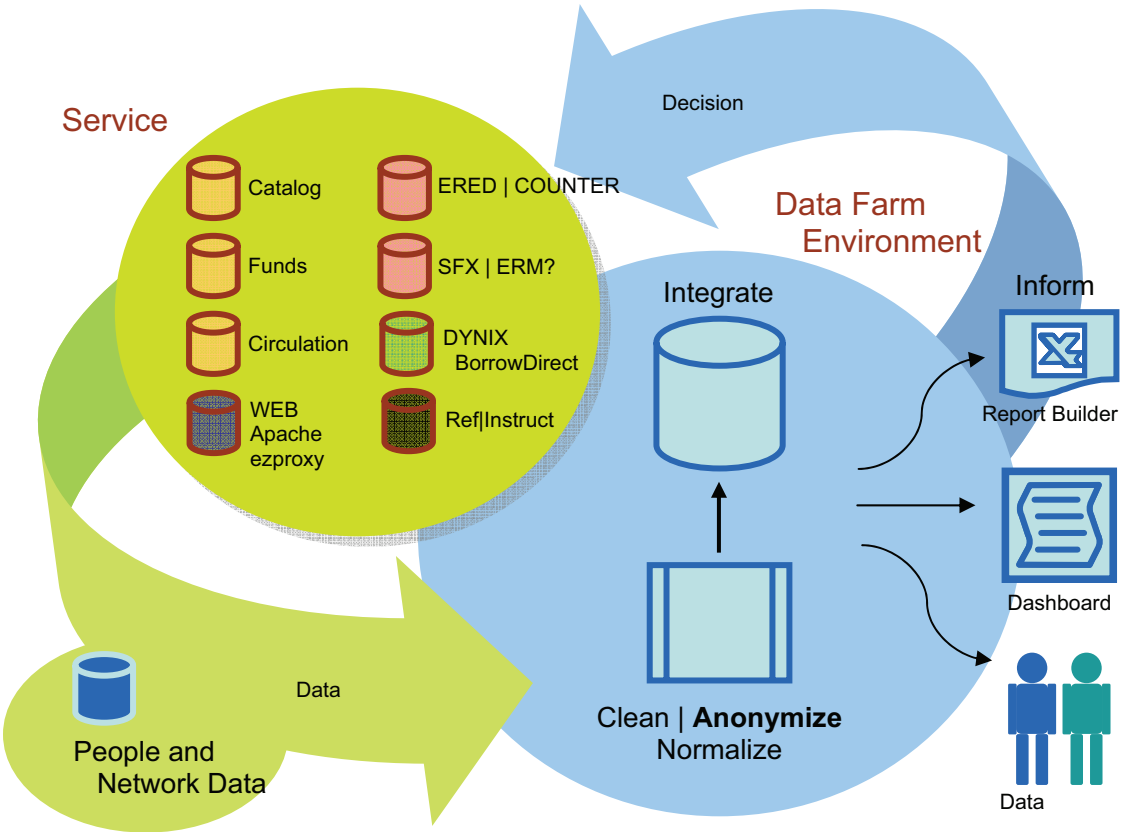
## Data Farm

Data Farm is a relational database and repository of a wide range of transactional data. These include information related to collection development and use of print materials, use of a wide range of networked digital resources—including but not limited to COUNTER data, Web and EZproxy log data, financials derived from the Voyager Library Management System, interlibrary lending transactions for two multi-state consortia, and several data sources that track building use. The system also stores a significant quantity of data that staff have provided, in the conduct of research consultations and instructional services. And the system is used by central administration for annual reporting needs, including the compiling of data for third parties such as ARL and AAHSL.

In addition to transactional sources, the Data Farm derives people information from campus systems that allow for the demographic description of transaction variables and the subsequent anonymizing of the MIS data stream.

Penn has constructed a variety of mechanisms for processing and interacting with the Data Farm repository; these include dashboard reports, dynamic report builders, scheduled processes that delivery output to specific consumers on periodic cycles, and a data service bureau that helps staff with ad hoc use of Data Farm source information.

**Figure 1: Data Farm Schematic**




At present the Data Farm contains approximately 200 tables in an Oracle database and many gigabytes of accumulated data in a storage array attached to the Oracle server. The system also makes use of ODBC drivers to query the Voyager system in both asynchronous and real time applications.

## Designing Silos

Data Farm has received increasingly greater use as the Libraries' staff has grown more fluent with its services and managers have collaborated in creating new applications. Since 2006, the use of Data Farm for collection management particularly has spiraled. The system conducts automatic surveys of students who use the main Library's research consultation service, and it has been invaluable in beginning the analysis of the EZproxy service, specifically for what that service reveals about the use of electronic information by demographic classes of the university.

While the range and intensity of use is on the rise, it is apparent that certain complex types of analysis and the integration of transactional data flows are extremely difficult to achieve in the current Data Farm setting. This limitation relates directly to the opportunistic and project-based evolution of Data Farm tools. The system today, while rich in raw data resources, is highly siloed. For example, bringing fund data together with usage statistics requires a good of off-line processing. The previously mentioned processing of EZproxy data is especially labor intensive. In addition, the Libraries' Management Information Services office would greatly like to reduce the development time for new projects and expedite ad hoc research based on Data Farm sources.

Penn's experience with Data Farm thus has been valuable in providing a vantage point for re-architecting the system in order to improve data integration, realize greater flexibility in development, and achieve sustainability. Two things are crucial to this important revision: 1) an extensible data model for describing and capturing transactional events and 2) a multi-tiered architecture build around services, such as identity

resolution and anonymization, resource description, data normalization, database ingestion and end-user interfaces.

## Event-driven Model

The proposal for a more robust and flexible MIS must include an extensible data model that represents elements or characteristics of service events. Every user interaction with a library service, from logging into MEDLINE to charging out a book to participating in a bibliographic instruction session, can be parsed into a series of well-structured variables. These include (but are not limited to) the event's:

- environmental features (date, time, physical and virtual location, etc.);
- user demographic factors (users status and organizational affiliation);
- bibliographic or content descriptors;
- service genre (e.g., electronic resource provision, research consultation, courseware function);
- budgetary attributes; and
- the users programmatic attributes (a feature, such as course enrolment, that defines a relationship to the university that is temporary and at variance with permanent demographic factors such as departmental affiliation).

This list is not exhaustive, but can be further extended depending on the scope and resource attributes of the service. Within this extensible structure, one can conceive of describing events not yet offered by the library, or even events that might be in the purview of non-library agencies on campus, such as the registrar. In this respect, Metridoc addresses an enterprise interest in data gathering and can be generalized across one institution or among many, which have collaborative interests.

This sample slice of an EZproxy log entry helps illustrate the concept of an event and how it might be represented in the branching stems of an XML schema.

**Figure 2: Sample Event taken from an EZproxy log involving a search of the PsychInfo database.**

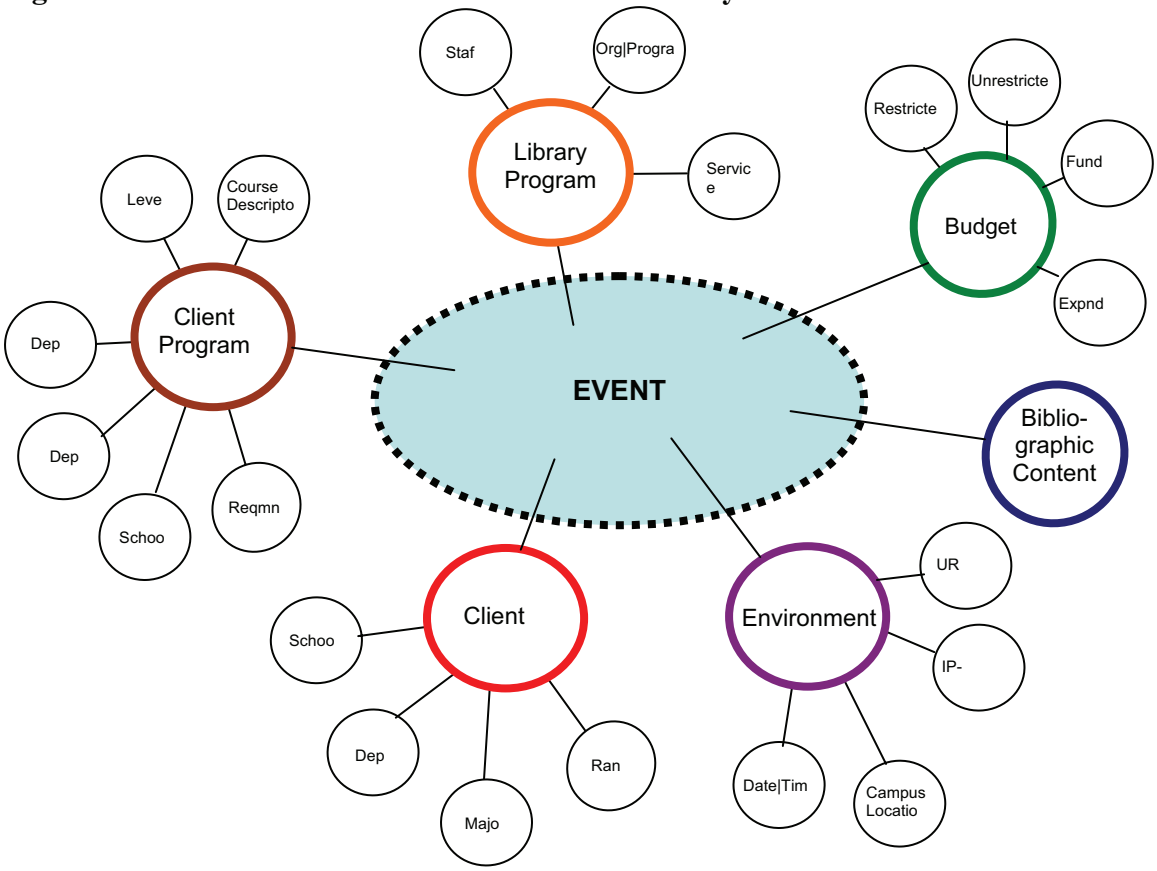
xxx.xx.xxx.xxx|-|zucca|[26/Jul/2007:15:41:01 -0500]| GET https://proxy.library.upenn.edu:443/login?proxySessionID=10335905&url= http://www.csa.com/htbin/dbrng.cgi?username=upenn3&access=upenn34&cat=psycinfo&adv=1 HTTP/1.1| 302|0|http://www.library.upenn.edu/cgi-bin/res/sr.cgi?community=59| Mozilla/5.0 (Macintosh; U; PPC Mac OS X; en) AppleWebKit/418.9.1 (KHTML, like Gecko) Safari/419.3| NGpmb6dT6JXswQH|__utmc=94565761; ezproxy=NGpmb6dT6JXswQH; hp=/; proxySessionID=10335514; __utmc=247612227; __utmz=247612227.1184251774.1.1.utmccn=(direct)| utmcsr=(direct)|utmcmd=(none); UPennLibrary=AAAAAUaWP5oAACa4AwOOAg==; sfx_session_id=s6A37A3E0-3B8E-11DC-80E9-85076F88F67F

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1) The entry contains a wide range of environmental information marked in blue. This includes an IP address [in the first position marked by a series of Xs] that can shed light on the users work space, a date and timestamp, browser and computer platform indicators [in this case, the Safari browser used on a Macintosh running OS X], and a referring URL that represents information about the library Webspace that the user navigated through to connect to PsychInfo.
2) In the second position, the entry |zucca| is a Penn campus credential that can be resolved into anonymous demographic attributes which include departmental affiliation and status.
3) A SessionID variable can be traced to a library tracking system which reveals that this event did involve a request for PsychInfo. To that information we can combine budgetary data within the Metridoc construct, along with information about the staff and library organizational program that support the Psychology community. And finally,
4) The log references a link to an SFX open URL connection that can be used to cite a journal article viewed within this EZproxy session.

In summary, the log provides an array of interesting vectors, including resource usage, environmental factors, technological capabilities, demographics characteristics, Web site navigation, and acquisition fund information and it points to the particular library staff that might be interested in seeing larger aggregations of similar events.

**Figure 3: Events as an Abstract Structure for Library Decision Metrics**




Metridoc provides a method for describing in similar ways any event level service interaction. Since every event so captured shares a common data model, disparate events can be integrated for analysis either through extraction into data processing applications of by means of a query language.

## A Tiered Architecture

In the Metridoc setting, Data Farm is composed of several tiers of services. At this writing the principal components of this architecture are still in development, but it is possible to present the framework schematically, which forms three tiered concept (see Figure 4).

### Tier 1. Data Ingest

The primary components of data ingestion include 1) a software client designed to harvest information from data sources such as logs, flat data files, or content from relational database tables. The client essentially contains instructions specific to the source that allow the client to discriminate among data elements and create an output stream of only desired variables. The information harvested by the client is passed to a resolver whose task is to populate a Metridoc representing a service event. The resolver also looks up personal and other kinds of information embedded in the output file and performs any required anonymization or normalization. User IDs, for example, are dropped in favor of demographic elements, IP addresses are mapped to campus locations, bibliographic information is normalized.

The resolver follows instructions based on Metridoc schema stored in a schema repository. As mentioned, a separate Metridoc conforms to properties defined for every event that is of interest.

Staff use an administrative interface to develop and store new Metridoc event schemes in the repository.

### Tier II: Database Layer

Metridoc XML is loaded into a relational database that provides the engine for analysis. The loader process occurs using a soap connection that links the schema repository and resolver (both on the ingest tier) with software that leverages XML to create relational database tables. In the Schematic, this software component is labeled the SQL Generator. The generator functions a bit like a prism, taking the underlying elements of a Metridoc and splitting them into the columns of a table. New tables are spawned from Metridocs stored in the schema repository. Once created, tables are updated using SOAP processes that link the resolver and the SQL Generator.

### Tier III. MIS Tools and Services

The SQL Generator, via SOAP connection, also enables user interaction with the Data Farm database. Programs perform a range of scheduled and ad hoc procedures based on SQL commands. Data sets can be output in various formats for import into Excel, SAS, Oracle, or other database platforms. And the system can generate dashboards or routine reports on period cycle using Web forms or RSS.

In the end our goal will be to decouple the creation of statistics and the dissemination of quantitative information from the technologies that harvest and manage event level data. In this way we believe the Data Farm project can nimbly adapt to changing hypotheses and information needs without the having to redesign the underlying MIS.

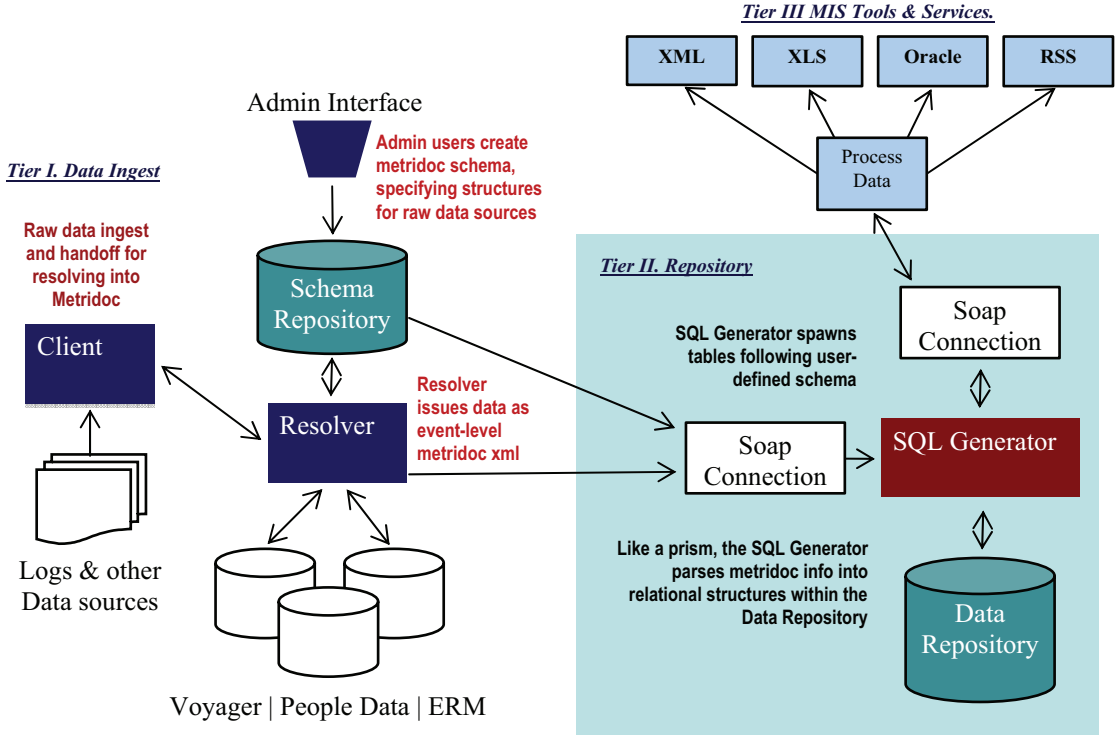
## Conclusion

In its present instance, the Penn Library Data Farm project has been an effort to understand the basic mechanics of a management information service within a library organization. The project has provided a medium for foundational work focused on

- methods of capturing and configuring raw data,
- techniques for building and managing a data repository,
- solutions for a wide range of workflow problems, from securing logs to writing programs to archiving large data sets,
- concepts of data presentation and, most important, and
- fostering the practice and value of evidence-based management.

(See next page for Figure 4 and continued text)

**Figure 4: The Future Architectural Scheme of Data Farm**




These challenges continue as Data Farm's range of applications expands and as we apply new tools to the problems of assessment. The principal drivers going forward will be to increase the resolution of our management data and thus refine the focus of our organizational intelligence. The ability to measure simple rates of consumption, using standards such as COUNTER, will retain importance. But we also need more facile methods for developing audience metrics, for performing financial analysis, for better understanding user behavior and using that information to refine our information systems, and ultimately, for exploring the intersection of use, quality, and customer satisfaction.

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# LibQUAL+® and the Evolution of "Library as Place" at Radford University, 2001-2008

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## Abstract
How satisfied are our students and faculty with the gradual, continuous changes made to the library's physical spaces over the last seven years? A meta-analysis was done on the mean adequacy gap scores and comments from the "Library as Place" dimension of four LibQUAL+® surveys. It showed an increase in user satisfaction: graduate students (+9.2%), undergraduates (+4.1%), faculty (+0.6%), overall (+4.4%). We found this project to be effective in providing useful actionable results, practical to set up and maintain, and sustainable through support by the library and the university administration.

## Introduction
Since the opening of the Stacks Café in 2001, continuous, incremental changes and improvement have been made to the internal physical spaces of Radford University's John Preston McConnell Library. This strategy was dictated by the limited and fluctuating availability of funding that prevented a wholesale gutting and remodeling of the library's interior. The changes made were based in a large part on the data received from the four LibQUAL+® surveys of our users conducted during this same time period.

In addition to the Stacks Café, other changes to the library spaces included new furniture in the classrooms and lobby, construction of group study rooms, and improved signage in the form of large flat screen information screens placed in the lobby and reference areas, the two busiest locations. Hours of operation were extended, opening earlier in the morning, closing later in the evenings and weekends. To combat the growing ambient noise problem, the fifth floor became a designated quiet area. One of the two library classrooms became a quiet area for individual study, while the other was available for group study. Both library classrooms became "no cell phone zones."

The goal of this study is to determine if our users were satisfied with these changes, as measured by the LibQUAL+® mean adequacy gap scores for the "Library as Place" dimension. In particular, we are interested in the satisfaction of our primary user groups (undergraduates, graduate students, and faculty) with these changes.

## Background
Radford University is a public, four year comprehensive university located in the mountains of Southwestern Virginia. It is primarily an undergraduate teaching university with 350 teaching faculty and a basic Carnegie classification of Master's L. The enrollment averages about 9200 students: 8000-8200 undergraduate and 800-1000 graduate students.

## Literature Review
The assessment of the role of the library's physical spaces in student learning go back to at least the 1960s and 1970s in the published literature.[1] There are also reports of the large and dramatic increase in user satisfaction with newly library buildings or with remodeled older structures.[2] A variety of assessment methods were used in these studies, including gate counts, staff observation, focus groups, and locally generated surveys.[3] However, no published accounts were found that used LibQUAL+® data to specifically examine the changes in user satisfaction with changes to a library's physical spaces.

There is data available from the 2003-2008 LibQUAL+® survey sessions that indicates the relative satisfaction of the undergraduate, graduate student, and faculty user groups with the "Library as Place."[4] An examination of the mean adequacy gaps scores for these groups indicates that in general the undergraduates and faculty are more satisfied with the "Library as Place" than are the graduate students (see Table 1).

**Table 1: Mean adequacy gap [a] scores from the "Library as Place" dimension for the LibQUAL+® Colleges and Universities user groups.**

| Year | User Group | | | |
|---|---|---|---|---|
| | Undergraduates | Graduate Students | Faculty | All Groups |
| 2004 [b] | 0.59 | 0.45 | 0.67 | 0.57 |
| 2005 | 0.53 | 0.21 | 0.54 | 0.43 |
| 2006 | 0.54 | 0.31 | 0.50 | 0.45 |
| 2007 | 0.53 | 0.37 | 0.53 | 0.48 |
| 2008 [c] | 0.60 | 0.38 | 0.57 | 0.52 |
| All Years | 0.55 | 0.34 | 0.55 | 0.48 |

*Note.* [a] Weighted by sample size. [b] First year data is available. [c] Only Session I (January-June) data available.

So what did we expect to find from this study? First, as the published literature demonstrates, dramatic changes to a library's physical spaces such as extensive remodeling, yield dramatic, immediate increases in user satisfaction. By extension then we anticipate that the incremental changes that we can afford to implement will yield modest gains in user satisfaction over time. Second, we expect that our findings will show that our students and faculty will have a general pattern of satisfaction with the "Library as Place" similar to that shown in Table 1.

## Methodology

This study is a non-experimental research synthesis or meta-analysis of the score and comment data from four LibQUAL+® surveys. Meta-analysis is a statistical method used to combine results across comparable studies.[5] Though examining the same phenomena, these studies often use different sample populations and incompatible metrics. In a meta-analysis, the results of these studies are converted to a common standardized metric, weighted by inverse variance or sample size, and then averaged into a single result.[6] This result summarizes all the previous findings into a single value that possesses a greater statistical power, accuracy, and credibility than any result from the individual contributing studies.[7]

### Metrics

In this study, the common metric will be an effect size metric. It has two advantages over traditional null hypothesis testing metrics such as Student's t. It can provide a result that has both a magnitude (how much) and the direction (positive or negative). A traditional null hypothesis testing metric such as the *t*-test can only yield a yes/no (significant/not significant) result.[8]

### Cohen's *d*

This study will examine the average difference in satisfaction between the library user groups over time. Therefore, Cohen's *d* (or *d*) a standardized mean difference effect size metric was chosen. The *d* statistic is a commonly used metric that expresses a mean difference in terms of standard deviation units.[9] For example, a *d* of 0.30 is a positive effect (direction) that three-tenths of a standard deviation in size (magnitude). It is relatively easy to understand and communicate to non-specialists.[10] That is, the larger the mean difference (*d*), either positive or negative, the greater the likelihood that the difference is meaningful.[11]

### Odds-ratio and *Logit d*

A version of the *d* statistic called *logit d* will be used in the synthesis of the comment data. First the frequency of positive and negative comments is converted to the odds-ratio (*OR*) a non-standardized effect size metric. It is then converted to a standardized form *logit d*.[12] *Logit d* is mathematically equivalent to *d*, so it can be averaged with the latter in the meta-analysis phase of the data analysis.[13]

### Confidence Intervals

Cohen's *d* and *logit d* are sample mean estimates. Such estimates contain a certain amount of sampling error. To show the degree of sampling error, a confidence interval (*CI*) is constructed around it. It also shows the degree of accuracy of the estimate in terms of a given probability, commonly set at 95% (*.95CI*).[14]

### Binomial Effect Size Display

Although it is relatively easy to understand the *d* statistic, it may be easier to communicate the results to a non-specialist such as a library director or university administrator as a percentage difference. The binomial effect size display (*BESD*) is a metric that expresses a standardized mean difference as a percentage difference (or change). It is also mathematically equivalent to the *d* statistic. Therefore, one can express any effect size *d* result as a percentage change. For example, an effect size *d* of 0.30 is equivalent to a *BESD* of 15%.[15]

### Practical Significance

How did we measure success? How large does the final effect size *d* have to be to trigger any action? To provide answers to those questions we created an interpretative framework that gives practical meaning to the results at the local level. It provides an explicit if somewhat subjective criteria for determining success, as well as what the results are actionable or not, within the context of locally available resources and political realities (see Table 2).

**Table 2: Practical significance criteria**

| Success level | Practical significance | Action criteria | | Action |
|---|---|---|---|---|
| | | *d* | *BESD* | |
| Complete | Users satisfied | 0.31 or more | 15.1% or more | Celebrate! |
| Partial | Users somewhat satisfied | 0.3 to -0.30 | 15% to -15% | Look for improvements; implement changes |
| Unsuccessful | Users unsatisfied | -0.31 or less | -15.1% or less | High priority review/change |

### Data Collection

This study uses the score and comment data from four previous LibQUAL+® surveys administered to our faculty and students in 2002, 2005, 2006, and 2008. LibQUAL+® is an online, Web-delivered survey designed to capture user satisfaction with a library's quality of service in three areas (or dimensions): Affect of Service, Information Control, and Library as Place.[16] It is a nationally normed instrument that consists of twenty-two core questions, plus five optional local questions, and a free text comment box. Each core question is rated on a 9-point scale by each respondent for minimum acceptable level of service (Minimum), desired level of service (Desired), and current level of service (Perceived).[17]

### Data Analysis

The level of analysis for both the score and comment data was the LibQUAL+® dimension. Specifically, the focus was on data relating to the "Library as Place" dimension. Changes to the survey between 2002 and 2005 meant that only four aspects of the dimension were comparable (see Table 3).

**Table 3: The comparable questions that define the "Library as Place" dimension modified for this study.**

| LibQUAL+® survey questions | |
|---|---|
| 2002 | 2005 and after |
| Q21 "A comfortable and inviting location" | "LP-3 A comfortable and inviting location" |
| Q23 "A contemplative environment" | "LP-1 Library space that inspires study and learning" |
| Q10 "A haven for quiet and solitude" | "LP-4 A getaway for study, learning, or research" |
| Q2 "Space that facilitates quiet study" | "LP-2 Quiet space for individual activities" |

Unlike the score data, the comment data is not analyzed or reported in the results notebook provided by LibQUAL+®. Instead, each comment was analyzed locally to see which dimension (if any) was the best fit for it.

### Score Data

From this data, the mean adequacy gap scores were selected for use. The adequacy gap is the difference between the Perceived and Minimum levels of service. The larger the adequacy gap, the more the library's quality of service is exceeding the users' minimum expectations. Hence the more satisfied the user. Also the mean adequacy gap scores tend to be more normally distributed than the mean Minimum, Perceived, or Desired scores.[18] This makes the mean values more stable and representative of the central tendency of the scores. The mean adequacy gap scores used in this study were taken from the analysis notebook provided by LibQUAL+® for each survey.[19] Any additional manipulation of the data was done using the SPSS and Excel software.

### Comment Data

The comments were analyzed using the ATLAS.ti qualitative analysis software. Each topic within the comment (if more than one) was coded (or tagged) as positive, negative, or suggestion for improvement and by the dimension into which they best fit (if any). The frequency for each type of code was determined. Only the positive and negative comments from the "Library as Place" dimension were of interest for this study. To determine if the improvement comments could be excluded from the analysis, all the comments were subjected to a chi-square test of homogeneity.[20] It showed that there was no relationship between the positive, negative, or improvement comments. A follow-up chi-square test of association showed that there was no relationship between the improvement and positive comments, nor between the improvement and the negative comments.[21] Therefore, the improvement comments were excluded from further analysis.

### Meta-analysis

The data and respondent types (undergraduate, graduate, and faculty) were organized into comparison groups:

- Faculty: 2006 v. 2002
- Graduate students: 2005 v. 2002, 2008 v. 2005
- Undergraduates: 2005 v. 2002, 2008 v. 2005
- All groups: 2005/6 v. 2002, 2008 v. 2005/6

Note that for this study, the 2006 faculty and 2005 student LibQUAL+® results were treated as if they were from the same survey year in the "All groups" comparison group. The effect size for each comparison group (Cohen's *d* for the score data and the odds ratio/*logit d* for the comment data) was determined using the ClinTools Effect Size Generator software. The final weighted average effect size *d* for 2002-2008 was determined by combining Cohen's *d* and *logit d* from each comparison group. The results were reported as *d*, *.95CI*, and *BESD.*

## Findings

The average response rate was highest for the faculty and somewhat lower for the graduate students. The undergraduate rate was one-third to one-half that of the other two respectively (see Table 4).

**Table 4: Average response rate, representativeness, and comment rate.**

| User Group | Population (N) | Response rate | Representativeness | Comment rate |
|---|---|---|---|---|
| Undergraduates | 8175 | 10.7% | -13.1% | 32.9% |
| Graduate students | 884 | 22.4% | +7.4% | 37.2% |
| Faculty [a] | 654 | 28.4% | +8.6% | 36.1% |
| All groups | 9494 | 12.5% | NA | 34.1% |

*Note.* [a] Faculty: full-time and part-time Teaching & Research, Special Purpose, & Administrative/Professional Faculty.

Both the faculty and graduate students are slightly overrepresented in the sample, while the undergraduates are somewhat underrepresented (see Table 4). This makes the sample somewhat biased in favor of the faculty and graduate students. However, since these percentage for each group are not large (c. $\pm$10%), it is assumed that the results are not fatally biased in favor of any one

group or sub-set of groups. About a third (33% - 36%) of the respondents also provided comments. This percentage was highest among the faculty and graduate students, while being slightly lower among the undergraduates.

The meta-analysis of the combined mean adequacy gap *d* and the comment *logit d* yielded an overall positive result (*d* = 0.9, *BESD* = 4.4%), albeit a small one (see Table 5).

Table 5: Meta-analysis of mean adequacy gap and comment data

| User Group | *d* | *95% CI* | *BESD* | *N*[a] | Success level[b] |
|---|---|---|---|---|---|
| Faculty | 0.01 | -1.17, 1.19 | 0.6% | 333 | Partial |
| Graduate Students | 0.19 | -0.91, 1.28 | 9.2% | 823 | Partial |
| Undergraduates | 0.08 | -0.44, 0.60 | 4.1% | 4134 | Partial |
| All groups | 0.09 | -0.35, 0.53 | 4.4% | 5289 | Partial |

*Note.* [a] Mean total N for the years under comparison. [b] Complete success ($d > 0.3$, $BESD > 15\%$); Partial success ($-0.3 \leq d \leq 0.3$, $-15\% \leq BESD \leq 15\%$); or Unsuccessful ($-0.3 < d$, $-15\% < BESD$).

The graduate students had the highest gain in satisfaction with the "Library as Place," with the undergraduate satisfaction gain about one-half that, and the faculty registering a very small gain.

In terms of practical significance, the results are a "partial success" for all the groups. Both the *d* and *BESD* statistics are within the -0.3 to +0.3 or -15% to +15% ranges respectively (see Table 3).

## Discussion

An unexpected finding was the order of satisfaction gained by user group. Based on an examination of the mean adequacy gaps in Table 1, the expected order of gain by group (highest to lowest) is Undergraduates, Faculty, and Graduate Students. The actual order found for our user groups is Graduate Students, Undergraduates, and Faculty. More importantly, the undergraduates, who make up the vast majority of those using the physical library, were only half as satisfied as the graduate students with the library as place.

Why is this? At this point I don't really know. I can however offer some educated speculation. It may be due primarily to the changing expectations as user group membership changes. Assuming an average time to graduate is four years for undergraduates and two for graduate students, enough time passed between 2002 and 2008 to graduate 1.5 undergraduate classes and 2.5 graduate student classes. Traditionally the faculty is the least transitory group. However during the same period about 50% of the faculty left or retired early due to a series of state-sponsored buy-outs. I speculate that the incoming graduate students are more satisfied because they are not on campus long enough for the changes to become the norm. Undergraduates, on the other hand, are with us about twice as long (four years vs. two years) so any changes we make quickly become the new norm. Much of the faculty is relatively new and from research universities with much larger, better furnished research libraries. They seem less impressed with our efforts.

The results are also a humbling reminder that ultimately, "all assessment is local." It is important to track regional and national trends, but equally important to be mindful of the needs and preferences of your local university users.

The use of practical significance criteria to evaluate the findings was helpful in determining what to do next. Since all the findings were "partial successes" there was no cause for dramatically overhauling the process. Instead, we decided to continue with the systematic, incremental improvement to the "Library as Place," resources permitting. Based on a further examination of the 2008 LibQUAL+® comment data, we made the following changes. The Front Desk was created from a merger of the Media Services and Circulation desks in order to improve access to media equipment. It also made more room available in the lobby area for new furniture and a new coffee shop. To reduce the noise level on the quiet floor, we used new and existing furniture to create spaces designed to encourage individual study and discourage group study. We also increased the monitoring and enforcement of the quiet policy by scheduling an hourly "walk through" of the fifth floor by a reference librarian. Plans for future changes include new furniture for the lobby area, painting of walls in reference area, and the creation of designated group study spaces

in the reference area by reorganizing the reference collection and moving the reference desk.

## Conclusions

This study shows that the assessment of our "Library as Place" is effective, practical, and sustainable.

### Effective

Our methodology of using meta-analysis to evaluate the LibQUAL+® data from four surveys was sound and statistically defensible. It told us both what we did want to hear (e.g., our users were satisfied with our efforts), as well as what we did not wish to hear (e.g., the undergraduates, the primary users of the library space, were only half as satisfied as the graduate students). To be effective, we need to know the painful and unpleasant as well as the positive and happy results. Otherwise, how can we improve and meet the needs of our users?

### Practical

The metrics we used are not difficult to understand and have practical meaning at the local level. They can be presented mathematically in a number of equivalent ways as either a *d* or *r* or *BESD* statistic). In turn, this makes it easier to find a statistical version for a finding that is familiar and readily understood by a given academic administrator. The use of practical significance criteria for evaluating the relative importance of the findings provided for actionable results meaningful at the local level.

### Sustainable

We are fortunate to be at a university with an administration committed to assessment. Our LibQUAL+® surveys are funded by the university's Office of Academic Assessment. It pays (literally) to build positive relations with your university assessment officer. In our case, they provide the money. In return, we provide the Office of Academic Assessment with copies of all the raw data and analyses furnished by LibQUAL+®, as well as any we generate locally.

Our library administration fully supports assessment as well. With their support, it is relatively easy to set up ongoing data analysis with the "long view" in mind. Think of these analyses not as a one-time events designed to generate conference presentations or publications, but as long-term projects. For example, for the Library as Place Project, I am working to structure the LibQUAL+® SPSS data files and Excel spreadsheets so that future data can be entered and the analysis runs itself with minimum adjustment by me.

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## Endnotes

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# Using Evidence for Library Space Planning

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## Abstract

Faced with expanding collections and a rise in student population, Jackson Library, the main library of the University Libraries at The University of North Carolina at Greensboro, made the decision to hire a space consultant in order to repurpose existing library space in front of an addition still 7-10 years away. In order to provide information useful to this project for both the consultant hired and decision- making administrators, the library developed a program and conducted an assessment of space usage.

The three-part assessment program included surveys, observation studies and focus group discussions that generated evidence and data useful to influence the work of the space consultant. In addition, the assessment information gathered provided library administration with a list of service enhancements that could be implemented immediately without a large capital outlay.

The final recommendations that came from the space consultant's work is supported by evidence gained from the library's assessment activities as well as feedback and suggestions from library faculty and staff. This process also became a first step in the development of an ongoing culture of assessment activities to improve library services and promote the learning value of the libraries as a place.

## Introduction

The Walter Clinton Jackson Library is the main library of the University Libraries at the University of North Carolina at Greensboro (UNCG). Jackson Library includes the 3-story Main Building, constructed in 1951, and the adjoining 10-story Tower, completed in 1973. Library space in the two buildings is approximately 220,550 square feet of total space with 14,648 square feet of common user space and seating for approximately 849 users. The building is aging and we have no promise of an addition for 7-10 years. Our Special Collections are at capacity which makes it difficult to expand our unique holdings— an area academic libraries are increasingly emphasizing. In 2006, UNCG received a new Carnegie classification of "high research." As a result, faculty are expected to produce more research which the Libraries want to support actively. In order to provide our users with the spaces, services, and resources needed for a 21st century university, we are challenged to use our existing space to its best advantage. To assist us with future renovations, we engaged in more formal space assessment and hired a space consultant to advise us on space planning.

## Background

Over the past decade, we have made numerous renovations and changes to accommodate collections and student body growth. In 1995, when the book Tower reached its original capacity for materials, 12,000 linear feet of shelving was added which reduced seating capacity by 50%. Also in 1995, a remote storage facility was obtained which is also now at capacity with 90,000 volumes. Another change in the mid-1990s was the installation of the Superlab in the Library space formerly occupied by Technical Services. This lab is administered by UNCG IT (not the Libraries) and was in response to the need at that time for a large number of open computers for use by students. Since 2000, our enrollment has grown from 13,343 to 17,257 and is projected to be 24,000 by 2020. As a result, our gate counts have increased 42% since 1995.

In 2005 and 2006, the Associate Dean for Public Services visited several student organization meetings. The consistent messages emphasized a request for 24-hour space, the ability have food and drink in the Library, the need for group study and concern over the building's "gloominess." Additional suggestions included adding more comfortable furniture and displaying art work. In response, numerous cosmetic changes were made between 2005 and 2006 including carpeting major public areas, updating the blonde 1950s paneling and purchasing new furniture including more comfortable chairs and couches. A large open area on the first floor was renovated and refurnished to create a pleasant study space and is also used for

rotating art shows. The food policy was changed to allow food and covered drinks. Group and quiet floors were established in the Library Tower. Wireless capability was added throughout most of the building as well. Also in 2005, a connector between Jackson Library and the adjacent Elliott University Center (EUC) was completed which provided improved handicapped access and a physical link between two major areas of student activity. The Library/EUC connector also provided a second entrance to the Library.

In 2007-2008, we addressed the need for electronically- enhanced study as well as 24-hour space. The information commons theme was established in both Jackson and the Music Library by adding additional software to many of the public computers (previously all public computers only accessed the Internet). These computers are now restricted to UNCG users but we have retained several workstations for the general public that are limited to Internet only. Training was provided so that staff could help students with basic technology questions. A small learning commons area was created on the first floor with plasma screens, white boards, and connectivity for laptops as first-come, first-served group space. Also, additional electrical outlets were added throughout the first floor so that students could plug in their laptops. With support from the University Teaching and Learning Center, collaboratories that may be reserved were created on the Tower floors in existing group spaces. These rooms also provide plasma screens, outlets for laptops and white boards, and two rooms have podiums to serve as presentation practice space. Due to increased expectations for group work in the curriculum, these rooms have been very heavily scheduled and students have been requesting more of them. In January 2008, a 24/5 space was opened which was immediately very successful.

Gate counts and anecdotal evidence indicated that traffic in the Libraries greatly increased after these improvements were made. Formal assessment, however, had not been conducted. In September 2007, the Libraries hosted a visit from the ARL Effective, Practical, Sustainable Assessment Team to advise us on best practices in assessment. One of their recommendations was that the University Libraries engage in more qualitative assessment. At the same time, the Libraries had undergone a strategic planning process in 2006-2007 that recommended expanding Archives space to provide more room for unique collections. The re-visioning process also called for a larger instruction lab and reduced print government documents and reference collections. To assist us in planning future renovations it was determined that we should hire a space consultant.

A proposal was approved for bidding and bringing in an outside firm to evaluate Jackson Library's space usage and needs. Because a planned addition is years away, the primary goal of the consultant was to recommend changes in the building attributes to sustain growth for both collections and user spaces over the next 10 years. The specific goals outlined in the bid for a space consultant consisted of the following:

- Expand space allocated to Special Collections and University Archives, which had grown beyond current ability to house collections properly.
- Provide space to house a larger instructional lab, which currently seats 20 but needs to seat at least 40 students.
- Recommend an alternative location for the print Government Documents Collection.
- Provide recommendations on people-oriented space and service points including additional group study space (including electronically-enhanced group space), Digital Media Center, Data Services Center, current periodicals and microform readers.

## Purpose of the Study

To learn more about how students use Jackson Library and their satisfaction with it, and to prepare for the consultants, a library space study was planned with both quantitative and qualitative methods to gather evidence. We also sought hard data to present to the space consultant for programming ideas related to future renovations and data to present to University Administration for funding requests. In addition, it was an opportunity to gain student input on previous changes and to plan for future needs and make sure our ideas were meeting student needs. Our study sought to learn:

- What areas of the Library students use;
- What furniture they prefer;
- Are they studying alone or in groups?
- Are they using Library materials or their own?
- When are they here? and
- What is the role of the Library in their academic life.

As evidenced in initial feedback from students,

user space needs were changing, so collection of data that would support students' expectations and needs of library space was crucial in developing credible and useful repurposing recommendations. It was determined that an important part of this process was to provide the space consultant with assessment information so that decisions were made from the user perspective.

This study was also about repurposing existing space in lieu of adding additional space; it was, therefore, important to ensure that a credible methodology and process was in place to guide recommendations. The study's importance to space repurposing was significant to ensure that the project could bridge the Libraries' needs for the next 8 to 10 years.

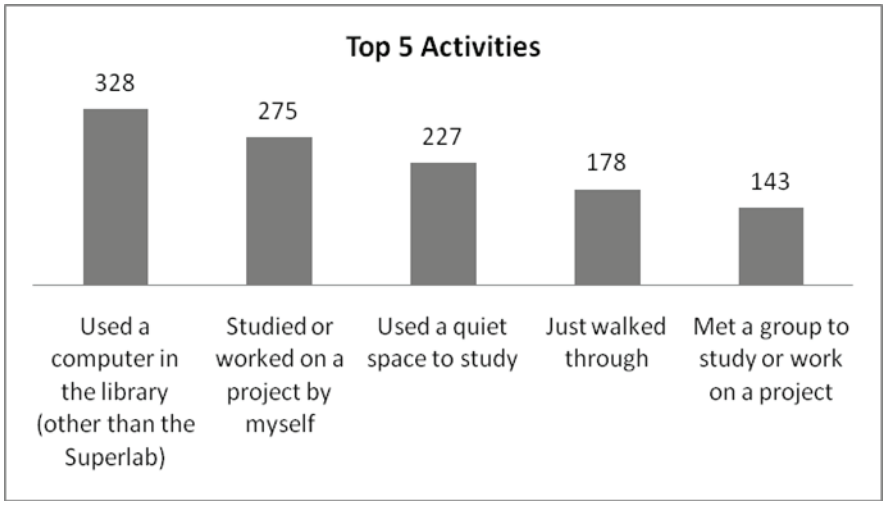
The study included three phases: an in-house survey, observation studies, and focus groups. The phases were designed to complement and support each other by using information gained from one to validate the others, plus provide a framework in which to operate. These phases all received IRB approval and followed the guidelines set forth by the UNCG's Office of Research Compliance.

## In-house Survey

In November 2007, we started with an in-house survey conducted during one full week. The survey was a brief checklist (see Appendix 1) that took 5 minutes or less to complete. We set up a table in Jackson Library and staffed it with student employees for 10-12 hours a day. Each student that filled out the survey received a Libraries' key chain/ID card holder. We had 600 responses and a big factor in the large response rate was due to having peers staff the table which encouraged fellow students to take the survey. 84.1% of the respondents were undergraduate students and 10.7% were graduate students. Only 1.5% were faculty.

The checklist provided twelve options for what they did that day at the Library. They could choose all that applied so the results are not mutually exclusive. The top five activities indicate that the majority of them came to use a computer and/or to study quietly by themselves. Group study, however, did rank among the top five activities:

**Figure 1**



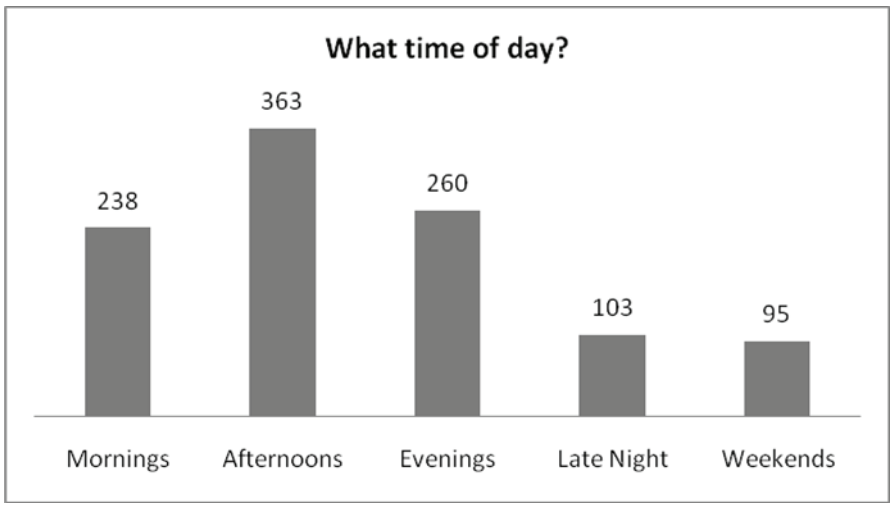

Students were also asked how many times a week they usually come to the Library and most respondents indicated they come several times a week:

**Figure 2**




When asked what time of day they use the Library most responded that afternoons or evenings were the preferred times:

**Figure 3**



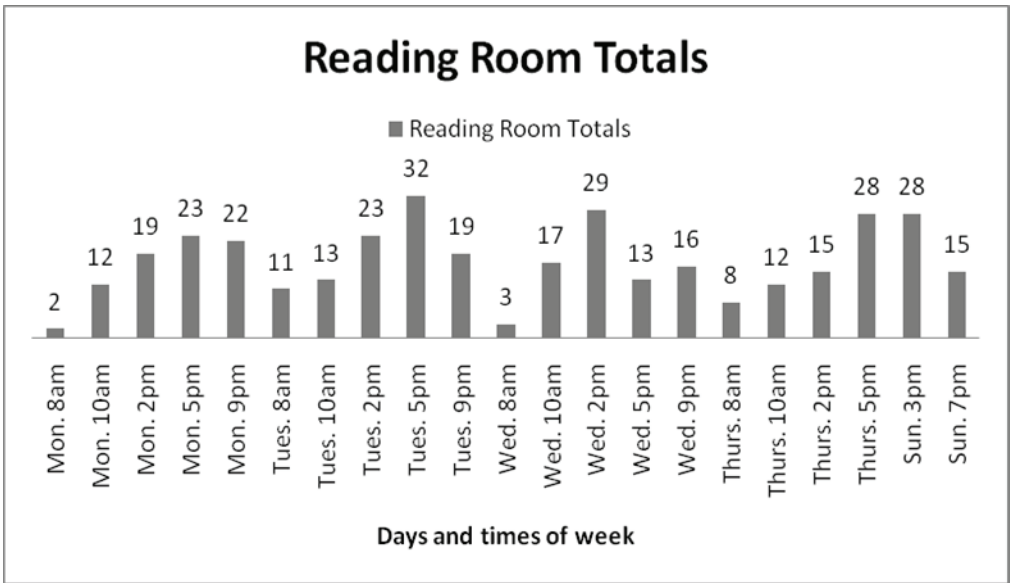

A space was provided for comments to improve the Library. Most suggestions requested longer hours (the survey was done before 24/5 was implemented), vending or a food court, better enforcement of quiet areas, additional group spaces, recommendations for specific books or journals and for more recreational material, more computers, color copiers and printers, a fax service, and complaints about the coldness of the building.

## Observation Studies

To gain more information about use of the building we conducted twenty-two observations during various times of the day and evening one week in March 2008. A checklist (see Appendix II) was used to record various activities of users in several public areas on the first floor and on one quiet floor and one group study floor. A student from UNCG's Library and Information Studies Department joined the study as a practicum project and conducted several of the observations.

For each area we did a total head count during each observation to determine the most populated times of the day. The Reading Room on our first floor is a large area where current periodicals and newspapers are kept. A variety of seating is available including comfortable chairs as well as tables and chairs. Seven login computers are also available.

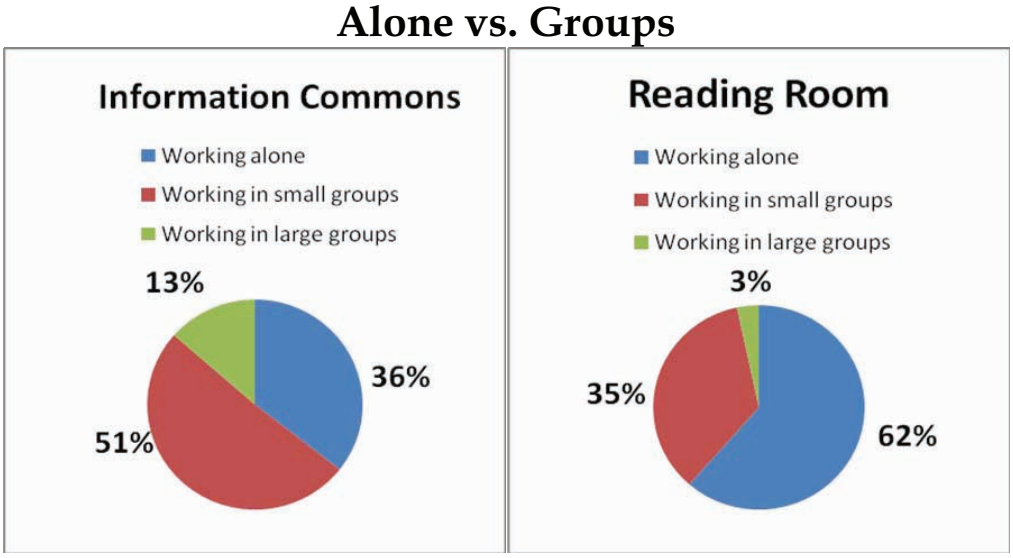
**Figure 4**




The observations confirmed the in-house survey that afternoons and evenings were the most populated times.

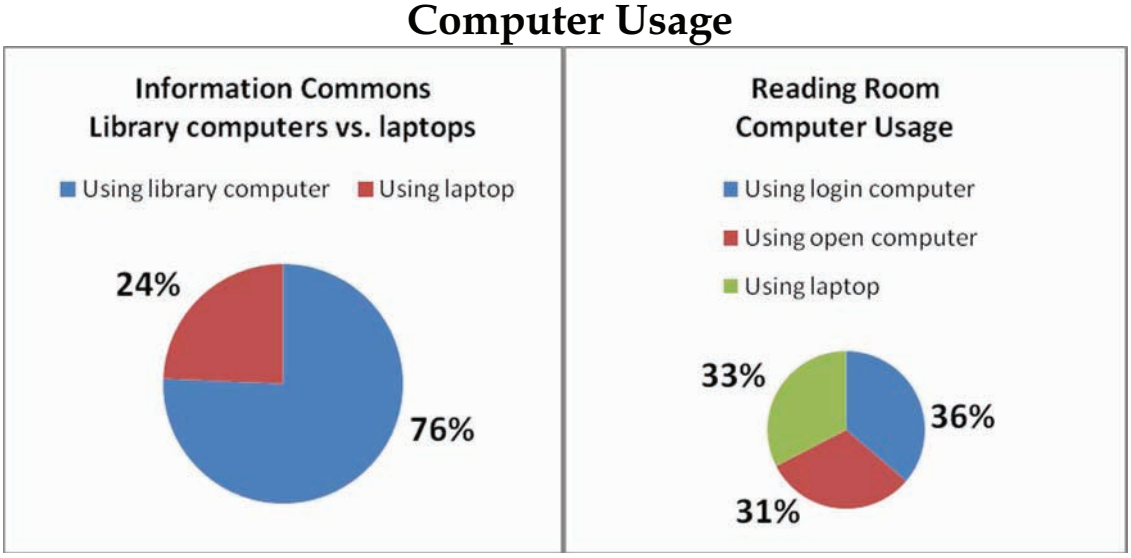
We also recorded how many people were studying alone, how many were studying in small groups (2-3 people) and how many were studying in large groups (4 or more). Again, the observations confirmed the in-house survey. In most areas of the Library the majority of users were working alone except for areas that were specifically designated for group work. Of those working in groups, most were in small groups rather than large ones.

**Figure 5**



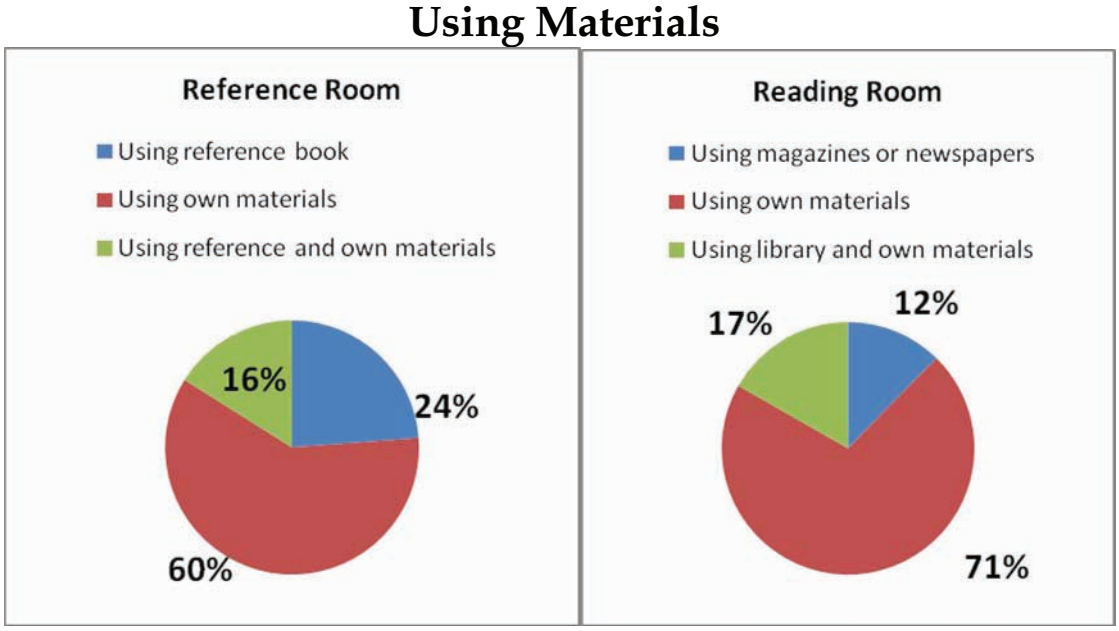

We also wanted to expand on the in-house survey to determine how many students were using library computers and how many were using their own laptops. Of the library computers, we noted how many were using login and how many were using open access workstations. In areas where computers are provided they are heavily used nearly all times of the day and are used more than laptops. In other areas where fewer computers are available students were using laptops.

**Figure 6**



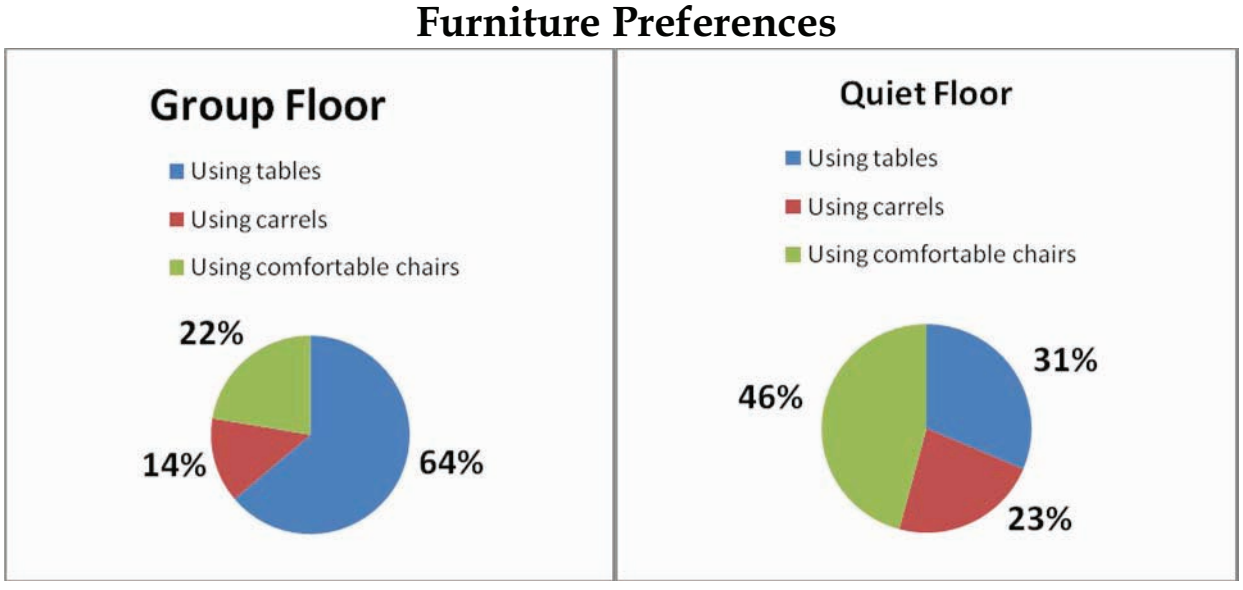

One factor that wasn't assessed in the initial survey was how many students come to the Library to use our materials and how many come to study their own. To determine if students were using library materials, observers were asked to note unobtrusively if users were using books with call numbers, periodicals, or newspapers, or if they were browsing in the stacks. In all areas of the Library the vast majority of students were using their own materials:

**Figure 7**




Another factor not covered in the survey was furniture preferences. In areas where different types of seating are available we noted how many were sitting at tables and how many were using comfortable chairs. In group areas, tables were preferred while in quiet areas soft seating was more popular:

**Figure 8**




## Focus Groups

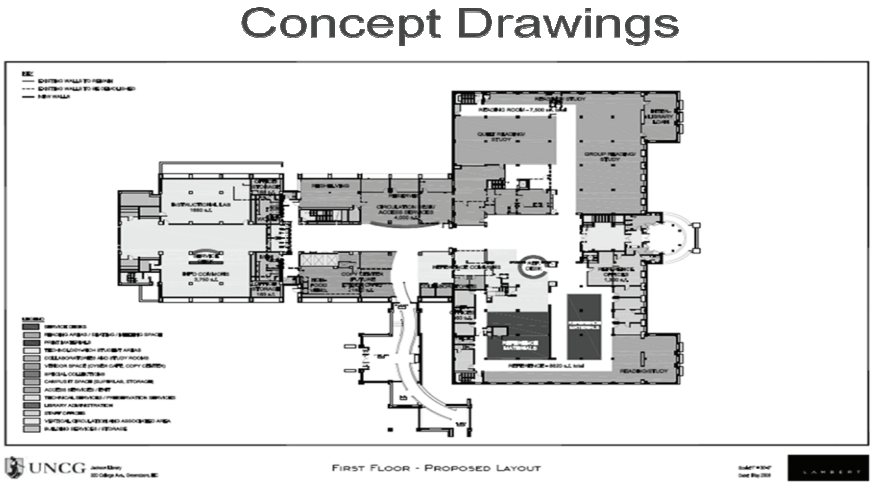
Once the space consultants had begun their initial work and data from the surveys and observation studies had been gathered, it was determined that a qualitative evaluation of this information was needed. We chose focus group discussions as a useful tool for adding depth and perspective to the work accomplished so far. The preparation work for implementing this activity included reserving conference room space, creating a multi-dimensional schedule, providing for an incentive and advertising for participants through campus

organizations, and a poster in the Library. The LIS student that worked with us on the observation study also assisted in the note taking and acted in a gatekeeper role for clarification of terms or language used or intent of comment from a student's point of view.

In April 2008, six focus group sessions were conducted coinciding with the space consultant's presentation of their first concept drawings. The students represented a good mix of undergraduate/graduate, traditional age/adult and on-campus/commuters. All students that participated received an iTunes gift card.

The sessions provided the opportunity to show the concept drawings in order to gain feedback and comments on the consultant's ideas presented so far. Other targeted topics that the groups were asked to respond to included: frequency of visiting the library and which entrance was used, what they do while in the library, if they use library materials or their own, and if they usually study alone or in groups. We also asked about the role of the Library in their educational experience (see Appendix III). The concept drawings also helped match these topics with appropriate locations in the Library.

**Figure 9**



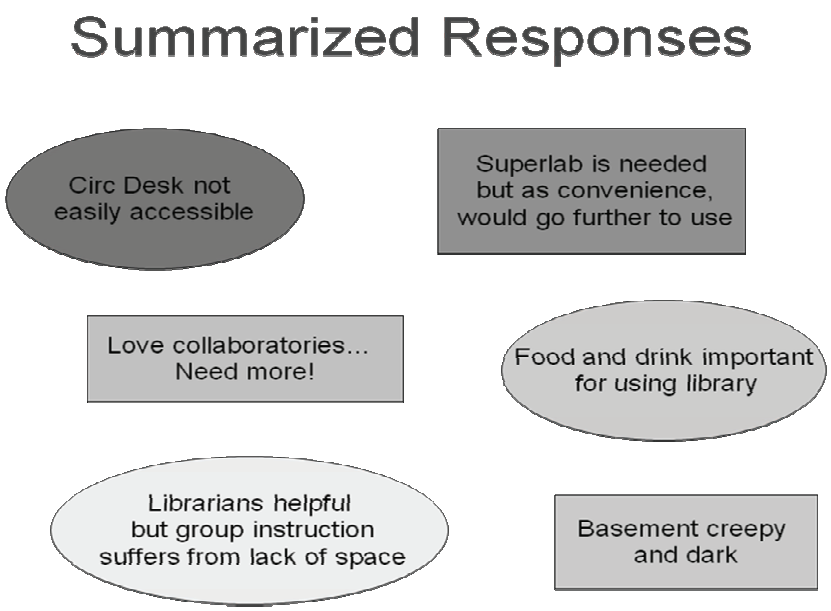

The focus group information was shared with the space consultants, particularly comments relating directly to changes being proposed on the concept drawings. This feedback provided the opportunity for the space consultants to make adjustments or tweak the ideas being proposed. Several important topics discussed greatly influenced the space consultant's report. For example, students' desire for services such as food and drink and enhanced copy and fax services reinforced these ideas and affected their location and exposure. Many students commented that the current Check-Out Desk and security gates provided a bottleneck and they favored the concept that moved it to another location. Another example was the changing purpose of the Superlab. Because most students now own a computer they aren't as dependent on campus labs but still like to use them for convenience while on campus.

Student feedback from the focus groups provided useful information on their perceptions, desires, and needs as it related to space. And while their overall view of the library as a place was important, the comfort and convenience provided makes a difference in how they use the space productively. A change in the need for a large computer lab is an example of this view. Highlights of the focus group results included:

- Jackson Library is important as a studying and gathering place both for commuters who don't want to drive home or elsewhere and for residential students who need to stop between classes or find a quiet place to study.
- Undergraduate students surveyed and who participated in discussions use the Library more for the space it provides, rather than the materials it offers.

- Upper-level undergraduates and graduate students expressed a stronger need for materials, especially electronic resources. This is consistent with field literature but had not been a distinction we had made before.
- Most students have their own computers now, either because of the campus laptop initiative begun in fall 2007 or as a normal household component. These developments change their need for computer accessibility and the amount of exposure within the building.
- Access both physically and virtually is important. We already knew this but the context was more clearly defined as it relates to comfort and convenience.
- Food and drink are important for convenience and comfort and helps keep students in the Library for longer periods of time.

**Figure 10**




The focus group discussions provided significant influence on the final space consultant's report and were the impetus for changes to several of the recommendations. Examples of this influence included:

- pepositioning the Access Services desk;
- moving the SuperLab to a more destination-focused location;
- expanding electronically-enhanced group spaces;
- remodeling the main building basement to create space more appropriate to people and services rather than materials;
- expanding services such as café, copy center and newsroom ideas; and
- expanding the instructional lab.

## Other Insights Gained

The assessment project also provided insight into other areas not specifically related to space assessment. Students commented that even though they own laptops they prefer not to bring them to campus. We discovered a lack of awareness of many services such as IM reference, printing, lockers, and carrels. Since many of the participants were upperclassmen we learned that many had not received library instruction as freshmen. Because we now have a first-year instruction coordinator, we hope that situation has already been remedied. Several actions already took place in the fall of 2008 to address issues discovered in the assessment:

- expanded 24/5 space and added vending;
- implemented laptop checkout;
- increased popular seating options;

- offered carrels to all students in addition to graduate and honors students;
- installed a digital messaging board to advertise Libraries services and programs to users and those who "just walk through";
- increased marketing of IM and other services;
- appointment of an assessment team that will develop a plan and oversee assessment for the University Libraries; and
- appointment of a Post Space Assessment Committee to follow up on recommendations and make future plans.

## Summary and Conclusions

Jackson Library is facing a problem not uncommon to academic libraries that have seen substantial growth over the years. Although we need to expand to meet the needs of a growing academic community, funding is not available because of higher priority needs at the University. Adapting older buildings to current needs is a universal challenge. Our assessment study is a very practical one that can easily be applied at other institutions.

The study provided data that was useful in a variety of ways. It provided firm evidence for things we suspected such as the building being more important than materials for undergraduates and the fact that the Superlab was not as necessary as it once was. There were also some surprises! We had no idea that copying and faxing were still such important services, for example. We also didn't realize that the Check-Out Desk bottleneck was an issue.

It was extremely useful to have student feedback for the space consultant. Their report provided a five-year plan for renovations that included input from the study. In addition library staff was assessed for their reactions and responses to proposed changes and students perceptions of anticipated changes. The final report was shared with the University's Dean's Council, which includes the Provost and deans from the College of Arts and Sciences and each School, with a request for funding. It will also be presented to donors as funding opportunities. The space report recommendations take into account plans for a future addition and serves as a transition to that plan. Because the data and methodology from this study were so useful we will engage in similar activities for future space planning.

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## Appendix I

**In-house survey**

**Help Us Help You -- Tell us about your Library visit!**

**What did you do at the Library today? (check all that apply)**

___Met a group to study or work on a project (1)
___Studied or worked on a project by myself (2)
___Used a computer in the Library (other than the Superlab) (3)
___Got help from a librarian for my research (4)
___Checked out a book (5)
___Read a print magazine or newspaper (6)
___Used a book in the Reference area on the 1st floor (7)
___Used a quiet space to study (8)
___Attended an instructional class (9)
___Used a group computer lab (Collaboratory) (10)
___Just walked through (11)
___Other (please explain) (12)

**Was your Library visit successful? ____Yes** (1) ___**Partly** (2) ____**No** (3)
**Please comment: (You may use the back of this sheet if needed)**

**When you visit the library you usually:**

- Use which entrance? ___Connector (1) ___College Street entrance (2)
- Come how many times a week? ___once (1) ___2 to 3 (2) ___4 or more (3)
- Spend how much time? ___in and out (1) ___10 to 15 minutes (2) ___an hour (3) ___2 to 3 hours (4) ___more than 3 hours (5)

**Visit what time of day?** ___mornings (1) ___afternoon (2) ___evenings (3) ___late night (4) ___weekends (5)

**Information about you:**

___Undergraduate student (UNCG) (1)
___Graduate Student (UNCG) (2)
___Faculty (UNCG) (3)
___Student from another college or university (4)
___Faculty from another college or university (5)
___Community Patron (6)
___ Friends of the Libraries (7)
___High School student (8)
___Other (please explain) (9)

**If you had one suggestion to improve the Library what would it be?**

## Appendix II

**Observation Study Checklist**

Date_____ Day _____
Time_____

**Reference Room**
**Available seating 108**
**Available computers 17**
**(7 open access, 9 login)**
**Total sitting in room_____**
___Number of people working or sitting alone
___Number of people in small groups (2-3)
___Number of people in large groups (4+)
___Number using a login computer
___Number using an open computer
___Number using a laptop
___Number using a reference book
___Number using their own materials
___Number using both reference and their own materials

**Reading Room**
**Seats 103**
**Computers 7**
**Total sitting in room_____**
___Number of people working or sitting alone
___Number of people in small groups (2-3)
___Number of people in large groups (4+)
___Number using a library computer
___Number using a laptop
___Number reading magazines or newspapers
___Number using their own materials
___Number using library and their own materials

**Information Commons**
**Seats 58**
**Computers 5**
**Total sitting in room_____**
___Number of people working or sitting alone
___Number of people in small groups (2-3)
___Number of people in large groups (4+)
___Number using a library computer
___Number using a laptop
___Number using their own materials
___Number using library materials
___Number using library and their own materials

**2nd floor Tower (group study floor)**
**Seats 90**
**Computers 1**
**Total sitting on floor_____**
___Number of people working or sitting alone
___Number of people in small groups (2-3)
___Number of people in large groups (4+)
___Number using a library computer
___Number using a laptop
___Number using their own materials
___Number using library materials
___Number using library and their own materials
___Number using 261
___Number in 274a
___Number in 274b
___Number at tables
___Number at carrels
___Number in comfortable chairs

**9th floor Tower (quiet floor)**
**Seats 54**
**Computers 3**
**Total sitting in room_____**
___Number of people working or sitting alone
___Number of people in small groups (2-3)
___Number of people in large groups (4+)
___Number using a library computer
___Number using a laptop
___Number using their own materials
___Number using library materials
___Number using library and their own materials
___Number at tables
___Number in comfortable chairs
___Number at carrels
___Number in Jewish Studies Room

**Additional Observations:**

Definitions:

Counting groups: 3 groups of 2 = 6 people
Using Library materials: a judgment call. Look for books with call numbers on the spine or magazines and newspapers.

**Appendix III**

## Focus Group Questions

Dorm Students
Non residential undergraduates
Graduate Students
Music Students

1. How often do you come to the Library?
    a. How long do you usually stay?
    b. What do you do (purpose)?
    c. Do you also visit either side – EUC or caf?

2. When you use a library computer, what do you use it for?
    a. School Work, ex. Online class, research, library web page, shopping?
    b. Do you ever bring your own computer?

3. What entrance do you usually use?
    a. College Ave., why, where do you typically come from?
    b. Connector, coming from EUC, parking or what?

4. What is the best thing about the Library?
    a. Services used?
    b. Space attributes type of seating, noise or no noise, study carrels, materials on hand, being with people, etc.?

5. What needs the most improvement?
    a. Match improvement needs to study habits, for example, it's too noisy (I'm looking for quiet) or I can't get together with my study group, (not enough group space.

6. What do you see as the role of the Library?
    a. Related to class work?
    b. Related to college life?
    c. Related to other expectations such as using the public library as a child

# Wayfinding Revisited: Improved Techniques for Assessing and Solving Usability Problems in Physical Spaces

**David Larsen and Agnes Tatarka**
University of Chicago, USA

## Abstract

This study documents how University of Chicago researchers analyzed the efficacy of changes made in response to a 2005 "wayfinding" study, in which users were asked to locate specific titles within a library. That wayfinding study demonstrated that none of the test subjects could find all three requested titles in their proper location, and a number of wayfinding obstacles were identified. In an effort to eliminate these obstacles, library staff worked with outside consultants to design and implement a comprehensive and consistent sign system. Multiple shelving sequences were combined into a single collection, clearer terminology was adopted based on user feedback, and directional aids were created to highlight the distinction between reference and circulating collections.

The study improved on the wayfinding study methodology in three areas: 1) subject recruiting techniques, 2) data capture, and 3) data analysis and presentation. The improved protocol clearly demonstrated that the changes made in response to the initial study were effective. Four out of ten subjects in the new study were able to find all three books without prompting. Some problems uncovered in the previous study appear to have been corrected while others seem less severe. However, new wayfinding problems were uncovered. Further refinements continue to be made to improve usability of our collections, which will be assessed in future studies. Furthermore, a recent LibQUAL+® study received many fewer comments about not being able to find material in the library, further confirming the efficacy of recent changes.

## Introduction

At the 2006 Library Assessment Conference, staff from the University of Chicago Library presented on a wayfinding study they had conducted in 2005.[1] This study was prompted by the results of a LibQUAL+® survey conducted the previous year that generated a surprising number of comments about missing materials or not being able to find books in the library. In an effort to understand the problems reflected in these comments, the bookstacks manager undertook an analysis of the reports submitted by users when they could not find an item. This analysis revealed that 22% of the items searched were shelved in the correct location, indicating that part of the problem lay in an inability to navigate the collections. But at what point(s) in the process, from finding the item in the online catalog to locating the item on the shelf, were users encountering problems?

Our 2005 wayfinding study attempted to answer this question. The protocol was simple—we gave the study participants a list of three books to find and then we followed them around. The facilitator encouraged the participants to think out loud throughout the session, while the note taker attempted to capture both the steps taken and any comments made. The results were not very encouraging. Of the twelve first-year college students who participated, none was able to find all three books without at least some prompting.

Following the study, the research team recommended a number of improvements including:

1. Design a map/signage system that would provide wayfinding information at the point of need;
2. Whenever possible, consolidate separate call number sequences in the reference areas into a single sequence;
3. Identify and implement more intuitive terminology for library spaces; and
4. Conduct a follow-up study to gauge the effectiveness of the changes made.

## Changes Made after the 2005 Study

In order to design a map and signage system, the Library worked with a class in Visual Communications at the School of the Art Institute of Chicago. Students in this class were divided into

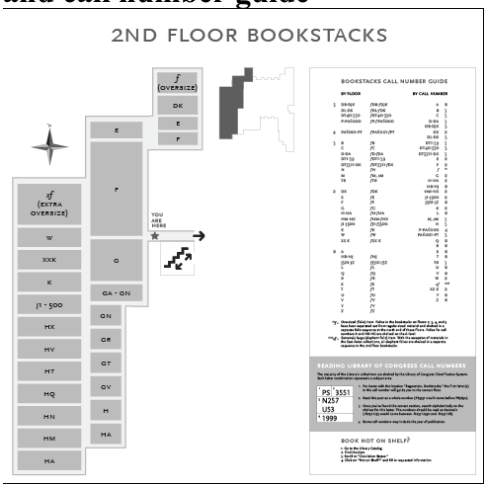
teams and required by their instructor to develop and present their solutions to the Library's wayfinding problems. Based on their presentations, the library chose one team to continue working with Library staff to design and implement a comprehensive approach to maps and signs.

This group reviewed the original design proposal and suggested revisions based on budget constraints, construction and installation issues, and maintenance concerns. Their next step was to design and install prototypes (Figures 1 and 2)

**Figure 1: 2nd floor full floorplan**




**Figure 2: 2nd floor bookstacks map and call number guide**




Another recommendation from the 2005 study team was to consolidate the reference collections on each floor. These collections consisted of a number of subject-specific reference materials that were located on separate shelves and organized in their own call number sequences. For most of the books in these collections, the online catalog records specified only the floor location, and it was left to the user to determine where it was shelved on that floor based on the book's subject matter. Our first study made it clear that most users were not able to successfully navigate these multiple sequences. The Library consolidated several of these reference collections in the following year, and when these collections could not be consolidated because of space or for other reasons, a collection name was added to the catalog record. For example, "Regenstein, Reading Room, Floor 4" became "Regenstein, Floor 4 Judaica Reference Collection."

Users were challenged not only by the arrangement of these materials, but by the terms used to describe the spaces where they were shelved. This was particularly true for the use of the term "reading room," which was used to describe reference/study areas. In order to develop better labels for these spaces, library staff polled users as they entered various library spaces:

1. If you were to ask a friend to meet you in this space, what would you call it?
2. When you go to check out a book, what do you call that desk?
3. If you need help in the library, where do you go?
4. Are there any other terms for library spaces you've always found confusing?

The 30 responses collected led to several recommendations, including having the online catalog point users to collections rather than to library spaces. For instance, "Regenstein, Reading Room, Floor 4" became "Regenstein, 4th Floor Reference Collection."

Library staff also did some small-scale observational studies to see what paths users

typically took when they entered the library's lower-level compact shelving area. These data helped library staff decide where to place additional, smaller maps in this very large, complex area.

## 2007 Study Methodology

As in the previous wayfinding study, researchers asked subjects to locate three books in the library's collections. The researchers used direct observation to record the difficulties subjects encountered in locating the books, using a testing design adapted from a model described by Jakob Nielson in *Usability Engineering*.[2]

Because the researchers wished to learn whether the library could be navigated by those largely unfamiliar with its spaces, subjects were again recruited from first-year college students who were inexperienced library users. As in the first study, potential subjects were sent invitations asking them to participate in "a study of how students look for books in the library," and told that they would be helping to "make the University of Chicago Library easier to use." Students were also promised the same incentive: a $15 gift certificate from the University Bookstore in exchange for an hour of their time. Each session was again conducted with the assistance of two library staff members: a session facilitator and a note taker. The students participating in the study were assigned one of four bibliographies (each listing three books to find). These bibliographies were also used in the original study.

Although the researchers kept the study protocol as close as possible to that of the original study (in order to better test the effect of changes made in response to the original study), they were able to improve the study methodology in three areas: 1) subject recruiting techniques, 2) data capture, and 3) data analysis and presentation.

### Subject Recruiting

In the previous study, all first-year college students were invited to participate and respondents were asked to complete a questionnaire asking about their use of the library, with the most inexperienced users being chosen to participate. This study improved on that approach in two ways. First, subject recruiting was done earlier in the academic year, which meant that fewer first-year students would have had time to become acquainted with library spaces. Recruiting for the first study was done near the end of the academic year (during May) but recruiting for this study was done in January, when students were just beginning their second quarter at the University. A second improvement was the use of circulation records and library entry logs to select potential subjects with limited library experience. Researchers initially sent invitations to 56 first-year students who not only had never checked out a book from the library but also had never entered Regenstein Library. Unfortunately, this group of potential subjects only netted one volunteer. A second round of invitations was sent to 68 students who had never checked out a book but who had visited Regenstein Library once or twice; this pool yielded another two volunteers. The researchers then invited an additional 146 students who had never checked out a book but who had used the Regenstein Library fewer than 10 times. This third round of invitations netted an additional eight volunteers, bringing the total number of volunteers up to eleven (though only ten actually participated in the study). As it happened, all but one of the subjects were female.

**Table 1: Characteristics of study subjects**

| | # Checkouts | # Entries | # Invited | # Subjects |
|---|---|---|---|---|
| 1st Round: | 0 | 0 | 56 | 1 |
| 2nd Round: | 0 | 1-2 | 68 | 2 |
| 3rd Round: | 0 | 3-9 | 146 | 8 |
| | | **Total Invited:** | **270** | **11** |

The new approach to recruiting subjects not only ensured that inexperienced library users would be selected, but it also significantly reduced the number of students asked to take part in the study. The first study asked the entire first-year class (1,220 students) to take part, and 206 volunteered to do so (a 17% response rate). However, only 15 were chosen to participate in the study (12 actually followed through), which meant that 191 student volunteers had to be rejected (possibly eroding their willingness to volunteer for future studies). The new approach required more

upfront work to identify inexperienced subjects, but it required only 270 students to be invited and all who volunteered to participate were allowed to do so.

### Data Capture

As in the first study, the study sessions were conducted by a facilitator and a note taker. The facilitator provided instructions to subjects, answered any questions, encouraged subjects to employ the "think aloud" protocol, and provided prompts whenever subjects reached an impasse in completing their assigned tasks. The note taker observed a subject's attempts to find the assigned books, recorded the paths taken, wrote down difficulties encountered, and took note of finding aids employed (e.g., maps or signs). The note taker also carefully recorded issues that required prompting to solve and the amount of time required to complete the assigned tasks.

This study improved on data capture in four ways: 1) using a form that presumed a non-linear approach to finding materials, 2) writing narrative summaries immediately after each session, 3) creating audio recordings of sessions, and 4) using maps to create a visual representation of the paths taken by subjects.

The original study presumed a linear approach to finding books and employed a form that assumed that subjects would search for each book sequentially and would follow a predictable set of steps. In retrospect, it should not have been surprising that users clustered their searches as seemed convenient to them and took unpredictable and idiosyncratic paths in finding books. The current study addressed this reality by allowing the note taker to document observations in a more free-form manner.

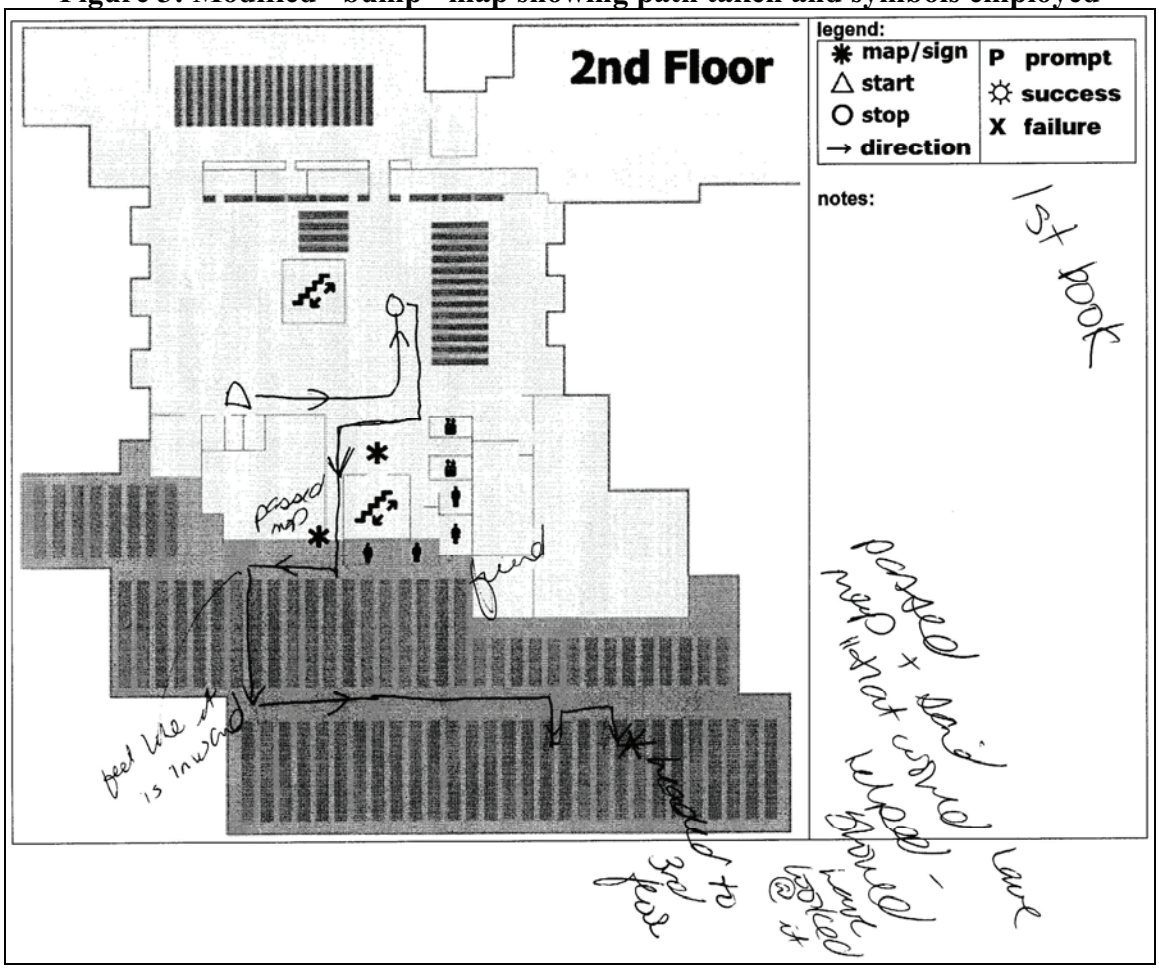
As in the original study, a narrative description was the primary output from each session. The narratives described the approaches taken to finding books, the difficulties encountered, the areas requiring prompting, and other observations from the session. The original study made clear that the best narratives were those written soon after a session, when memories were fresh, so this study required facilitators and note takers to create narratives immediately after the end of each session. This approach produced richer narratives than was sometimes the case in the original study.

As a supplement to the narratives, audio recordings were made of each session using an inexpensive digital handheld recorder. These recordings could be consulted when writing narratives to ensure accurate representation of events. They also allowed researchers to reconstruct direct quotations from subjects and to use these quotes to enliven presentations of results. In addition, these recordings were used by the lead researchers to clarify any confusing statements in the narratives.

A final technique for improved data capture was the use of maps to record the exact paths taken by subjects when searching for material. The researches modified the "bump map" technique recommended by Lubans and Kushner for evaluating library signage systems.[3]

Note takers were asked to use symbols to indicate on a map exactly where subjects started searching, the direction they traveled, the routes taken, where they stopped to look for help, where they required prompting, and the place where the subject eventually found the material (see Figure 3). A code was also included to indicate failure, though facilitators were instructed to provide hints whenever subjects were at an impasse in order to assure ultimate success in locating material.

**Figure 3: Modified "bump" map showing path taken and symbols employed**




## Data Analysis and Presentation

The improved data capture techniques used in this study facilitated analysis and allowed wayfinding obstacles to not only be identified but also to be ranked by their incidence and relative severity. Researchers compiled lists of the difficulties encountered in each session and assigned them to broad categories, indicating whether the problems related to maps, signs, the online catalog, etc. The obstacles were also given one of two scores. Difficulties that required prompting from the facilitator to solve were given a score of "2," but those that subjects eventually solved on their own were given a score of "1." The results were then placed in a table showing scores for all sessions, allowing researchers to see at a glance which difficulties were encountered in multiple sessions (see Table 2).

| | Issue/Stumbling Block | *Category* | Subject 1 | Subject 2 | Subject 3 | Subject 4 | Subject 5 | Subject 6 | Subject 7 | Subject 8 | Subject 9 | Subject 10 | Prompts | Issues | Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Confusion about bookstacks/reference distinction | *Conceptual* | | 2 | | 2 | | 2 | | 2 | | 2 | **5** | **5** | **10** |
| 2 | Did not see bookstacks map | *Maps* | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 | **0** | **8** | **8** |
| 3 | Found call numbers confusing | *Call Numbers* | | | 1 | | | 2 | | 2 | | 2 | **3** | **4** | **7** |
| 4 | Found range markers confusing | *Signs* | 1 | | | | | 1 | | | 1 | 2 | **1** | **4** | **5** |
| 5 | Found call number guide confusing | *Call Numbers* | | | | 2 | | 1 | | 1 | | 1 | **1** | **4** | **5** |
| 6 | Difficulty locating online catalog | *Catalog* | | | | 2 | | | | 1 | 2 | | **2** | **3** | **5** |
| 7 | Did not see A-Z guide on main floor map | *Maps* | 1 | | | 2 | 1 | | | | | | **1** | **3** | **4** |
| 8 | Thought "B" stands for "basement" | *Conceptual* | 1 | 1 | | 2 | | | | | | | **1** | **3** | **4** |
| 9 | Identified incorrect book in catalog | *Catalog* | | | | | | 2 | | | 2 | | **2** | **2** | **4** |
| 10 | Tried to search keyword/browse at same time | *Catalog* | 1 | | | | | | | | | 2 | **1** | **2** | **3** |
| 11 | Map labels for reference collections do not match catalog | *Maps* | 1 | | | | | | | | 1 | | **0** | **2** | **2** |
| 12 | Searched for initial articles in title | *Catalog* | | | | | | | 1 | | 1 | | **0** | **2** | **2** |
| 13 | Difficulty determining floor location | *Conceptual* | | | | 2 | | | | | | | **1** | **1** | **2** |
| 14 | Difficulty using compact shelving | *Compact Shelving* | | | | 2 | | | | | | | **1** | **1** | **2** |
| 15 | Expected call number guide rather than map when clicking on reference collection links | *Catalog* | | | | | | | | 2 | | | **1** | **1** | **2** |
| 16 | Expected reference call numbers to be shown on map | *Maps* | | | | | | | | 2 | | | **1** | **1** | **2** |
| 17 | Difficulty finding title in online catalog | *Catalog* | | | | | | | | | | 2 | **1** | **1** | **2** |
| 18 | Did not consult floor map | *Maps* | | 1 | | | | | | | | | **0** | **1** | **1** |
| 19 | Call number transcription error | *Call Numbers* | | | | | 1 | | | | | | **0** | **1** | **1** |
| 20 | Online maps too small to read | *Catalog* | | | | | | 1 | | | | | **0** | **1** | **1** |
| 21 | Thought floor map displayed "just offices" | *Maps* | | | | | | 1 | | | | | **0** | **1** | **1** |
| 22 | Difficulty finding stacks call numbers on floor map | *Maps* | | | | | | | | 1 | | | **0** | **1** | **1** |
| 23 | No sign labeling reference collection in reading area | *Signs* | | | | | | | | | | 1 | **0** | **1** | **1** |
| 24 | Stacks too dark to see | *Facilities* | | | | | | | | | | 1 | **0** | **1** | **1** |
| | | **Score:** | 6 | 5 | 2 | 15 | 2 | 10 | 2 | 12 | 8 | 14 | | | **76** |
| | | **Number of Issues:** | 6 | 4 | 2 | 8 | 2 | 7 | 2 | 8 | 6 | 9 | | **54** | |
| | | **Number of Prompts:** | 0 | 1 | 0 | 7 | 0 | 3 | 0 | 4 | 2 | 5 | **22** | | |

**Table 2: Study Results**

This approach allowed researchers to add up the scores given to each obstacle in all the sessions, thus creating a total score for each wayfinding obstacle. By sorting the obstacles by these total scores, researchers created a ranked list of wayfinding difficulties in order of severity. This table also had the advantage of allowing researchers to see at a glace which subjects were able to find all three books without prompting. They could easily determine how many times an issue surfaced during the study and which subjects were most challenged by the assignment. Moreover, this table proved an effective way to share the results of the study in a distilled form with library administrators. Those unfamiliar with the study were able to quickly gain a sense of the major wayfinding issues and then begin focusing on ways to remove those obstacles.

## 2007 Study Results and Library Responses

The researchers were pleased to see that study subjects were more easily able to find material in the Regenstein Library than they were in the previous study. Whereas none of the subjects were able to find all three assigned books without prompting in the original study, in this study four of the ten subjects were able to find the books on their own. While it was disappointing to find that more than half of the subjects were still not able to use the collections without assistance, at least the efforts to improve the "findability" of material in the collection had resulted in demonstrable improvements.

The study showed that some of the issues encountered in the previous study still presented obstacles to users. Moreover, new issues surfaced had not been uncovered in the original study. The top five issues encountered in this study are addressed here along with the library's strategies for addressing them.

### Confusion about the distinction between bookstacks and reference collections

Five of the ten study participants required help to locate the bookstacks, indicating that simply displaying the full floorplan on the main maps in the reference/study areas was not sufficient. The library has since installed additional signs at the entrance of the bookstacks (see Figure 4) to help direct users to these areas.

### Did not see bookstacks map

Once the participants entered the bookstacks, eight of the ten subjects overlooked the wall-mounted bookstacks map (Figure 3 above), thus proceeding without a clear understanding of how the material was organized. While the subjects were eventually all able to find their way without consulting these maps, the maps do provide very useful orienting information that would have saved the subjects time and reduced their confusion. Library staff are now looking at ways to improve the visibility of these maps.

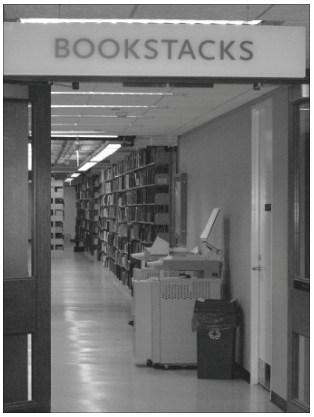



**Figure 4: Bookstacks sign at entrance and wall-mounted bookstacks map.**

### Call numbers confusing

Call numbers *are* confusing and this may be especially true for first-year students with limited experience reading Library of Congress call numbers. While the library's orientation sessions for first-year students do include an exercise on reading call numbers and retrieving a book from the shelf, these sessions are voluntary and are attended by only about 30% of the incoming class.

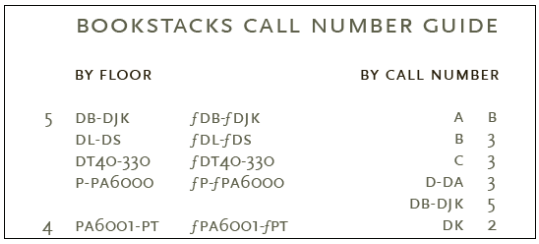
### Range markers confusing

The current head of bookstacks has recently launched an initiative to standardize and revise range marker cards throughout the library to improve their legibility, visibility, and to simplify the information they contain. In addition to the new range marker standard, the Library has implemented a second tier of signs. These “range finders” are prominently displayed at the beginning each new call number classification or important division. These range finders can be seen from a much greater distance than the range markers and thus will assist patrons to orient themselves simply by glancing down aisles.

### Call number guide confusing

The version of the call number guide that was tested as part of this study proved to have some serious design flaws. While it was originally thought that it would be useful to provide the information organized by both call-number prefix and by floor, the layout and minimalist approach to labeling made it very hard for users to scan (see Figure 5). The study revealed that users struggled with a guide that listed only the first letter of the call number prefix (e.g., A) instead of the real alpha range (AC-AZ). As a result of the study, the guides were revised (Figure 6).

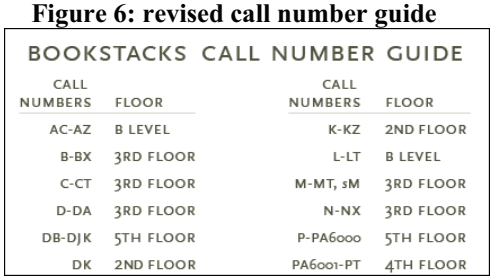
**Figure 5: original call number guide**



BOOKSTACKS CALL NUMBER GUIDE

| | BY FLOOR | | BY CALL NUMBER | |
|---|---|---|---|---|
| 5 | DB-DJK | ƒDB-ƒDJK | A | B |
| | DL-DS | ƒDL-ƒDS | B | 3 |
| | DT40-330 | ƒDT40-330 | C | 3 |
| | P-PA6000 | ƒP-ƒPA6000 | D-DA | 3 |
| | | | DB-DJK | 5 |
| 4 | PA6001-PT | ƒPA6001-ƒPT | DK | 2 |

**Figure 6: revised call number guide**



BOOKSTACKS CALL NUMBER GUIDE

| CALL NUMBERS | FLOOR | CALL NUMBERS | FLOOR |
|---|---|---|---|
| AC-AZ | B LEVEL | K-KZ | 2ND FLOOR |
| B-BX | 3RD FLOOR | L-LT | B LEVEL |
| C-CT | 3RD FLOOR | M-MT, sM | 3RD FLOOR |
| D-DA | 3RD FLOOR | N-NX | 3RD FLOOR |
| DB-DJK | 5TH FLOOR | P-PA6000 | 5TH FLOOR |
| DK | 2ND FLOOR | PA6001-PT | 4TH FLOOR |

## Next Steps

Although this study confirmed that recent changes to improve wayfinding made a difference, it also made it clear that not all wayfinding problems have been solved. Although some changes are still possible, others are currently difficult to implement given space constraints in a library that has exceeded its capacity. Fortunately, the University of Chicago Library is in the unique position of having been funded to build an entirely new library that will eventually house 3.5 million volumes in a building adjacent to the Regenstein Library. The Joe and Rika Mansueto Library is slated to open in autumn 2010 and gives the University of Chicago Library the opportunity to rethink the way its collections are organized. Rather than making changing to an existing system, the library can now redesign the entire shelving system in a way that promotes wayfinding. Library committees have been formed to recommend materials to place in the new library and how best to reconfigure remaining collections and study spaces within Regenstein Library. The library's wayfinding studies will inform these efforts, and any changes that are made will eventually be tested with further wayfinding studies.

## Conclusion

In his influential book *Ambient Findability*, Peter Morville highlighted "the vital importance of *empathy* for the user," which he characterized as "a theme that courses through the literature of wayfinding and usability alike." He maintained, "Only by understanding and caring about the perspective of the individual can we design useful, usable solutions."[4] This study confirms that such solutions can indeed by achieved by taking specific steps to understand user perspectives about the systems created to meet their needs. Moreover, these steps require only modest effort and allow library staff to see their collections through new eyes.

This study showed that the changes made following the first wayfinding study improved the ability of users to navigate the library. The library's maps were easier to find and use, and the reference collections were easier to navigate. Mostly importantly, users were better able to find books in the library's collections.

Given that the library's wayfinding studies were originally prompted by comments on a LibQUAL+® survey about not being about to find material in the library, it is gratifying a later LibQUAL+® survey indicated that the library's efforts were noticed. In 2004, 85 of the 560 LibQUAL+ comments (15%) related to items that were missing or not able to be found, making it the largest topic of complaint. When the LibQUAL +® survey was repeated in 2007, only 23 of the 696 comments received (3%) dealt with this issue, placing it outside the top twenty areas of concern. This demonstrates that concentrated attention to a problem revealed by LibQUAL+® can result in measurable improvements. It also shows that dedicated attention to addressing a problem can change user perceptions of that problem in demonstrable ways even if the problem is not completely eliminated.

—Copyright 2008 David Larsen and Agnes Tatarka

## Endnotes

1. Agnes Tatarka, David Larsen, Tod Olson, and Nancy Kress, "Wayfinding in the Library: Usability Testing of Physical Spaces," in *Proceedings of the Library Assessment Conference* (Washington, DC: Association of Research Libraries , 2006), 33-41.

2. Jakob Nielsen, *Usability Engineering* (Boston: Academic Press, 1993), 165-206.

3. John Lubans Jr. and Gary Kushner, "Evaluating Signage Systems in Libraries" in *Sign Systems for Libraries: Solving the Wayfinding Problem* (New York: R.R. Bowker Company, 1979), 120.

4. Peter Morville, *Ambient Findability,* 1st ed, (Beijing; Sebastopol, CA: O'Reilly, 2005).

# Under New Management: Developing a Library Assessment Program at a Small Public University

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## Abstract

Prompted by new leadership in both the library and the university, the University of Alaska Fairbanks (UAF) Rasmuson and BioSciences Libraries recently established a strategic planning process that included the creation of a general assessment program for the libraries. The library administrative team felt that it was time to assess our program and come up with a new action plan. The purpose of these efforts is to ensure that spending and staffing priorities match current user needs, to respond to university-required performance measures, and to help with strategic planning. The assessment program includes gathering library user and use data, systematic collection analysis, and implementation of an on-going campus-wide community survey.

This paper describes how a task force of four UAF librarians recently adapted and implemented surveys of faculty, graduate, and undergraduate students, modeled on a process conceived by the University of Washington Assessment Program. The UAF libraries' surveys yielded response rates of 25% (243/943), 19% (143/750), and 8% (431/5086) among the three groups, respectively. Included are an overview of the assessment program, the survey planning and implementation process, and a summary of results and action plan. Recommendations for conducting small-scale surveys are provided.

## Introduction

The University of Alaska Fairbanks libraries recently embarked on putting together a new strategic plan, with the old plan "Rasmuson 2001" several years out of date and not encompassing the many changes in academic libraries in recent years. In keeping with the goal of creating a new document to guide library planning and development, specifically a plan more aligned with a new University-wide strategic plan (UAF 2010),[1] library management decided to put together a multi-faceted library assessment program. The program would include a variety of analyses using data and information about collections, circulation, online resource use, interlibrary loan, the library science core course, citation reports, and new user surveys, and would support not only the strategic plan process but assist on-going efforts to better allocate staff and financial resources. As with other academic libraries, we hope to move from a "culture of speculation to a culture of assessment,"[2] in planning our collections and services, making library operations and decision-making more evidence-based.

### Institutional Context

The University of Alaska Fairbanks (UAF), America's northernmost university, is the flagship campus in the University of Alaska system. Serving a vast geographic area, it includes the main campus near the city of Fairbanks, as well as 6 rural campuses, some more than 1000 miles from Fairbanks. As a land, sea, and space grant institution, UAF offers a comprehensive array of classes in science, engineering, social sciences, and arts and humanities, comprising approximately 70 undergraduate majors and 60 masters programs. The university is relatively small compared to its peer institutions with around 5000 undergraduates, awarding approximately 800 undergraduate and certificate degrees and 200 graduate degrees annually. UAF is the single doctoral granting institution in Alaska, offering 18 programs with an emphasis on science and engineering. It is the major research institution for the state, with its unique arctic and cold-weather research programs.

The Rasmuson Library is the largest library in Alaska with a collection of 1.1 million volumes and a staff of 13 librarians and 52 para-professionals. Librarians serve as liaisons to several departments, teach an introductory-level core Library Science course, and have other library management responsibilities, including collection specialties such as government documents, employee supervision, and oversight of library service areas. Most of the

librarians also have faculty tenure requirements.

The UAF libraries currently have a healthy materials budget, holding steady with small increases annually for journal price inflation. Library funding is partly dependent upon the state legislature and on enrollment; full student enrollment is a challenge, so the library budget picture can change at any time. The collections budget split is about 80% periodicals, serials, and electronic resources, and 20% monographs.

Special collections focus on Alaska and Polar Regions. In addition to traditional academic library work, the library staff and professionals create, support, and oversee a number of unique content library products: the Alaska/Polar Periodical Index, the Alaska Digital Archives, Project Jukebox—an oral history database—and the Wenger Eskimo Database; see Addendum for access to these Web treasures.

## Building the Assessment Program

### Data

The central component of the library's assessment program is data. With the increasing focus in higher education on performance-based budgeting, the libraries need performance measures to satisfy administrators and legislators. Ideally, these measures will prove the library is successful in meeting its goals and quantitative data is often viewed to be more satisfactory by administrators. In an early attempt at formulating performance measures, the library selected traditional use information such as gate counts, Web page hits, and materials processed—none of which accurately measure library performance in a meaningful way for library patrons. At times these measures are even significantly misleading. For example, one night each week the library showed very high gate counts, and it wasn't Sundays, which the night staff know anecdotally as the busiest day of the week. After examining the security camera footage of the gates, it was discovered that the custodians were vacuuming the carpets near the gate counters, tallying up a tremendous number of patrons with each pass of the machine! Obviously these gate count figures are not terribly useful and demonstrate the difficulty of using simplified quantitative means for measuring the library's performance.

The library needed additional quantitative measures in order to form a more comprehensive approach to library assessment (Figure 1).

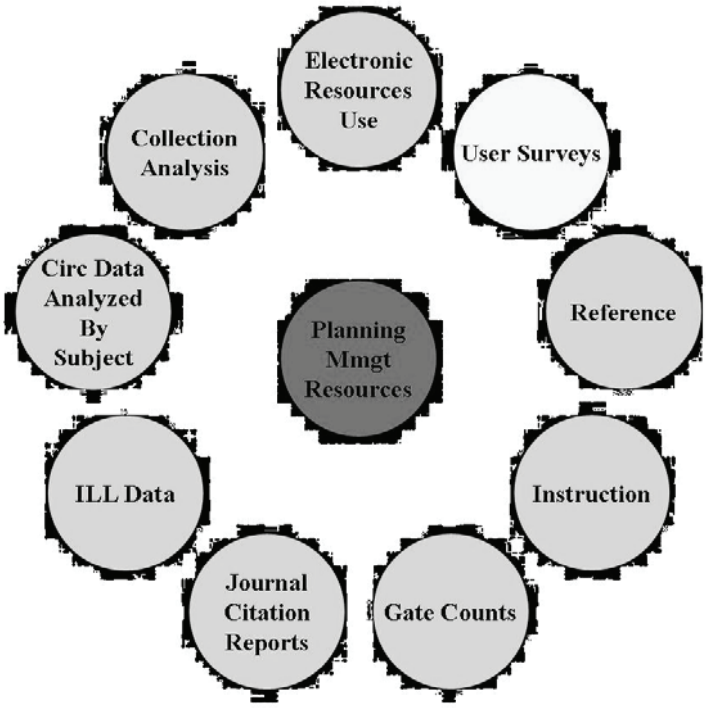
Quantitative data that we could readily gather and analyze included the following:

- *Electronic resource use statistics, including periodical packages, ebooks, and reference resources.* The library does not yet have an Electronic Resources Management System to assist with compilation of use statistics, but this will definitely be part of the future.
- *"Cost per use" as one measure of collections.* Although cost per use of electronic collections should not be considered in isolation from other measures, it is one more piece of information which can be factored into decision-making. These figures are obtained mainly from vendor statistics, some of which conform to COUNTER or SUSHI standards and others which don't, so it is still challenging to accurately determine what is being measured.
- *Collection analysis data.* Collection information can be obtained through OCLC's WorldCat Collection Analysis (WCA) tool, much more easily than was possible with the WLN conspectus, which took much more staff time and effort. This OCLC product is proving useful for a variety of ways of examining collection data.
- *Circulation data.* These data are available through integrated library system reports; the library uses Sirsi Unicorn. Circulation data can also be obtained through OCLC Circulation Analysis but the Sirsi Unicorn ILS does not function with OCLC WCA at this time.
- *Interlibrary Loan data.* These data are extracted from several sources, including reports from ILLiad, WorldCat Analysis, and the Copyright Clearance Center.
- *Journal citation data.* Web of Science is one tool that can be used to find which journals UAF researchers are publishing in and what they are citing.

Compilation and analysis of the collections assessment data now forms a large part of the Collection Development Officer's work. These additional data provide library management with more information about user behavior in relation to collections than ever before, adding the challenge to integrate and interpret it all in a meaningful way for decision-making.

The library continues to collect gate counts, reference statistics, and evaluations of the Library Science 101 (LS 101) course.

**Figure 1. Library Assessment Program Data**




### User Feedback

The essential missing piece in the library's expanded assessment efforts was more direct feedback and input from library users. Most critical was the need to create a comprehensive patron survey for fall 2007 to get current patron feedback. This information would help provide action items for the library's strategic plan related to patron service and collection needs. Prior library user surveys were outdated, and none were designed for implementing more than once. With an updated survey plan, patron data would serve as the starting point for the larger "assessment program" and feed directly into the library's new strategic plan.

The Library Dean assigned librarians from a variety of service areas needing special patron feedback including one librarian each from Collection Development, Outreach and Marketing, the Library Science Department, and the BioSciences Librarian, who heads a branch library in one of UAF's most research-intensive subject areas. This task force of four librarians was charged with creating three separate surveys for faculty, graduate students, and undergraduates, so that in less than four months survey results could be used in the library's spring 2008 strategic plan.

## Planning the Survey

The library assessment task force evaluated a number of survey options. In an ideal situation, money and staffing would have no bearing on the design or selection of a user survey, but for the UAF libraries these items were key in the selection of a survey instrument that we could use on a regular basis to gather longitudinal data. Our prior library user surveys were all home-grown for similar reasons, but because they all contained different questions and queried the user population as a whole, these surveys offered no means of examining changes from year to year, or for analyzing different user groups and needs. They were difficult to administer in paper form and required more effort to summarize without the benefit of the online communication and Web tools now available. In the current survey, we wanted to make the most of what technology could offer to streamline the entire survey process.

Rather than reinvent the wheel with another original questionnaire and because we wanted to spend the bulk of our limited time on analysis and an action plan, we looked at library surveys that were already written including the well-known LibQUAL+® library assessment tool (LibQUAL+®, 2008). We found that LibQUAL+® did not include many of the questions we wanted to ask, and it was also more time-intensive to administer and analyze.

We wanted the granularity of knowing for example, whether or not faculty in the School of Fisheries and Ocean Sciences were satisfied with collections, or whether faculty and researchers in the Geophysical Institute preferred electronic or paper journals. We determined that with the unique questions we needed to include, writing our own questions was the best option. Given the library's limitations in personnel with survey design skills, we looked for other existing surveys.

We adapted with permission, a field-tested set of surveys that the University of Washington had made available on their Library Assessment Web page.[4] Questions were modified to reflect local information, and revised to ensure clarity and reduce bias. Although UAF's final survey design has some flaws, it represents the kind of data we wished to collect.

The final drafts of the surveys were tested by volunteer library staff, faculty, and students. It became apparent that some questions were not clearly worded and needed revision. Our campus Institutional Review Board (IRB) indicated that approval was not required for the project as we were not planning to publish any results with unique identifying information. A budget was developed to cover the cost of survey software, and design and production of publicity materials, and incentive prizes.

## Marketing

The first element of the public relations and promotion plan was to gain campus administrative support. Getting the word out to all segments of campus was very important in order to obtain maximum survey participation, and to reduce the tendency of users to simply delete e-mails without review, since an e-mail distribution was planned.

The Dean presented the library's proposal to implement campus-wide surveys to the Provost's Council and the Graduate School Dean. The task force contacted graduate school staff about their e-mail distribution list and publicizing the surveys on their Web site. The task force also notified undergraduate student government leadership about the library surveys. Before the survey was distributed, the Dean sent an e-mail message to all campus Deans and Directors asking them to encourage their faculty and students to participate. The task force contacted the faculty senate president who sent an e-mail message to faculty senators asking them to encourage their departments and colleagues to respond to the survey.

The task force targeted as many publicity points as possible including advertisements in the student newspaper and the university newsletter, table tents in the student center and the libraries, and posters in various classroom buildings; publicity was prepared by the library's graphic designer to create an eye-catching professional product. Library liaisons were given sample e-mail messages about the surveys to adapt as they wished and asked to send these messages to the faculty and graduate students in their departments before the surveys were distributed.

The library had used prizes in previous surveys to encourage participation with great success. In this instance survey participants' names were entered in a drawing for a 4GB iPod Nano, one Nano for each participant group. Information about the incentive was included in all survey promotions and the winners were announced with permission on the library Web page.

## Implementation

The surveys were implemented online as a previous online survey of media equipment users had been successful. The online option also eliminated costs and complexities of printing, distribution, and collection of paper surveys. The media survey had been generated using a php shareware tool but the task force opted to use SurveyMonkey, a commercial Web application. This tool would allow us to quickly write, edit, modify, test and distribute a survey, and offered a number of ways to download the results for manipulation and analysis. SurveyMonkey is now widely used, and has many of the features the library needed to protect user privacy, isolate particular elements of data, and assemble the output for use in a variety of reports, all for a relatively small license fee.

The surveys were e-mailed to individual accounts in early October 2007 allowing four weeks for responses. Surveys were also made available on the library's Web page and the Dean's office e-mailed a reminder after two weeks.

Early survey responses indicated that the e-mail distribution method had resulted in some confusion that we had not anticipated. E-mail lists of faculty, undergraduates, and graduate students had been used but because student e-mail addresses at UAF don't change when an undergraduate becomes a graduate student, many graduates had replied to the undergraduate

surveys. Since questions had been included which were applicable to the specific groups additional messages had to be sent to graduate students with correct survey information. A similar problem occurred with research staff on grant funding who were not part of the faculty e-mail list maintained by the computing department. Despite these problems, the surveys were successful in reaching most of campus through these various communication efforts. Some of the result errors could be eliminated in the final outcome reports through SurveyMonkey.
Response rates were 25% for faculty (243/943), 19% for graduate students (143/750), and 8% for undergraduates (431/5086)

## Reporting the Survey Results

In order to compile aggregate survey results, the task force created PDFs from SurveyMonkey and uploaded them to a library staff wiki. Relevant individual patron comments on specific library service areas such as circulation, media equipment, Interlibrary Loan, or the BioSciences Library, were included separately, so that department managers and staff could address any problem areas and also share any positive feedback about those areas.

Most library managers have not yet taken action on the results, but, based on faculty responses indicating high interest, one manager did prioritize programming of an RSS feed for new library books. The task force is continuing to analyze comments in further detail in order to highlight priority action items.

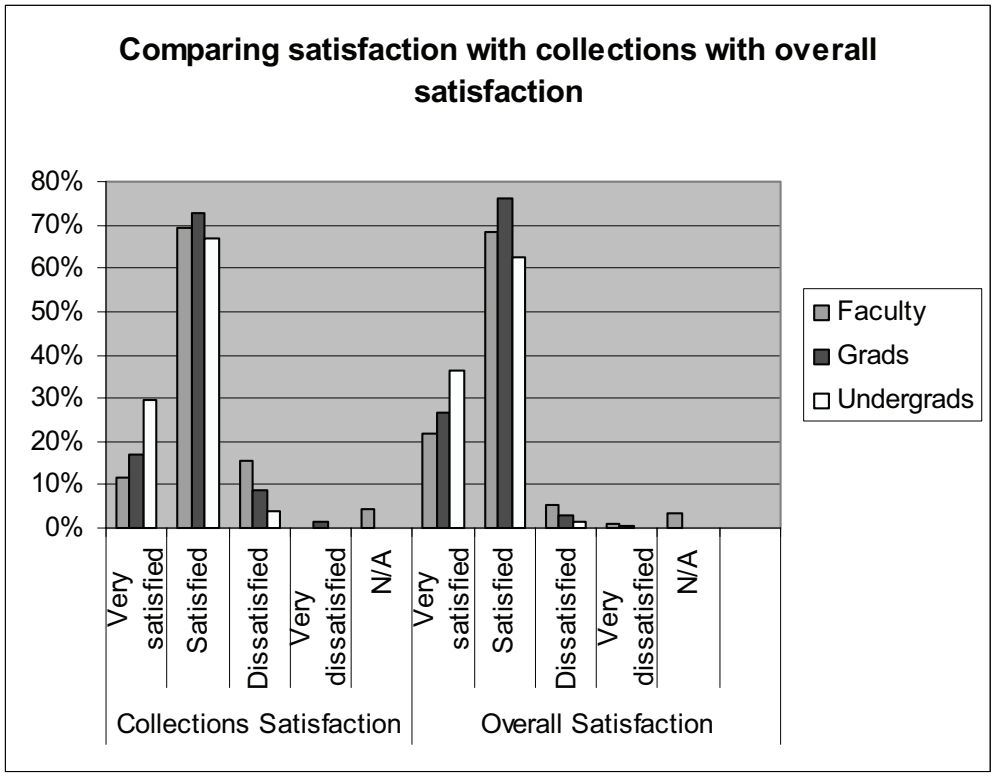
The SurveyMonkey software provides the ability to drill down, allowing the examination of individual responses. In order to protect patron privacy, some survey comments were shared only with those who had a service-related need to know. Aggregate responses are the only information shared outside the library.

The task force wrote summary reports for each of the user groups describing the relevant data. The Dean shared survey feedback and the library's resulting action plan with various campus organizations and groups including the Provost's Council, Deans and Directors, the Graduate School, the university's Research Working Group, student government leadership, and faculty governance. The summary data from SurveyMonkey were posted on the library's Web page while the task force continues to publicize survey results publicity to campus, including an advertisement in the student newspaper describing our action plan.

## Acting on the Survey Results

Overall, the surveys were very worthwhile and provided needed data to inform library decision-making. All three user groups expressed high satisfaction with the libraries, although there was some dissatisfaction with collections (Figure 2). Individual comments from graduate students and faculty helped create specific collection goals in order to address the perceived gaps, and it was found that some of the collection dissatisfaction was caused by a lack of patron knowledge of how to search the collections and how to make suggestions for book purchases. A greater outreach effort is necessary to address these issues.

**Figure 2. Library Satisfaction Results**




Another key finding was a high regard for the Interlibrary Loan and Document Delivery Service which may account for the high satisfaction with the library as a whole, despite some dissatisfaction with library collections. Other results indicate that library users appreciate that reference service is available but they don't use it much for help with term papers or other research projects. A number of undergraduate students were dissatisfied with LS 101, complaining both about the requirement and the curriculum. Some respondents were dissatisfied with services outside the library's control such as printing and photocopying and the university's parking system.

### Surprises

Some responses in all three surveys were surprising but this information was helpful in providing greater understanding of the library's user base as well as input necessary for planning services. For example, some faculty did not know about using RSS or search alerts in our databases and more than 25% of the faculty did not know that librarians do library instruction for classes upon request, presenting librarians with a user-education opportunity.

### Defining Action Items

Both the quantitative survey results and the individual comments provided a number of actions items for inclusion in the strategic plan as well as serving as a guide for day-to-day library work. Each potential action item was weighed on several counts: how many respondents requested or commented on it, and how much money and staff time it would take to accomplish. For example, one faculty respondent commented that the library lacked current books in Scandinavian history. This observation proved to be accurate, was easy to correct and was promptly addressed. However, even though more than 50% of faculty respondents indicated a desire for an Institutional Repository (IR), due to the large scale of such a project, it will take much longer to accomplish. An IR will go on the to-do list and is included in our overall strategic plan, but may drop down in priority based on the library's current ability to get it done. The immediate action plan (Figure 3) emphasized the "low hanging fruit."

**Figure 3. Action Plan Examples**

1.Collection Development

a. Survey showed a majority preference for electronic content
Action: Continue to expand electronic access to primary research journals.

b. Survey showed specific collection gaps
Action: Purchase additional specific subject materials including women's studies, genetics and molecular biology and poetry.

2. Service-Related Issues and Library Space

a. Survey showed users had problems navigating library collections and services
Action: Create web page FAQs explaining finding tools and emphasizing reference assistance

b. Survey showed patron desire to be better able to browse film collection (not housed in public area)
Action: Improve the locally designed Web DVD browser

c. Survey showed desire for coffee and food area in library
Action: Work on plan for providing coffee in the library, starting with vending machines, moving to a coffee house when possible (added to library's strategic plan as part of library development)

d. Survey showed need for increased group study space
Action: Still under consideration, may be part of library development effort

3. Strategic Plan

a. Survey showed little use of or interest in reference services
Action: Create task force to review reference services and develop new service model as appropriate

b. Survey showed significant student dissatisfaction with Library Science 101 core course
Action: Create task force to review and update curriculum and outcomes assessment measures

c. Survey showed need for significant technological development of library services and collections
Action: Create library technology plan, including exploring development of an Institutional Repository

d. Survey items requiring greater effort and cost, such as library coffee house, more group study, more technological expertise and equipment, etc.
Action: Create a library development professional position in order to boost funding for special projects and meet more long-term strategic goals

## Focusing on the Future

### Continuing Analysis of 2007 Surveys

The task force continues to analyze the survey results, focusing on a more thorough consideration of responses to share with subject liaisons and individual academic departments. We may use focus groups to follow up on some of the user feedback provided in the surveys. In some cases, there wasn't sufficient response data to analyze individual departments so the next set of surveys or user assessments will be designed to collect the missing data from these areas. For example, none of the music faculty or graduate students responded so additional effort will be made to follow up with this group.

### Future Surveys

The survey instrument and specific questions were designed to be repeated every three years to allow long-range comparisons among patron groups. In order to streamline future survey efforts the task force kept notes on a wiki about changes that would be needed to improve response rates and obtain more targeted information in future surveys, as well as problems that arose as a result of the wording of survey questions.

There were several obvious issues to consider for revision in the next surveys. It was apparent that the lists of campus departments and programs used in the survey were not adequate as a number of faculty and students did not seem to identify with the official departmental names. In revising the surveys, we will need to make clear to survey takers what information is needed in defining departments and majors. This will make it possible to more accurately compare and contrast results between different groups in the same departments and programs.

Selecting appropriate rating scales with adequate granularity was also problematic for some questions. For example, it is possible that some portion of the high overall satisfaction ratings may be due to the scale selected, with no step between "Satisfied" and "Dissatisfied." For some questions, numerical points should have been used to enable easier comparison of results from survey to survey. Results also indicated that some question wording may have been leading to particular answers.

Some obvious question content was omitted in this set of surveys and will need to be included in future assessments, such as feedback on electronic books, and more specifics on reference service needs.

In order to avoid the difficulties encountered with incomplete or inadequate campus e-mail lists, future solicitation messages will include links to all user surveys, so that users can self-select the appropriate survey. Additional user groups such as university staff and the general public, who use the library extensively yet are not core patron groups, may be included in the next survey.

The survey marketing strategy will need some improvement to increase response rates, especially from undergraduates. It is hoped that publicity about the current surveys will encourage future respondents to participate by demonstrating that library survey results are put to good use. Future surveys will be conducted in the spring semester when faculty and students new to campus will have greater familiarity with library services and collections.

Although library staff tested the draft surveys, future efforts will include more staff input before implementation. Greater staff participation should result in a better instrument as well as increased involvement of staff in marketing the project to faculty and students at key service points.

## Recommendations

Following are some recommendations for smaller libraries that are considering implementing a user survey to support a library assessment program. First, take into account the survey's purpose; what does library management need to know about your users, collections, and services? What do the library's financial backers want to know? What is unique about the institution that requires special feedback from users? Is benchmarking needed to see how library services and collections rank against larger libraries? Are peer comparisons of interest?

Assess the amount of funding, local expertise, and staff time that will go into the effort. Although the UAF libraries opted for a home-grown survey, other libraries might do well to further research and evaluate existing survey tools such as LibQUAL+®, to see if they might provide the kind of feedback required. Devote as much time into the planning process as possible, including getting buy-in and input from all library staff; more involvement might result in greater response from library managers in using feedback to make changes in service and collection areas. Involving library staff to a significant degree could also help with

marketing the survey, as front-line staff communicates its importance to the users on a daily basis. Develop a broad-based communication plan so that survey information reaches all possible users. Ensure future participation and library staff enthusiasm by actually using the results in a viable action plan, making the surveys worth everyone's time and effort.

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## Addendum

Alaska / Polar Periodical Index--for periodical and newspaper articles. http://goldmine.uaf.edu/aprindex/.

Alaska's Digital Archives--to view selected historical photographs, archival film, oral histories, rare maps, historical documents, and museum objects. http://vilda.alaska.edu/.

Project Jukebox--for oral histories presented in a multimedia exhibit. http://uaf-db.uaf.edu/Jukebox/PJWeb/pjhome.htm.

Wenger Eskimo Database--written literature about Inuit/Eskimo peoples. Contains nearly 200 titles—primarily books and journal articles. Best used with Internet Explorer. http://www.wengereskimodb.uaf.edu/.

## Endnotes

1. University of Alaska Fairbanks Strategic Plan, http://www.uaf.edu/strategic/2010.

2. Adam Wathen, "Strategically Building Collections: Attempts to Coordinate Budgeting, Tracking, Data-Gathering and Policy-Making at the K-State Libraries," (*Timberline Acquisitions Institute*, Timberline, Oregon, May 2008), http://thinkinglibrary.blogspot.com/2008/05/strategically-building-collections.html.

3. LibQUAL+®, http://www.libqual.org.

4. University of Washington Libraries Assessment, http://www.lib.washington.edu/assessment.

# In Our Visitors' Footsteps: Using a "Visitor Experience" Project to Assess Services and Facilities at the Library of Virginia

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## Abstract
This paper discusses a practical study undertaken at the Library of Virginia to assess our services and facilities based on feedback from our users—our "visitors." The following questions served as the framework for the study: How to assess the varied services and complex layout of a large state archives and research library that serves members of the legislature, state agency employees, scholars, and the general public? How to prioritize and implement recommendations for change? How to move from assessment to concrete steps to improve our services and facility? The process of conducting the study, selected findings and recommendations for improvement, and the progress to date will be discussed.

## Background
The Virginia State Library was created in 1823, and remained in its original location inside the state capitol in Richmond until 1895, when it moved to its own building near Capitol Square. The Library moved again in 1940, adjacent to City Hall and the Executive Mansion (sharing space with the Virginia Court of Appeals), where it remained for more than fifty years. In 1997, the Library moved to a new six-story building better suited to expanding technologies and providing more open space and services to the public (see Figure 1 in Appendix). The name of the library has changed over the years, becoming the Virginia State Library and Archives in 1987, and the Library of Virginia in 1994—the name it retains today. As such, it is meant to be seen as the library for all of the people in the Commonwealth of Virginia. The Library also manages the State Records Center (SRC), which stores inactive, non-permanent records of state agencies and local governments. (While the SRC also has a public reading room, it was not part of the original Visitor Experience Study.)

**Figure 1**



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The Library holds the most comprehensive collection of materials on Virginia government, history, and culture available anywhere, including printed material, manuscripts, maps, and photographic collections. Increasingly, many resources are being made available on the Library's Web site (www.lva.virginia.gov), which received well over 3 million visits in FY 2008. While managing and preserving the archival record for the state is of the highest importance, the Library also provides reference and research assistance to state officials, government agencies, Virginia's public libraries, and the general public. Finally, the Library has an active publications program and offers numerous exhibitions, lectures, book-signings, and other educational programs throughout the year. With approximately 200,000 visitors to the building in each of the last fiscal years, the Library of Virginia is the most heavily visited state library or archives in the United States.

Located in downtown Richmond—near Capitol Square, City Hall, and the federal courthouse, and one-half mile from the main branch of the Richmond Public Library—the site of the Library has an impact on its mission and use. Many

researchers seek us out for our historical collections or to do genealogical work, while some come to use the public Internet terminals, and others seek out a quiet place to read newspapers from around the state. Still other visitors come to the Library to view the exhibition in the main gallery, attend a book reading, to have lunch in the café, or to buy a gift at the Virginia Shop—all of which are found (along with an "information" desk) on the first floor. The second floor (the only other floor open to the public), has eight service points: Circulation, Library Reference, Government Documents, Maps, Manuscripts, Archives Reference, and Microfilm; Interlibrary Loan is available to the public, but located in a "staff only" area. The Special Collections reading room (located on "2M") can be seen from the first floor atrium, but cannot be reached without a staff escort.

Despite an incredibly diverse user population, it is important to also know that at present, one must be eighteen years old to obtain a Library of Virginia "card"—which allows an individual to check materials out of the building and to use the public Internet stations in the Reference Reading Room. The only mechanism in place for visitor feedback has been the availability of a "patron suggestion form" at service points throughout the Library. The vast majority of those filled out (totaling roughly two dozen a year), are forwarded to the Director of Research & Information Services for a response. The Visitor Experience Study served as a more formal method to analyze how our users perceive us.

## Why Assess? What Did We Want to Learn?

The purpose of the study was, at the core, an effort to re-vision the Library as a customer service organization—one that specializes in historic literature, historic documents, and history in the making. All the traditional library functions (cataloging, preservation, reference, access) should be viewed as in support of this customer service principle. With this guiding assumption in mind, we focused on the facility (the building) and the services. To be sure, impressions of the physical facility can blur with those of the services, but we wanted as much as possible to distinguish between the two. We asked our users the following questions: What does the physical layout of the building communicate to you? Do you know what services we offer? How well do we provide those services? What obstacles exist for you in using this Library for your goals? What improvements would you like to see us make? We, in turn, asked the same questions of ourselves, along with the final question: What changes can we afford to make, given our financial and budgetary constraints?

## Timetable and Methodology

The study began in the fall of 2007, thanks in large part to the help of a management consultant-volunteer, Kitty Winkler, who served as the Project Director. Ms. Winkler came to the Library with significant experience in the corporate sector, and provided for free services we would otherwise not have been able to afford. There were several advantages to having a Project Director from outside the Library's staff. She could devote concentrated time to the effort, without the distractions of other job duties. She came to the study without any preconceived opinions or biases about a particular unit or the Library as a whole. And perhaps most important, she may have been more able to gain the trust of participants in the study who might not want to "hurt the feelings" of staff members they knew, and may also have been more comfortable including "criticism" in the findings. One potential disadvantage: someone from outside the Library is inherently less familiar with the mission and culture of the organization.

Over the course of several months, Ms. Winkler held focus groups with Library patrons (with an emphasis on first time users, ascertained by the date on which someone obtained a Library card) and also interviewed Library staff and selected members of the Library's Executive Management Team and Library Board. It is important to note here that the total number of participants was fairly small: 42. This number breaks down as follows:

- Internal Participants—total of 21
  - 2 interviews with individuals
  - 3 focus groups (with 2, 7, and 10 participants)
- Leadership Participants—total of 6
  - 6 individual interviews
- External Participants—total of 15
  - 3 interviews with individuals
  - 3 focus groups (with 3, 4 and 5 participants)

She also visited several other libraries and cultural institutions in the area for comparison. Starting in early 2008, Ms. Winkler presented her findings and recommendations to a variety of groups: the Library Foundation Board, the Library Board, Executive Management, and

Supervisors/Managers (who meet as a group semi-monthly). The findings were extensive and detailed, and in some instances sensitive.

As valuable as it was to have an outside Project Director steer the course of the study from its inception, it became less clear how best to disseminate the findings of the study to all Library staff. One option was to simply put Ms. Winkler's PowerPoint presentation on the Library Intranet to allow those with an interest to view it as desired. But it was clear from each of the in-person presentations she gave to other groups that the project and findings needed to be put into a wider context. That context would be lost on the Intranet, and more important, those sensitive findings might be easily misinterpreted. After discussion by the Executive Management Team, we concluded it would be preferable to do additional in-person presentations for the staff—but by a staff member rather than by Ms. Winkler. Just as it seemed an outside Project Director might more easily gain the trust of the study participants, so it seemed an inside staff member might more easily gain the trust of Library staff to learn more about the study and its findings.

Since I had worked with Ms. Winkler in an advisory capacity, and since the majority of public service points report to me, I agreed to offer two open sessions for the staff. I used the same presentation Ms. Winkler gave to the groups already mentioned. Attendance was excellent, with approximately 80 people participating in the discussions. Overall, nearly two-thirds of all Library employees (totaling approximately 200) have seen the presentation "live." The presentation was later added to the Library's Intranet (following requests from staff who attended a live presentation).

One recommendation from the study included the formation of a Visitor Experience Committee to take the next steps for reviewing the recommendations, and to come up with specific suggestions and set priorities. The Committee began its work in March 2008. I co-chaired the Committee with the Director of Human Resources, and ten staff members from throughout the Library served as members. In selecting members for the Committee, we wanted individuals from throughout the Library (not just those working in public services). And since both the Director of Human Resources and I serve on Executive Management, we wanted other members of the Committee to be non-supervisory, non-managerial staff. A Distribution e-mail list was created at first to ease the work of the Committee, but soon also became a means for all staff to provide additional feedback on the study.

An important phase of any study involving outside participants is to make sure they are kept in the loop on the findings and progress toward implementation of changes. In our case, the Project Director met with the co-chairs of the Visitor Experience Committee in late spring to see how we had prioritized her recommendations and to learn if there was already a timetable for implementation (of at least some of the recommendations). She then sent letters to each of the study participants informing them of the status of the project.

The Committee completed its work at the end of June 2008 and submitted its final report to Executive Management at the end of July. The report outlined the findings from Ms. Winkler's original presentation and prioritized (and in some cases eliminated, with reasons) each recommendation. The next steps will be discussed by Executive Management in early September 2009.

The Library found the study to be enormously useful in helping us learn (better) what people think about: getting *to* the Library; getting *into* the Library; navigating the building; finding and using the services; and general observations.

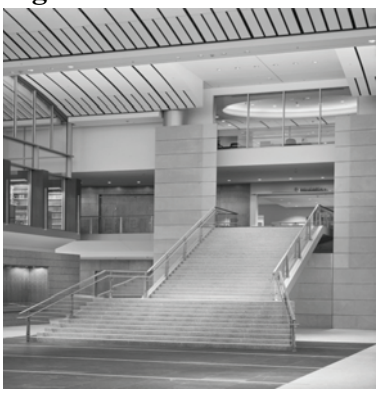
## General Findings

This paper will not address all the specific findings and recommendations of the Visitor Experience Study. What follows are some general findings and an outline of the overall direction the Library is taking to address them.

The Project Director highlighted the major strengths and weaknesses of the Library, as gleaned from the focus groups and individual interviews. Among the strengths are: beauty and inspirational style of the building; the operating hours (Monday-Saturday, 9:00-5:00); free parking; cleanliness; spacious, versatile first floor; Virginia Shop; café, knowledgeable staff; and comprehensive collections. It is worth noting here how the physical attributes of the building occupy a significant place in the user's mind when evaluating the institution. Among the weaknesses of the Library are: intimidating spaces; inadequate signage; navigational difficulties; hidden assets; visitors' reluctance to ask for help (need for more proactive customer service). Here it is worth pointing out that the (interior) architecture of the building is seen as both a strength and a weakness—awe inspiring to

some (most likely experienced library researchers who have used many other less attractive buildings) and intimidating to others (most likely novice library patrons, less accustomed to the size and scope of a research library). Figure 2 (taken close to the opening of the building in 1997) and Figure 3 (taken a decade later, in December 2007) illustrate the expanse of the first floor, the grand staircase, the bookcases around the perimeter of the second floor reading rooms, and Special Collections).

**Figure 2**



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**Figure 3**




Pierre Courtois, 2007

Beyond these strengths and weaknesses, the findings highlighted the following areas for the Library to address: Navigation; Signage addition/improvements; Customer relations/service; Marketing/visibility of the Library.

### Navigation

In assessing our visitors' experience, we started by asking the study participants how easy it was to just get *to* the Library and *into* the Library. The study found that directional signs are needed on expressways and downtown streets to guide visitors to the Library (and also serve as a form of advertising); the Library's identification is not visible from a distance (on a busy street in downtown Richmond); our signage needs to be larger, brighter, and changed more frequently; the display windows received little notice. Figure 4 shows the exterior before the study; Figures 5 and 6 show changes to date to improve the exterior façade.

**Figure 4**



Pierre Courtois, 2007

**Figure 5**




Pierre Courtois, 2007

**Figure 6**




New window display, slogan, and Library logo

Pierre Courtois, 2007

As noted above, the Library offers free parking to visitors. But finding the garage proves to be the second challenge after locating the building. The signage at the garage entrance is confusing. To date, we have not addressed this issue, primarily because the garage is run by the Department of General Services (DGS), not the Library. (In fact, the building itself is owned by DGS which complicates the process by which any interior or exterior physical changes can be made. The banners and signage outside are not viewed as "permanent alterations" to the building.) One other observation emerged from the study in connection with comments on the garage: some visitors saw signs indicating that free parking was available for "patrons of the Library" and interpreted this to mean *donors*—as you might find "special" parking spaces designated at a museum or theater. Given the ongoing controversy in the literature about whether libraries should refer to their users as patrons, customers, or clients, this was an interpretation of "patron" that never occurred to us.

### Signage addition/improvements

The study emphasized the need for more signage throughout the Library, and the Committee concurred. With the assistance of our in-house graphics department we have begun to make numerous improvements, all of which we still regard as temporary. We are recommending that a design firm be hired to review the findings and provide a comprehensive, and coherent, plan for addressing the Library's signage needs. The original design of the building has a distinct look and feel; the signage is minimal, and all the lettering is difficult to see and read. (See Figure 7 for a representative sign on the second floor.) It will be important to retain the aesthetic and architectural continuity of the building in any efforts to improve functionality for our users.

**Figure 7**



Pierre Courtois

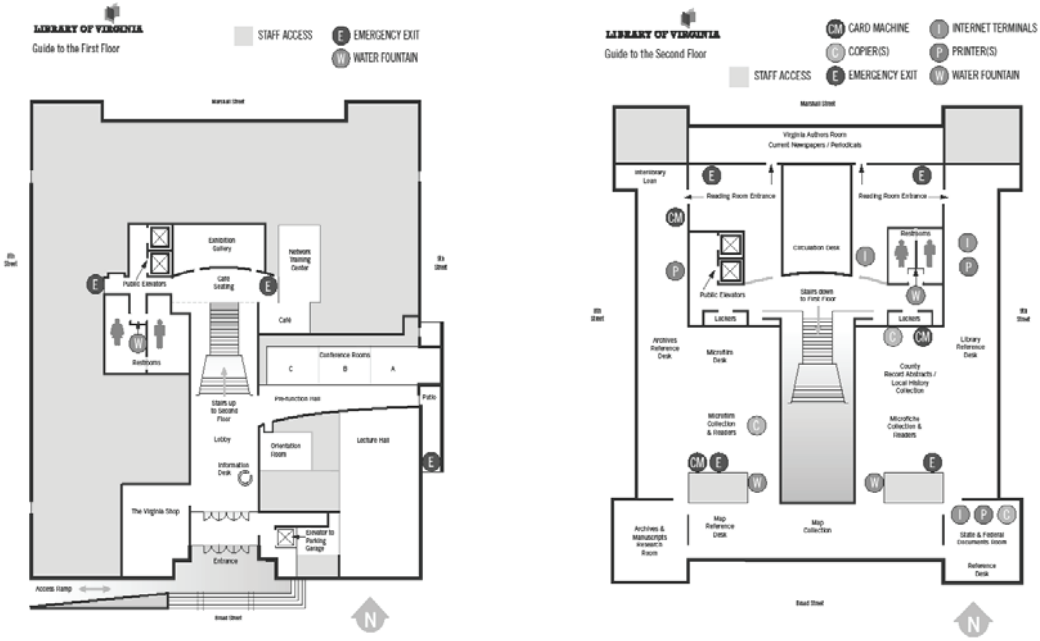
The need for signage relates to both customer service and marketing issues. If patrons (I still prefer this terminology) cannot easily find what they are looking for, their frustration with the Library increases, and this in turn affects their perception of the service provided. As the saying goes, "you only have one chance to make a first impression." I would suggest that some portion of that first chance is used up by the time the patron enters the door.

We deliberately included many first-time visitors to the Library in the study, and discovered that we were not offering anything specifically directed to this group. In particular, the first desk seen when entering the Library included no map of the public floors and no general information on how to use the Library. The Committee completed maps of both the first and second floors (Figure 8),

and is currently working on a "welcome packet" to address the needs of new and regular patrons alike.

The first floor of the Library serves as the welcome point and primary location for exhibitions, lectures and book readings, and other meetings using the conference rooms; in addition, visitors find here the Virginia Shop and café. Recommendations in the study suggested scaling back the exhibition gallery in favor of a larger café, and making the shop more visible (either by "spilling" into the lobby area or placing merchandise in cases near the elevator at the rear of the building). The Committee examined these closely and supports the shop recommendations. But in further examining the café and exhibition program, the Committee proposed that the gallery be maintained (with an eye to more interactive, less print-based exhibits) and the café be scaled back in its offerings more than in the space devoted to it. While the café is extremely popular, given the atrium architecture of the building, odors from the café waft up to the Circulation Desk on the second floor where patrons can read a sign that says "No Food or Drink" while they smell burnt toast. We will be exploring new possibilities when the current catering contract expires.

**Figure 8**




## Customer relations/service

The complexity of the Library's services and the range of visitor needs and expectations have already been noted but are worth repeating when taking a look at the second floor. Patrons typically start at the Circulation Desk (and we are considering whether to rename this with a less library-jargon term). As in most libraries, when a first-time user obtains her library card, she is also met with a list of rules and regulations. One recommendation of the study which we are currently implementing is a revision of our "Patron Code of Conduct" into something more "friendly" that retains the necessary nitty-gritty guidelines, but also points out the *benefits* of having a library card (e.g., remote access to an array of online databases through "FindItVA.") At the Library of Virginia, patrons use the library card to access the public Internet stations. But it comes as a surprise to some patrons that, while we are a closed stack library, a good portion of our collection can be checked out for personal use.

With that in mind, we are also heeding the recommendation to make more visible our Virginia Authors Room, the only browsing, circulating collection in the building, and one that emphasizes our unique holdings of Virginiana. The room is located behind the Circulation Desk, with no adequate signage and nothing drawing you into the room. (See Figures 9 and 10).

**Figure 9**



Vince Brooks, 2008

**Figure 10**



Pierre Courtois

Once a patron enters the reading room area, from either side of the Circulation Desk, she is faced with high ceilings and wonderful light, ample seating and outlets for laptops, wireless Internet (in addition to the desktop workstations provided by the Library) and a vast expanse with virtually no signage directing her to the variety of services available. Figure 11 illustrates one side of the building, and is representative of all three reading room "wings." As noted earlier, there are distinct service points for each of the following: 1) Library Reference, a general reference area; this desk also monitors the usage of the public Internet stations); 2) Documents, providing a separate reading room for state and federal documents; 3) Maps and Manuscripts, which include two distinct desks adjacent to one another, both staffed by Archives Research; these areas have rules of use more typical of "special" collections but are located in an open area and as such pose unique service challenges; 4) Archives Reference assists researchers with printed material; 5) the Microfilm Desk assists with the Library's significant holdings of records and newspapers on film. We also offer Interlibrary Loan to library card holders, providing a valuable resource to patrons, particularly unaffiliated researchers in the Richmond area.

**Figure 11**



Pierre Courtois

As noted in our strengths, the staff are seen as extremely knowledgeable. But the unwillingness of visitors to ask for assistance is also seen as one of our weaknesses, suggesting that at least some of the time some public service staff need to appear more approachable. Our mission to serve a vastly diverse audience makes the task to improve customer service all the more difficult, and the more critical to our success. Staff must learn how to work with novice users and experienced researchers, with

individuals savvy in technology and those who come to use our Internet terminals because they don't own a computer—in short, with everyone from members of the General Assembly (and their staff) to an elderly woman conducting genealogical research to a young man interested in setting up a new business to a Civil War historian.

After additional reading in the area of customer service, we feel it is important to expand the concept of customer service/relations beyond the front-line, public services staff to include *all* Library staff. This model of internal and external customers is used in other organizations to change the overall service culture. The Committee has recommended that a library-wide training program be further investigated, and if funding requires, that it be phased across departments, starting with the public services staff.

### Marketing/visibility of the Library

The study revealed, somewhat unexpectedly, the degree to which many people (even some of our more regular visitors) are unaware of the full spectrum of what we do and the services we offer. The Library is currently a member of two academic regional consortia (RALC, the Richmond Academic Library Consortium, and VIVA, the Virtual Library of Virginia), and has a presence at these meetings. Some staff members are also involved with the Virginia Library Association. And there is a good working relationship with the public library directors across the Commonwealth. But we need to use these venues as much as possible to promote our services to our fellow librarians. Similarly, we continue to work closely with other constituent organizations, e.g., the Virginia Genealogical Society and the Virginia Historical Society, to name just two.

The Library had already begun a major redesign of our Web site before the Visitor Experience Study was undertaken. This effort is still underway, but will address how we market ourselves especially to those at a distance from Richmond. We have also strengthened our relationship with local print, radio, and television media to advertise programs such as book talks and lectures that are open to the public; the more we can get new visitors in the building for one purpose, the better we can then introduce them to other activities and offerings.

Finally, the Library is currently focusing new energy towards outreach to a younger audience. As mentioned earlier, we now require that patrons be 18 to obtain a Library card and to use manuscript materials in the Archives Research Room. We are currently working on plans to re-purpose existing space on the first floor into a "learning lab" for children (primarily fourth through eighth graders). The Visitor Experience Study revealed that our Orientation Room (where we currently show a video about the Library at regular intervals during the day) was underutilized. The Library has already received seed money from a private foundation and a new committee has been formed to explore this new goal. We have a long-standing commitment to serve today's researchers (and increasingly other adult visitors) and plan to continue that in earnest. But we see the expansion of our services to a younger audience, in particular promoting the use of our unique historical resources, the best way to create tomorrow's researchers.

## Unintended Consequences

We encountered several unintended—and positive—consequences after the study was completed and the Visitor Experience Committee began its work. The most important was a heightened awareness among the staff about the importance of customer service and creating a better experience for our users. In addition, staff responded favorably to some of the small physical changes we have been able to implement (such as the temporary signs). One explanation is simply that some staff may have been skeptical at the outset of the study that anything would actually come of it, and were pleased to see a genuine desire for change. Similarly, many staff seemed genuinely pleased that they were being asked for their input in a way that previously hadn't occurred. As a result, the Committee in fact received additional comments and suggestions for improvements, and a specific request to take a look at the State Records Center (SRC) to see what improvements could be made to the reading room there. Finally, we created a virtual suggestion box for staff. As of this writing, we are working on one for the public, and are also considering ways to post selected responses to public inquiries on our Web site.

## Conclusion

The benefits of our Visitor Experience Study have overall been very positive, both in terms of substantive changes to the physical space of the Library and revisions to some of our policies. But beyond those specific results, we know we must continually review what we are doing by looking

from the outside in, rather than the inside out. It has also been a good reminder to continuously work towards building on our strengths while minimizing our weaknesses. And in building on our strengths, to seek better ways to support the work and interests of today's visitors, and at the same time anticipate how to attract new visitors in the future.

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# Standardized Survey Tools for Assessment in Archives and Special Collections

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## Abstract
This paper discuss the conceptualization, development, and testing of the Archival Metrics Toolkits: five user-based evaluation instruments for archives and special collections in colleges and universities. These are the first standardized questionnaires to target archives and special collections and take into consideration the unique environment of primary sources and the specific dynamics involved in connecting researchers with archival and manuscript collections.

## Introduction
User-based evaluation in archives and special collections is in its infancy. Even though primary sources are an essential underpinning of scholarly research in the humanities and social sciences, the assessment of services in these repositories that provide access to archives and manuscripts varies from place to place, if it exists at all. The lack of tested and standardized instruments for user-based evaluation results in the inability for generalization and often poor internal assessment even when there is some internal initiative in this area. The development and adoption of standardized metrics to support the management of both analog and digital collections is a critical need in archives and manuscript collections.

The Archival Metrics Project begins to fill this gap. Over the past five years, we have developed, tested, and deployed five standardized instruments which archives and special collections in colleges and universities can utilize to conduct user-based evaluations of their services. These five questionnaires focus on: Researchers, Archival Web sites, Online Finding Aids, Student Researchers, and Teaching Support. In this paper, we report on the creation and scope of these tools, the development of standardized administration procedures, and findings from testing these tools.

## Investigating the Dimensions of User-based Evaluation in Archives and Special Collections
Creation of the tools involved an extensive literature review and interviews with instructors, students, and archivists/manuscript curators, to identify the key evaluative concepts to test. Archives and special collections lack a culture of assessment. Although archivists and curators may participate in larger library evaluation efforts, such as the Association for Research Libraries yearly data collection efforts or in organizational surveys, such as LibQUAL+®, these measures are largely imposed by others with little attention to the unique nature of primary source materials or their management. Therefore, our first step in identifying the dimensions of user-based evaluation for archives and special collections was to follow a two-pronged approach: 1) examining the existing literature on evaluation in libraries and analyzing what could and should be carried over and 2) asking major constituencies of college and university repositories: students, instructors, and archivists/curators about potential factors in evaluation.

## Literature Review
We examined the major library assessment tools such as LibQUAL+®,[1] WebQual,[2] SAILS,[3] MINES for Libraries™,[4] as well as work done by the Public Service Quality Group for Archives and Local Studies (PSQG) in the United Kingdom (UK).[5] The analysis of these instruments was important and provided insight into overall questionnaire construction and as well as insight into how their conceptual frameworks had been translated or operationalized in the questions.

## Conceptual Framework

The interviews with students, instructors, and archivists/curators also helped us understand the dimensions for evaluation and thus led to the creation of our conceptual framework. The conceptual framework for the Archival Metrics project has two parts: 1) the context of the user and 2) the users' reactions to different dimensions of services and systems. The context of the user is important because it influences his or her interactions with the archivists or curators, the services, and the facility. Overall, we designed our questionnaires to target users of archives in particular contexts (students, researchers, online finding aids users). We also included two types of contextual questions in each of the questionnaires. These are questions about the information need and demographic questions. The context of the user section bears some similarity to Mines for Libraries™ which also asks contextual questions to aid later analysis.

In the second part of the conceptual framework we identify four areas: the quality of the interaction with the archivist, quality of the access systems, the physical facilities, and learning outcomes. In turn, these four areas have a number of different dimensions. For example, usability, aesthetics, navigability, and findability of information are some of the dimensions being evaluated in online finding aids. In terms of interaction quality, the approachability, availability, and helpfulness of the repository staff are some of the applicable dimensions. The questionnaires contain questions that gather feedback from users on these and other dimensions that relate to the conceptual framework. The four core concepts also have some synergy to those in LibQUAL+®; however, the questions posed under each conceptual area are different. The questions posed are specific to archives and special collections because they acknowledge the heavily mediated archives/special collections environment that does not allow common information behaviors, such as browse. The dimensions of 'Quality of the Interaction' were cited multiple times in the initial interviews with instructors and students as key element to a successful visit. Overall, the two parts of the conceptual framework work in tandem to create a context for both the user-based evaluation and more accurate analysis of the survey results.

## Overview of the Archival Metrics Toolkits and Questionnaires

The Archival Metrics Toolkits include the five questionnaires: Researcher, Archival Web sites, Online Finding Aids, Student Researchers, and Teaching Support. In addition, the Toolkits include instructions for survey administration as well as guidance and pre-coded spreadsheets to facilitate analysis of the results. Thus, the toolkits consist of seven files:

1. Questionnaire
2. Administering the Survey (Instructions)
3. Preparing your data for analysis
4. Excel spreadsheet pre-formatted for data from the Questionnaire
5. Pre-coded questionnaire
6. SPSS file pre-formatted for data from the Website Questionnaire
7. Sample Report

The Researcher questionnaire evaluates a user's on-site experience in a repository based on the current visit. It is best administered after a researcher has done some work, not when a person first enters the facility. The Researcher questionnaire is the longest of the Archival Metrics questionnaires with 22 questions and five sections: 1) Use of the Repository, which establishes the context of the current visit in order to contextualize responses, 2) Staff, where researchers evaluate interactions with staff, 3) Services / Facilities, which asks users to evaluate various aspects of service including online catalogs and finding aids as well as the physical facility, 4) Feedback on your visit, where researchers can provide a specific evaluation of the day's experience, and 5) Background, which requests additional contextual data for the analysis.

The Student Researcher and Teaching Support questionnaires are to be conducted at the end of an academic term. The Student Researcher questionnaire is for students who have had formal archival instruction (orientation). This questionnaire has 15 questions and is divided into two sections: 1) Orientation and 2) Use of the Archives / Special Collections. The orientation section asks about learning in the orientation. The Use of the Archives section has students assess how well the orientation prepared them for their subsequent use of the archives. There are two

demographic questions at the end dealing with field of study and college level (freshman, etc.). More than the other questionnaires, the Student Researcher instrument attempts to measure impact. It has a decidedly different feel than the others and concentrates more on learning outcomes, confidence, and development of transferable skills. We took our definition of "learning impact" from Wavell and her colleagues, as being "interpreted in a broad sense to encompass an individual, organisation, or community's formal, informal and lifelong progression towards, and change in, the knowledge base through a variety of real and virtual channels. Learning can be surface or deep, immediate or long term, the acquisition of skills or an interaction with established knowledge".[6]

The Teaching Support questionnaire asks instructors who have utilized the archives or special collections during the previous term to evaluate the service they received. The questionnaire has 10 questions in two sections: Evaluation of Teaching Support and Background. The evaluation section poses contextual questions on teaching goals and the services used, and then asks instructors to evaluate these services. Even though the archivist/curator – instructor relationship is often built on informal ties, the questionnaire generated a good response rate. In one case, the Teaching Support questionnaire sparked a discussion between an instructor and an archivist about developing interactive exercises with archival materials for use in the class the next time it would be offered. It should be mentioned, however, that this is the least tested of the instruments, since the population is small.

The Online Findings Aids instrument asks users to evaluate online finding aids. It contains 16 questions divided into three areas: 1) Your Research, 2) Evaluation of the Online Finding Aids, and 3) Background information. Archivists and curators can use this tool to evaluate any type of online finding aids, not just EAD, since the tool is intended to be used with a variety of online finding aids that have contextual (e.g., biographical or administrative history) and content (e.g., scope and contents note) information. One of the challenges in developing this questionnaire (as well as the finding aids questions in the other questionnaires) was users' confusion about "finding aids." We found this in the interviews, during testing of the Researcher survey, and in previous research which documented this problem.[7] Since finding aids are a core element in archives and special collections, we needed to find a solution. In the survey methodology literature, Fowler suggests providing definitions for unclear terms.[8] The Archival Metrics team decided to clearly define the term "finding aid" in several of the questionnaires, so that respondents would understand what they were being asked to evaluate. We give the following definition of a finding aid: "Archives create resources to help people find materials in the archive and within specific collections. In this section we describe one type of resource and ask for your feedback. Finding aid / inventory to a specific collection: This is a single document that provides information about a specific collection or set of papers, including how it was acquired, its scope, and contents. It may also include information about the series, files and documents contained in a specific collection. A finding aid may be available on a computer in digital form, or in the form of a printed document or book." This definitional approach is reinforced in the Online Finding Aid Survey with an image of the local repository's finding aids, to aid researcher's memory. Other studies have found that visual cues are especially important in Web surveys.[9]

The Archival Web site questionnaire assists visitors in evaluating an entire archival or special collections Web site through 20 questions organized into three categories: 1) Use of the Web site, 2) Evaluation of the Web site, and 3) Background information. Unlike other instruments of this type, our interviews and testing revealed that understanding the context of use was essential for interpretation and analysis of the data for these questionnaires.

## Testing the Surveys

Each questionnaire has been thoroughly tested at different college and university archives or special collections. We tested the questionnaires in two phases. Early pilot testing (phase 1) was done by having at least 10 individuals test each instrument and then we interviewed some of these respondents about the questionnaire and administration issues (e.g., length, paper versus online). We also held several focus groups to critique the tools. Once we thought that a tool was stable and that the most obvious logical and linguistic problems were addressed, we tested the tool at one site to see both how well the tool was received and to test administration procedures. This was followed by more extensive testing of the questionnaires at multiple sites (Table 1).

At this point, we also tested different administration procedures and the instructions for data analysis. This was done sequentially in order to further refine the questionnaires and the administration procedures. After each test we analyzed the responses and incorporated changes to address any inconsistencies in the data that we attributed to problems in an instrument. This iterative design process continued until each instrument had been thoroughly vetted. Overall, we tested the instruments in 9 separate repositories. Each instrument went through several iterations and was fully tested a minimum of 2 times. This was deemed sufficient because in the case of the Web site questionnaire, many of the questions had also been tested in the Online Finding Aids and Researcher questionnaires. The results of this process are standardized surveys along with instructions for administration and analysis, referred to as the Archival Metrics Toolkits.

**Table 1. Stage 2 – Testing**

| Site | Questionnaire | Date | Sample | Total number of responses | Response Rate |
|---|---|---|---|---|---|
| A | Finding Aids | November 2007 | Email reference requestors[a] | 44 | 43.0% |
| B | Finding Aids | October 2007 | On-site researchers | 24 | 47.0% |
| | | October 2007 | Email reference requestors[b] | 25 | 47.0% |
| C | Finding Aids | November 2007 | Email reference requestors[b] | 25 | 70.0% |
| C | Researcher | December 2007 | On-site researchers | 45 | 88.0% |
| D | Finding Aids | January 2008 | Email reference requestors[a] | 63 | 38.0% |
| D | Researcher | January 2008 | Onsite researchers | 23 | 10.0% |
| E | Website | October 2007 | Static website link | 9 | 0.4% |
| | | October 2007 | On-site researchers | 15 | 30.0% |
| | | October 2007 | Email reference requestors[b] | 28 | 56.0% |
| E | Student | December 2007 | 4 classes | 222 | 95.7% |
| F | Student | December 2007 | 7 classes | 230 | 77.9% |
| F | Website | | On-site researchers[a] | 26 | 52.0% |
| F | Teaching Support | December 2007 | Instructors | 4 | 50.0% |
| G | Researcher | October 2007 | On-site researchers | 35 | 46.7% |
| I | Researcher | November 2007 | On-site researchers | 34 | 20.2% |
| I | Teaching Support | December 2007 | Instructors | 16 | 84.0% |

[a] The sample was composed of email reference requestors going back in time approximately 1 year.
[b] The sample was composed of email reference requestors sent a link to the survey within a week after receiving an answer from the archives/special collections.

## Administration Procedures

One of the most valuable parts of the development process was testing the survey administration procedures. These procedures included the format of the questionnaire (online or paper), targeting different populations for the survey, and generating a sufficient sample from that population. In the end, we distributed the user-based evaluation tools using various administration procedures. The on-site Researcher and Student Researcher surveys are intended to be administered in paper format. The Archival Web site assessment tool, Online Finding Aids, and Teaching Support surveys are designed to be administered online. The decision to go with

paper instruments was based on several factors. During the interviews we heard from users that a paper survey in the reading room was the best means of capturing satisfaction with on-site use. Our test subjects said that they would be more amenable to helping out the archivist at the end of a visit and that a paper survey onsite in the repository was their preferred format and place. The initial testing of the first version of the Student Researcher survey was online, but this received a very poor response rate. When changed to a paper survey, the response rate climbed to over 75%. The Online Finding Aids and the Archival Web site questionnaires are online and thus designed to capture use of these online resources.

Identifying the populations for the Student Researcher and Teaching Support questionnaires was fairly easy since these are tied directly to evaluating services the archives or special collections has provided to classes during a given term. Likewise, reading room visitors for the Researcher Survey are tangible and identifiable through registration and sign-in logs. Targeting appropriate populations to sample in the Online Finding Aids and Archival Web site surveys was more difficult. For these online questionnaires, we tested four different administration methods: 1) a static link on the Homepage of the repository or for the online finding aids, 2) an e-mail invitation to recent researchers in the reading room, 3) a rolling e-mail invitation to recent e-mail reference requestors, and 4) an e-mail invitation to retrospective e-mail reference requestors.

Archives and special collections have far fewer users than libraries. This influenced our preferred administration methods. In both the Online Finding Aids and Archival Web site surveys, it took considerable time to accumulate 50 e-mail reference requestors at several sites. Table 2 shows the number of days required for 2 different surveys in 3 repositories. In all cases it took over 2 months to generate 50 requests. Therefore, we think this method may not be optimal for archives or manuscript repositories with few e-mail reference requests.

**Table 2. Length of time necessary to generate rolling email reference requestor samples**

| Site | Survey | Number of email reference requests | Days for accumulation |
|---|---|---|---|
| B | Finding Aids | 52 | 81 |
| C | Finding Aids | 36 | 65 |
| E | Website | 50 | 64 |

Another example of the difficulty of generating enough responses concerns our decision to filter responses. An early question in the Online Finding Aids and Archival Web sites questionnaires asks "When did you last access one of our [online finding aids/Web site]?" We were interested in the opinions of respondents who had used the online finding aids recently enough to evaluate them effectively. Prior research has found that memory and recall decrease with the passage of time.[10] Therefore, anyone who had not viewed the online finding aids or the Web site in the past month was thanked and exited the survey. This had consequences for the response rates of both of these surveys. Table 3 shows the results from the Online Finding Aids questionnaire at site B where two different populations were surveyed; 22.7% of the on-site researchers and 37.5% of the email reference requestors had not used an online finding aid in the last month (Table 3). Significant numbers of respondents at site B (and in fact all the other sites) also replied that they had never used online finding aids. Since the survey was predicated on using online finding aids, these two factors dramatically decreased the number of respondents. While we believe that this research design resulted in more reliable data, the numbers of completed surveys were smaller than desired. In the final version of the survey, we also relaxed the filter by adding a "less than 3 months option and now allow anyone who has visited the Web site or used the online finding aids in the past 3 months to complete the full questionnaire. While this may lead to somewhat less reliable data we think it is necessary to ensure an adequate response rate for most repositories.

**Table 3: "When did you last access one of our online finding aids?" (Site B only)**

| Last accessed finding aids | B (On-site Researchers) % (n=22) | B (Email Reference) % (n=24) |
|---|---|---|
| Less than a day | 9.1% | 12.5% |
| Less than a week | 4.5% | 16.7% |
| Less than a month | 31.9% | 33.3% |
| Less than six months | 27.3% | 0.0% |
| Less than one year | 4.5% | 0.0% |
| More than one year | 0.0% | 0.0% |
| I have never accessed your online finding aids | 22.7% | 37.5% |
| Total | 100.0% | 100.0% |

The testing methodology also identified clear differences between population samples. We found that there was little overlap between email reference requestors and onsite reading room researchers from any of the sites. When we look across all of the responses to the Online Finding Aids questionnaire, we found that 79% of the email reference requestors stated that they had never visited the repository.

Since we are interested in recent use as an indication of better recall, another large difference between the two groups of respondents is evident when we look at the last time they accessed the online finding aids. Over half of the respondents (62.5%) recruited through e-mail reference had accessed the finding aids within the last month and no one accessed the files more than a month prior to taking the survey. Only 45% of the reading room users had visited the online finding aids site in the last month. Thus, in order to target a larger group of recent online finding aids visitors, targeting prospective e-mail reference requestors appears to be a better sampling strategy.

Given the difficulty in generating a sample that has used the online finding aids recently enough to give valid feedback and the low volume of e-mail reference requests, sending a link to the questionnaire with an e-mail reference response or shortly after the encounter may to be the best method of administration.

## Reliability Testing

We tested for reliability in several ways: through traditional reliability testing of test administration, by examining the range and tenor of the answers to multiple choice and free text questions, and by examining the responses for consistency. Reliability of the scores from a questionnaire means achieving similar results when the questions are repeatedly administered. The most relevant measurement of reliability for the Archival Metrics questionnaires is Internal Consistency Reliability because we have not administered our instruments to the same population more than once and we did not administer parallel forms of our instruments. We did, however, test the surveys repeatedly in 2007 and early 2008.

The sample responding to the questionnaires was not randomly selected in any case. Instead, our sampling frame was institution-specific and varied for the different instruments. For example, the sample testing the student researcher survey consisted of students participating in an orientation at the test site administering the questionnaire. As noted above, we also developed two methods specifically to increase the response rates for the online finding aids and the Web site surveys by targeting on-site reading room researchers and email reference requestors. Across all the surveys tested, we received an average response rate of 65%.

After collecting responses to the questionnaires, we conducted statistical reliability tests to determine how well the items included in various scales correlated in order to measure the constructs in which we were interested. We calculated a Cronbach's alpha coefficient for the scales in the questionnaires and found them to be reliable with most of the coefficients above 0.80.[11] Table 4 presents these alpha coefficients for each of the constructs in the individual questionnaires.

**Table 4. Cronbach's alpha coefficients for constructs in survey instruments**

| Questionnaire | Construct | # of items | Sample Size | Alpha Coefficient |
|---|---|---|---|---|
| Researcher | Interaction Quality | 4 | 90 | .934 |
| Researcher | Usability (Web Catalog) | 4 | 63 | .864 |
| Researcher | Usability (Printed Finding aids) | 4 | 49 | .846 |
| Researcher | Usability (Digital Finding Aids) | 4 | 23 | .918 |
| Researcher | Information Space | 15 | 16 | .962 |
| Website | Usability | 7 | 58 | .836 |
| Website | Information Quality | 3 | 57 | .776 |
| Online Finding Aids | Usability | 6 | 75 | .902 |

The Researcher survey provides a good example of how we tested our scores for reliability. This instrument measures several constructs from our conceptual framework including interaction quality, usability, and information space. We conducted tests for reliability on the scores in the survey for the Likert scale responses that are part of Questions 3, 5-7 and Question 8. The interaction quality construct (question 3) consisted of five concepts in Question 3: (1) subject knowledge of the staff, (2) availability of the staff, (3) efficiency of staff in retrieving materials, (4) helpfulness of the staff, and (5) approachability of the staff. Respondents were asked to rate the constructs on a 1 (poor) to 5 (excellent) scale. The Cronbach's alpha coefficient for these five items is very high, 0.934, indicating a highly reliable scale.

We also tested the usability questions pertaining to the repository's Web catalog, printed finding aids, and digital finding aids (Questions 5-7). The four concepts for each access tool are: (1) content, (2) ease of use, (3) clarity of language used, and (4) overall usefulness. Again, respondents were asked to rate the constructs on a 1 (poor) to 5 (excellent) scale. The Cronbach's alpha coefficient for the items pertaining to the Web catalog is 0.878 indicating a reliable scale. Similarly, the alpha for the printed finding aids usability scale is 0.885 and the alpha for the digital finding aids is 0.927. These statistics indicate that the scales we created to measure the usability of archival access tools are reliable.

As part of the Researcher survey, we also developed a 15 item scale to measure the repository's information space. This construct represents the physical and virtual resources that the repository provides to researchers and asks respondents to rate their satisfaction with, for example, hours of service, noise level, furniture, Internet access, and photocopying services. Respondents were asked to rate these constructs on a 1 (completely dissatisfied) to 5 (completely satisfied) scale. In testing, this scale received a very high alpha coefficient (0.962). While this would normally indicate a highly reliable scale, we are hesitant because the coefficient is affected both by the high number of items in the scale (15) and the low number of valid responses (16).

Overall, the scores for the scales measuring core constructs are reliable; however, it should be noted that there are many more questions in these instruments that are either dichotomous, multiple choice, or free text answers. The reliability of these questions cannot be determined as readily, but in testing there were few outliers in any of the scores from these questions. The answers to these descriptive questions add important dimensions for understanding other responses and provide essential context for responses to the scale questions.

The student survey is markedly different from the other surveys in content and tenor. It concentrates more on learning outcomes, confidence, and development of transferable skills. An examination of the responses from the stage 2 testing in the fall of 2007 provides some data on consistency of the questions. Two repositories tested the Student Researcher survey in 11 classes. During that testing 452 out of 527 students returned surveys for a response rate of 86%. We found that the classroom experience in the archives or special collections was a first exposure to using primary sources for most students. At both institutions, over 90% of the students had not used primary sources before (Table 5). By the end of the term almost 60% in one institution and 21% in the other had used archives and manuscripts (part of this has to do with the class assignments). While this is not impact per se, it does show the unique role that primary sources can play in higher education. It also demonstrates an almost universal absence of exposure to archival and manuscript materials prior to such a college experience.

**Table 5. Use of the archives before and after the orientation**

| | | Use before the orientation | | | Use after the orientation | | |
|---|---|---|---|---|---|---|---|
| | | No | Yes | Total | No | Yes | Total |
| **Archives E** | Number | 199 | 20 | 219 | 89 | 131 | 220 |
| | Percentage | 90.9% | 9.1% | 100.0% | 40.5% | 59.5% | 100.0% |
| **Archives F** | Number | 209 | 16 | 225 | 181 | 49 | 230 |
| | Percentage | 92.9% | 7.1% | 100.0% | 78.7% | 21.3% | 100.0% |

When asked about the value of the orientation, students saw the skills taught as transferable to other research tasks. Over 65% of the students saw some applicability beyond another archival or manuscripts assignment. Likewise, a majority of students at both sites said that archival research was valuable to their goals (75% and 59% respectively); however, students responded that they had not developed any skills by doing research in archives that helped them in other areas of their work or studies. This contradictory result cannot be sufficiently explained at this time. It may be that the options in the earlier question about the orientation were overly leading and when given a dichotomous yes / no option and asked explicitly about skill development during archival research, the students responded differently.

The student survey represents an important type of assessment that college and university archives need to be doing to evaluate how well they are meeting the needs of this group and they supporting the mission of the larger institution. While we have developed some measures that show learning outcomes for students exposed to archives, we will be following the use of this instrument closely to see whether the findings continue to follow the same patterns.

## Conclusions

The Archival Metrics Toolkits are an initial foray into the development of user-based evaluation tools for archives and special collections. The administration and use of primary sources are sufficiently different from libraries that they deserve tools that appropriately measure service to users. Libraries are familiar institutions; elementary school students visit a school or public library as part of their curriculum. Even with recent curricular pushed to utilize primary sources, these are usually in prepackaged sets; few students hear about or enter an archives during the course of their studies, even at the undergraduate level. These undergraduates are not alone. Many of the respondents in the email reference sample answering the online surveys had also never been in an archives. User expectations of archives are consistently inaccurate and archives cannot meet these due to the nature of the materials. Likewise, there are fewer users of archives and special collections so administration procedures must be specifically geared to generating a large enough response rate on which archivists and curators can base decisions.

The Archival Metrics Toolkits represent a first step toward standardized evaluation created specifically for archives. Now it is up to the community to adopt these tools and report their use. The Archival Metrics Toolkits are freely available online at www.archivalmetrics.org. We do ask that potential implementers register because we want to track usage as well as the utility of the instruments. These are a work in progress, but

through evaluation, we hope to improve services to the diverse users of archives and special collections.

## Acknowledgements

We would like to thank the Andrew W. Mellon foundation whose funding made this project possible. We would also like to thank Drs. Wendy Duff and Joan Cherry of the University of Toronto for their part in this project and the college and university archives and special collections that participated in this test and the members of our advisory board who helped vet questions and were invaluable consultants throughout this project. Many students also worked on this project with us. We acknowledge Morgan Daniels, Magia Krause, and Erin Passehl (University of Michigan), Luanne Freund and Juanita Rossiter (University of Toronto), Angela McClendon and Lori Eakins (University of North Carolina), as well as Andrea Johnson (University of Cork, Ireland), all these individuals contributed to this effort.

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# Assessing Information Competence of Students Using iSkills™: A Commercially-available, Standardized Instrument

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## Abstract

Since the publication of the Association of College and Research Libraries information literacy standards, a growing number of higher education institutions have implemented information competency initiatives. To inform instructional improvement, librarians and other faculty often construct locally designed information competence assessments. Although tailored to the interests of the institution, homegrown assessments can be labor intensive to develop, administer, and score, and may lack the reliability and validity needed for usable results. The iSkills assessment, a third-party tool, provides an alternative for institutions faced with developing information competence assessments. The iSkills assessment reflects collaborations with academic librarians from across the US, embodying a national perspective of information competence. Evidence for the reliability and validity of the instrument comes from studies conducted at many institutions, compared with the single-school perspective of most locally developed assessments.

The iSkills instrument plays a key role in several assessment projects being conducted throughout the California State University (CSU) system and at the University of Central Florida (UCF). This paper, which supplements the 2008 Library Assessment Conference panel, is presented in three parts. The first section addresses the instrument's purpose and development and the latter sections detail how UCF and CSU are using iSkills to assess student learning and evaluate instructional efficacy.

## The ETS iSkills™ Assessment

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### Background

ETS convened an international panel in 2001 to study current and emerging information and communication technologies and their relationship to critical cognitive skills.[1] Understanding that information and communication technologies cannot be defined as the mastery of technical skills, the international panel concluded that the cognitive skills involved in information literacy included general literacy (reading and numeracy), critical thinking, and problem solving. A consortium of seven college and university systems worked with ETS to tailor this international framework to the needs of higher education, refining the intended construct (skills to be assessed) in the process. Over a 2-year period, consortium members and other institutions collaborated in the design, development, and testing of the iSkills assessment.

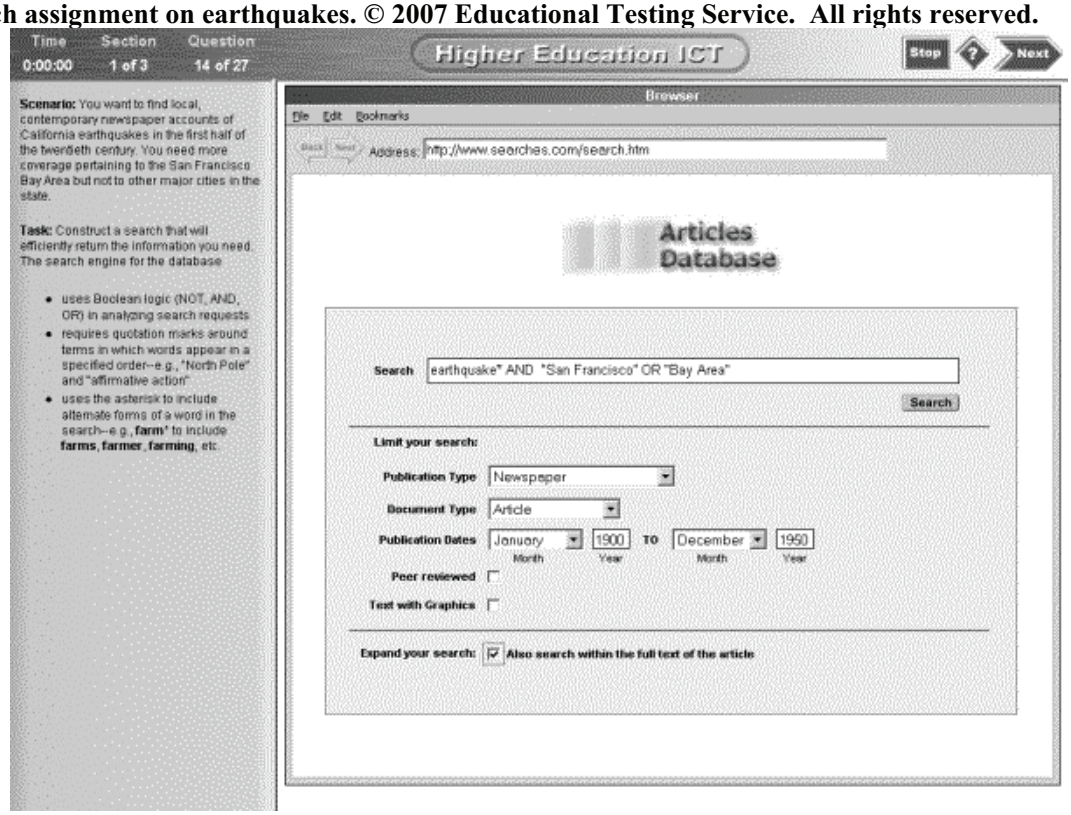
Through development of the assessment, consortium members further refined and deepened the construct, tying it to established information competence standards[2] by identifying seven performance areas: definition (using ICT tools to identify and appropriately represent an information need), access (collecting and retrieving information in digital environments), evaluation (determining the degree to which digital information satisfies the needs of the task in ICT environments), management (applying an existing organizational or classification scheme for digital information), integration (interpreting and representing digital information), creation (generating information by

adapting, applying, designing, or inventing information in ICT environments), and communication (sharing information properly in its contexts of use for ICT environments).

## Assessment Description

The ETS iSkills assessment is an Internet-delivered assessment. In that the assessment focuses on cognitive problem-solving and critical thinking skills associated with using technology to handle information, the scoring algorithms target cognitive decision making rather than technical competencies. Assessment administration takes approximately seventy-five minutes, divided into two sections lasting thirty-five and forty minutes, respectively. During this time, students respond to fifteen interactive tasks that are performance-based. Each interactive task presents a real-world scenario, such as a class or work assignment, that frames the information task. Students solve each task in the context of a simulation (for example, e-mail, Web browser, or library database) that has the look and feel of a typical application. In the assessment, for example, students might encounter a scenario requiring the use of a search engine to access information from a database (Figure 1). The results are tracked and strategies scored based on how well the students search for information, such as key words chosen and refinement of search strategies, and how well the information returned meets the demands of the task. The scoring for the iSkills assessment is completely automated. Unlike a multiple-choice question, each simulation-based task provides many opportunities to collect information about a test taker and allows for alternative solution paths. Scored responses are produced for each part of a task, and a student's overall score on the test is an aggregation of the individual scored responses across all the assessment tasks.

**Figure 1. In the iSkills assessment, students demonstrate their skills at handling information through interaction with simulated software. In this example task, students develop a search query as part of a research assignment on earthquakes. © 2007 Educational Testing Service. All rights reserved.**




The assessment differs from existing measures in several ways. As a large-scale measure, it was designed to be administered and scored across units of an institution or across institutions. As a scenario-based assessment, students become engaged in the world of the tasks, which are representative of the types of information competency assignments students should be seeing

in their coursework. As a simulation-based, performance-based assessment, the iSkills assessment purports to elicit higher-order critical thinking and problem-solving skills.

The iSkills assessment has two versions, Core and Advanced. The Core iSkills assessment was designed for students entering higher education, such as college freshmen. The Advanced iSkills assessment was designed for students moving to upper level coursework, such as sophomores and juniors. Identical in structure, general content, and assessment approach, the Core and Advanced assessment tasks differ in their complexity. Core tasks were designed to be easier, with lower reading loads, more straightforward task instructions, and fewer options than Advanced tasks. Katz[3] provided further details on the assessment, including its development, field testing, reliability, and validity research.

## Using iSkills™ to Measure Instructional Efficacy: An Example from the University of Central Florida

**Penny Beile**

The University of Central Florida established an Information Fluency initiative in 2006, with the objective of integrating information fluency across the curriculum. Programs and departments across the institution applied to and were competitively selected to participate. The programs initially selected were Philosophy, Nursing, Honors and SLS, which is a student success program. Program faculty decided what the information-fluent student in their respective disciplines would look like upon exiting the program as well as how they would assess whether students met those objectives. This section focuses on the Nursing program and discusses their assessment plan and results of the assessment to date. Baseline data were collected on a cohort of entering Nursing students at UCF to identify skill levels and student needs prior to instructional intervention. Nursing faculty and librarians are working together to develop and integrate information-intensive assignments and instruction to ameliorate identified deficiencies. Instructional efficacy will be evaluated by comparing the baseline data to assessment performance of future nursing cohorts. The baseline data have been collected and early results compared to demographic variables.

### Background

With over 50,000 student enrollments the University of Central Florida (UCF) is currently the sixth largest academic institution in the United States. The regional accrediting body is the Southern Association of Colleges and Schools (SACS) and the university came up for reaffirmation in 2006. At that time SACS had recently instituted a new requirement for reaffirmation called a Quality Enhancement Plan (QEP), which is loosely defined as an opportunity for the institution to enhance overall quality and effectiveness by focusing on an issue the institution considers important to student learning. After a rigorous process that sought input from faculty, staff, students, business people and alumni UCF selected information fluency as its QEP.

Upon SACS approval of information fluency as the institution's QEP, a call for participation was extended to university programs and departments. The four programs selected for the first year of the plan included Philosophy, Honors, Nursing and SLS, a student success program. Early on it was evident that program faculty held differing conceptions as to what information fluent graduates from their programs should look like, so they defined what information fluent students exiting their programs should look like. Further, with student learning as the focal point of the accreditation-driven initiative, the QEP implementation team created an assessment committee to work with programs on selecting appropriate measurement techniques.

Librarians worked closely with the faculty at a weeklong professional development institute and multiple assessment methods and instruments were presented and benefits and challenges of the various approaches were discussed. Ultimately, the faculty from the participating programs selected the type of assessment that best fit their objectives or that was most congruent with their disciplines. For example, Honors and Philosophy students are expected to produce a lot of papers, so those programs had the option of using rubrics to evaluate the quality of the literature cited and their use in developing and supporting their arguments. Conversely, the Nursing program has a tradition of using objective measures to assess student learning so they opted to use cognitive tests, including iSkills.

Although UCF has employed a variety of methods for assessing students' information

fluency skill levels, the central point of this paper is to discuss how and why iSkills was developed and to share how CSU and UCF have respectively used iSkills. To that end, iSkills is the only assessment reported on in this paper. Further, because UCF is most interested in measuring student learning, the QEP assessment committee emphasized the use of direct measures that assess the cognitive domain, as opposed to indirect measures that look at feelings, beliefs, and attitudes.

Direct measures are often categorized as objective or interpretive. Typically, objective measures have a limited number of responses (e.g., multiple choice and true/false) and consequently are fairly easy to score. These instruments are designed to assess knowledge of a topic. Some information literacy tests that fall into this category are the Standardized Assessment of Information Literacy Skills (SAILS) test and James Madison University's Information Literacy Test (ILT). Interpretive measures are also referred to as authentic assessments because they assess actual performance or behavior. For programs that want their students to produce better researched and documented papers rubrics can be applied that assess the quality of citations used by students. The iSkills instrument can be conceived of as a hybrid, as it is the only information literacy instrument that has attempted to cross the knowledge/performance dichotomy.

Table 1 illustrates a few of the differences between objective and interpretive measures. For example, there is a difference in cost, both in dollars and time, with developing or purchasing an instrument as compared to the labor to score and analyze interpretive data. Generally, trade-offs are involved in any large scale assessment and the decision to use a particular method is often based on the type of information needed and the pragmatics of administration and scoring. These were some of the issues the initial four programs faced when developing their assessment plans.

**Table 1. Direct Measures: A Comparison of Objective and Interpretive Instruments**

| | **Objective** | **Interpretive** |
|---|---|---|
| **Costs** | $$ to purchase | Labor to score |
| **Administration** | Large scale | Smaller numbers |
| **Results** | Wide and thin | Narrow and deep |
| **Domain** | Knowledge | Performance |

## Method

The BSN degree in Nursing is a two year program that accepts 120 students per year. Entering students begin coursework in the fall semester and matriculate through a set program of courses. Although the curriculum emphasizes information gathering and synthesis, there are few assignments that require extensive writing. The Nursing faculty's plan is to collect baseline data to assess student skills, design and implement curricular and instructional interventions at the program level, and then reassess to evaluate the effectiveness of these changes. Assessment will be carried out at both the cohort level and across cohorts and continue for at least five years. Specifically, iSkills will be administered to the cohort of Nursing students at the beginning of the program and again upon exit. Entry and exit test scores of the same cohort will be compared to measure student growth and to see how cohort scores have changed over the span of the program.

Baseline data will help determine whether students have the information and communication skills expected of rising juniors (i.e., if they are adequately prepared to enter the program). This data has implications for the general education program and the instructional design of the Nursing curriculum. Administering the assessment to the first cohort as they exit the program will reveal whether student scores have increased. This cohort will not have received any instructional intervention, so they are essentially acting as a control group. This will provide an indication of the effect of maturation or variables other than enhanced instruction on student scores, which can be controlled for in later analysis.

Scores across cohorts will also be compared to assess the effectiveness of instructional interventions at the program level. Examples of interventions include exposure to library instruction sessions, increased information-intensive assignments, and expressed information-related objectives as they relate to the Nursing profession. It is expected that instructional improvements will raise cohort scores over time. Table 2 offers a graphical representation of the assessment plan.

**Table 2. 2007-2012 Assessment Plan**

| | **Program Entry** | | **Program Exit** |
|---|---|---|---|
| **Cohort 1** | Baseline, no intervention, design instruction to target deficiencies (2007) | ⇨ | Maturation, possibly control for that later (non-instructional variables) (2009) |
| ⇩ | | | |
| **Cohort 2** | Intervention effect (2008) | ⇨ | Growth in program (2010) |
| ⇩ | | | |
| **Cohort 3** | Intervention effect (2009) | ⇨ | Growth in program (2011) |
| ⇩ | | | |
| **Cohort 4** | Intervention effect (2010) | ⇨ | Growth in program (2012) |

⇨ = cohort growth over span of program

⇩ = instructional efficacy/curricular interventions; continue to revisit the design with future cohorts

The project is entering its second year, and baseline data for Cohort 1 were collected in fall 2007. The iSkills assessment will be administered to entering Cohort 2 Nursing students fall 2008; in 2009 iSkills will be administered to entering Cohort 3 students and graduating Cohort 1 students. At that point we will begin to develop a more robust picture of where the Nursing students are at entry, what skills they have developed during the program, and how instructional changes have impacted their skill levels.

## Results

At the time of this writing, assessment data have been collected only for entering Cohort 1 students, therefore no comparisons can be made across or within cohorts. However, descriptive results from the baseline administration are informative. Of the 114 students enrolled in the program, 107 completed the iSkills assessment. Scores for the 107 students ranged from 485 to 625 ($M$=561.36, $SD$=29.94). iSkills has an established cut score of 575 for rising juniors, which suggests this cohort is

slightly below expectations for that level. These results have implications for the general education program and the academic preparation of students before they start work in their major, in addition to the Nursing faculty who may need to include instruction on basic skills they would expect students to have upon entering the program.

Scores were also correlated with SAT scores ($r(96)=0.443$, $p<0.01$), course grade ($r(113)=0.251$, $p<0.01$), and overall GPA ($r(113)=0.035$, $p=0.72$). iSkills scores correlated to SAT scores at 0.443 ($p<0.01$) which indicates a moderate positive relationship; as scores on the SAT increase, so do scores on iSkills. The correlation with course grade ($r(113)=0.251$, $p<0.01$) is not as strong, but it is a positive one. Of course, the number of students in the sample and the correlation statistic prohibit making any claims, but it does constitute an interesting line of inquiry. Are students who have higher test scores (and therefore information and communication skills) more likely to be successful in their coursework? Is information literacy tied to academic achievement? It makes sense that students with higher information literacy skill levels will be better prepared to complete class assignments that require information gathering and use, but little evidence exists to support this claim. It is hoped that future analysis may shed some light on these questions. There was no apparent relationship between iSkills scores and overall GPA, which is the average grade achieved at general education level.

## Discussion

Program level assessment can be used to identify where instruction is needed, to assess the efficacy of instructional interventions and models, and to provide evidence that academic institutions are meeting their instructional goals. Additionally, assessment can also help the library demonstrate its value as a contributor to the academic mission of the institution and position librarians as instructional partners with the teaching faculty. Assessing student learning can provide insight into the question of how effective are our current instructional models and possibly lead us to explore new frameworks, improve our own practice, and strengthen our research.

To close, this model—both the assessment plan and the use of iSkills as an assessment tool—has promise to meet the conference theme of assessment that is effective, practical and sustainable. With that said, assessment of student learning outcomes using objective instruments in general, and the use of iSkills in particular, is not without its challenges. Specifically, some things to consider prior to deciding on an assessment approach and instrument are the cost to purchase the test, the time it will take to secure testing labs, install software, and proctor the administration (a dry run is definitely suggested!), and perhaps the most challenging issue of all, how to recruit faculty and students. On the positive side, students report that they actually like taking iSkills, the score reports are informative, and iSkills has an established cut score for students who are exiting a two year program or entering into their program majors. Ultimately, iSkills is suggested as one assessment tool and indication of its use depends on a variety of factors.

## Using iSkills to Measure Instructional Efficacy: Experiences from the CSU

**Stephanie Brasley**

### Background

The California State University (CSU), comprised of twenty-three campuses, is the largest university system in the country with nearly 450,000 students, many of whom are major contributors to the California workforce. Under the visionary leadership of the CSU Council on Library Directors (COLD), the CSU established themselves in the early nineties as pioneers in information competence, with the CSU Statewide Academic Senate endorsing information competence literacy as a critical skill for all graduates in 1999.

Subsequent to the 2001 International ICT Literacy Panel,[4] ETS approached the CSU about a partnership to develop an assessment tool to measure information competence in the context of technology. In 2003, the CSU and ETS convened a group of charter institutions to develop an information competency assessment. Some CSU campuses participated in beta testing and all of the campuses administered this low-stakes test in 2005.

The CSU has sponsored an Information Competence Mini-Grant Program for discipline and library faculty partnerships since the late 1990s. Assessment and specifically use of the iSkills assessment was the focus of the 2006-2008 grant cycle. There were nine grants issued to California State University campuses which conducted research studies using iSkills: Long Beach, Los Angeles, San Marcos, Sacramento, San Jose, Sonoma, and the California Maritime Academy.

This section provides a snapshot of use for two campuses of different sizes.

## California Maritime Academy (CMA)

The California Maritime Academy, with approximately 850 students, has a small, specialized bachelors program in global studies and maritime affairs, facilities engineering technology and other marine-related studies. As Mindy Drake, library faculty and project director describes, this studies' goals were to:

- Establish a pre-test baseline of information competency of incoming freshmen and current seniors using 2006-2007 data and
- Create information fluency and communication literacy learning objectives, a rubric, and new assignments to be embedded into freshmen courses, using pre-existing data from 2005-2006.

### Method

The CMA used the advanced version of the iSkills assessment to test freshmen in Computing 100: Introduction to Computing and Engineering 120: Engineering Communications, as well as seniors in capstone courses. Additionally, they added nine additional questions relating to computing familiarity to the Demographic Profile Survey, thus providing for the opportunity for the individual campus to gain extra data relevant to their program.

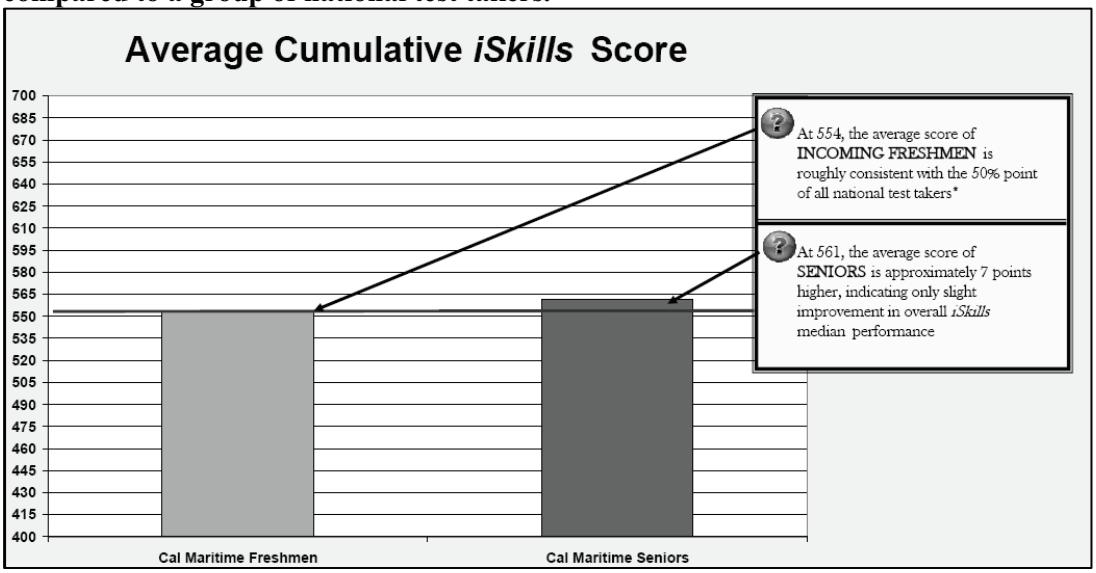
In addition to iSkills scores and data, the results of this pre-test survey informed instructional interventions. Freshmen and seniors were tested early in the fall, prior to information literacy instructional activities, to create a baseline for freshmen and a clear picture of current senior abilities in this area.

Of the 151 freshmen tested, 137 tests provided analyzable data, constituting 57% of the incoming freshmen. Similarly, of the eighty seniors tested, forty-nine were analyzed, representing 32% of the senior population.

### Summary Results

Figure 2 is one of the many charts the CMA produced to analyze student performance. This graph depicts the average score of CMA incoming freshmen and seniors in 2006-2007. In the Advanced version of iSkills, each test-taker is assigned a score ranging from 400–700 points. Freshmen and seniors earned scores of 554 and 561, respectively. The arrows point to a line representing the mean national score, based on approximately 1,200 early 2006 test takers. The freshmen scored roughly the same as the national test takers and the seniors did only slightly better. In early 2008, the National ICT Literacy Policy Council established foundational ICT Literacy (information competence in the context of technology) expectations for students taking both the Core and Advanced iSkills.[5] Students entering upper-division coursework (Advanced iSkills) are expected to score at least 575. While it is not surprising that CMA freshmen do not yet meet this upper-division expectations, it is disappointing that both the CMA seniors and the national reference group fell short of the foundational level expectation.

**Figure 2. This chart demonstrates the performance of CMA incoming freshmen and seniors as compared to a group of national test takers.**




Faculty at the California Maritime Academy used iSkills data in four meaningful ways: (1) to develop learning objectives for their information fluency program; (2) to establish a baseline of information competency for incoming freshmen; (3) to determine the information competency skill-set of current seniors; and (4) as a catalyst for innovation in design of information competency instructional activities for freshmen.

With the fruitful collaboration of Dr. Julie Chisholm, Dr. Paul Jackson, and librarian Mindy Drake, and robust iSkills data, this team was able to accomplish much during their year-long grant cycle. Deliverables included Information Fluency and Communication Literacy Learning Objectives; a rubric for assessing the development of information and communication technology skills within course assignments; modified assignments for Computing 100 and Engineering 120; and a syllabus for LIB 100: Information Fluency in the Digital World, a newly developed course with iSkills-influenced learning objectives taught this past academic year by Mindy Drake.

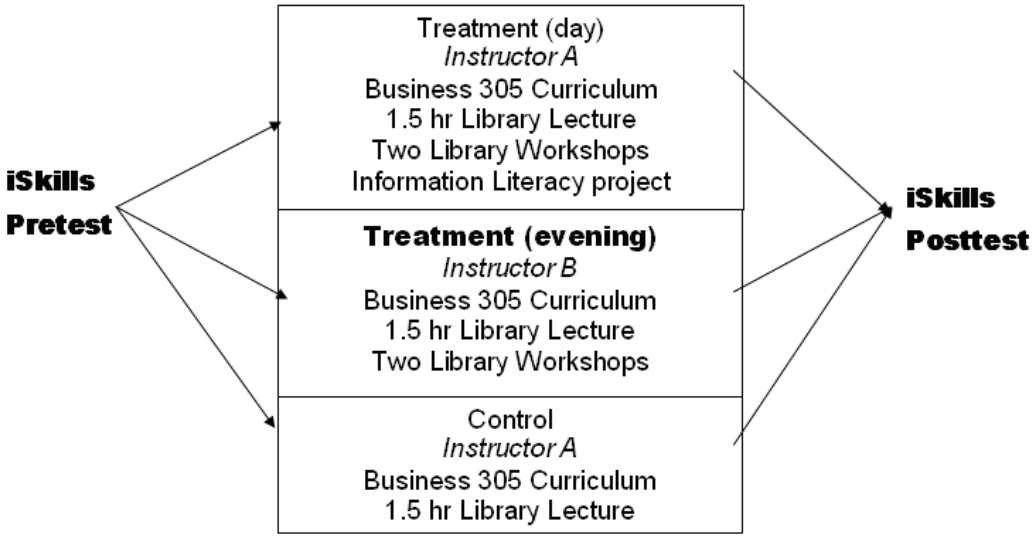
## CSU Los Angeles (CSULA)

California State University Los Angeles is a medium-sized campus with approximately 21,000 students. A major goal of this study was to evaluate information competency-related instructional interventions. The motivating question for this research study was the following: Do the additional workshops in which some of the students participated result in measurable improvements in the students' information competence, as measured by iSkills scores? CSULA used the iSkills Advanced version as a pre-post test for nine sections of juniors and seniors (n=229) enrolled in Business Communications, an upper-division writing requirement for the College of Business and Economics, over the course of three quarters (fall, 2006, winter, 2007, spring, 2007). Of the 229 students, approximately 60% were transfer students and 70% ESL students.

### Method

Each quarter, there were two sections of the treatment group and one section of the control group, with Instructor A teaching one control and one treatment section. The control group received the business 305 curriculum and a one and one-half hour lecture on library skills. In addition to the content received by the control group, the treatment groups also received two library workshops. Finally, one of the instructors for the treatment sections provided additional information literacy instruction in the form of an information literacy project.

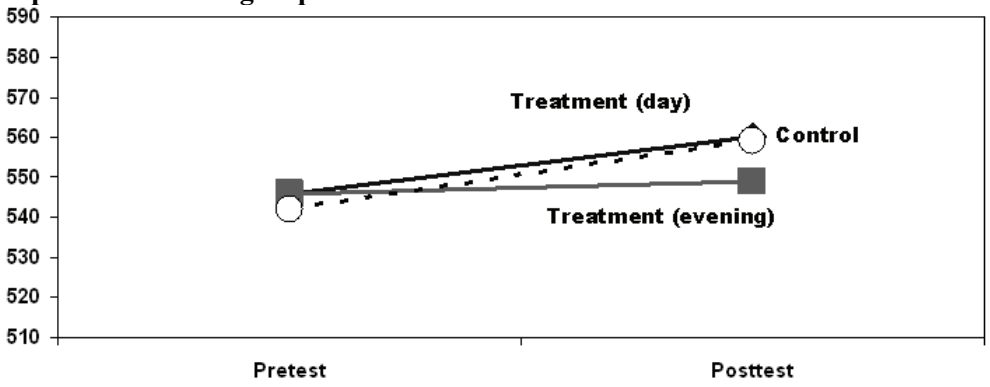
**Figure 3. CSU Los Angeles Methodology**




## Summary Results

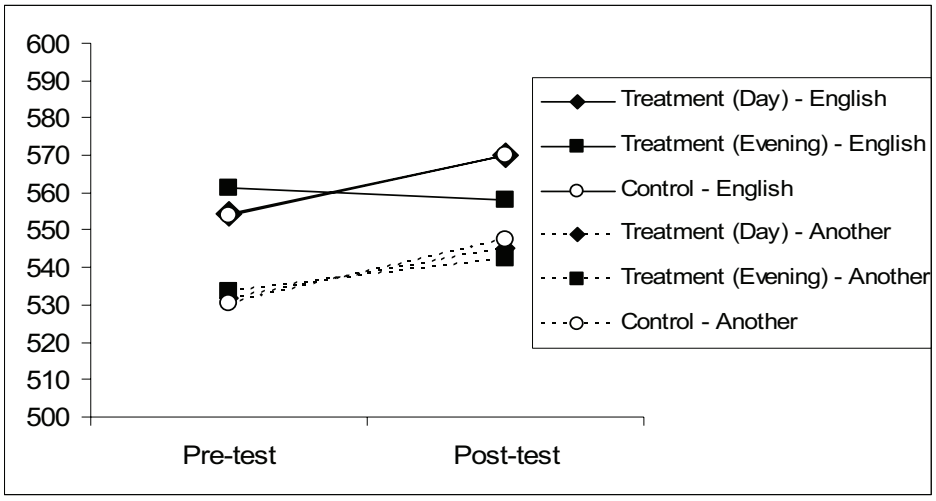
Results from fall, winter, and spring were combined for this statistical analysis. Of the 229 student test-takers, this comparison includes only those 159 students who completed both the pre-test and post-test. Figure 4 provides a comparison of pre-post test scores for the three groups. The workshops did not appear to have the intended effect in that students in the Treatment (DAY) and Control conditions showed similar improvement in iSkills scores. Thus, increases in scores cannot be uniquely attributed to the library workshops. Increases in Treatment (DAY) and Control groups might be due to factors such as instructor, time-of-day, or full-time status. The Treatment (EVENING) class showed no improvement in scores. The aforementioned factors could also contribute to the lack of effect for this group.

**Figure 4. Summary iSkills Pre-Post Score results of Treatment and Control groups. Dashed line represents control group.**




Another feature of the CSULA study was its comparison of student performance by differing English proficiency. Texts for the iSkills tasks are targeting a tenth-grade reading level. Completing the iSkills assessment involves a large amount of reading. The degree of reading brings into question the validity of the assessment for non-native English speakers. Because of the timed nature of the test and dictionaries or other supplementary materials being prohibited, this may cause an unfair disadvantage to students whose first language is not English. Figure 5 presents data based on students' self-reporting of their English language skills. Students were asked whether they know English best, English and another language about the same, or another language best. In the figure, "Another" refers to students who selected one of the latter two options.

**Figure 5. Solid line represent students reporting that English is their best language. Dashed lines represent students reporting that they speak a language other than English as well or better than they speak English. This chart demonstrates the performance of English-Best and Another-Best students across three experimental conditions.**




Overall, students who reported knowing English best scored higher on the iSkills assessment than did other students. However, both English-Best and Another-Best groups showed similar increases in iSkills scores between the beginning and end of the business writing course, suggesting that they gained similarly from the combined experience of taking the iSkills assessment and completing the business communications course, regardless of receiving additional information literacy instruction.

Project directors Dr. Carol Blaszczynski and Catherine Haras will use the results for accrediting purposes and to provide evidence and rationale for a business course targeting information literacy skills.[6]

—Copyright 2008 Stephanie Brasley, Penny Beile, and Irvin Katz

## Endnotes

1. International ICT Literacy Panel, "*Digital Transformation: A Framework for ICT Literacy*," (Princeton, NJ: ETS, 2002), http://www.ets.org/ictliteracy/digital1.html.

2. Association of College & Research Libraries, "Information Literacy Competency Standards for Higher Education," 2002, http://www.ala.org/ala/acrl/acrlstandards/standards.pdf.

3. I. R. Katz, "Testing Information Literacy in Digital Environments: ETS's iSkills™ Assessment," *Information Technology and Libraries* 26, no. 3 (2007): 3–12.

4. International ICT Literacy Panel.

5. R. J. Tannenbaum and I. R. Katz, "Setting Standards on the Core and Advanced iSkills™ Assessments," ETS Research Memorandum No. RM-08-04, (Princeton, NJ: Educational Testing Service, 2008), http://www.ets.org/iskills/cutscores/.

6. C. Blaszczynski and C. Haras, "Assessing the Information Skills of Business Students: A Preliminary Study," 2007, in review.

# Measuring Student Information Literacy Learning Outcomes: Using the Program Review Process to Gather Evidence of Learning

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## Abstract

Best practice for assessment suggests that evidence gathered from multiple sources and viewed holistically should reinforce each other and allow for meaningful conclusions. That is how the California State University in San Marcos has embarked on assessing their Information Literacy Program. This pro-active program targets instruction for all academic degrees and information competencies are also embedded in each lower-division General Education course. Three different assessment initiatives will be presented in this paper. The use of the iSkills test as a backbone for the study of first-year students and their retention; information literacy outcomes as measured in the General Education Assessment Plan; and participation in the annual assessments for academic programs are three campus-wide initiatives gathering evidence that students are becoming information literate. While the first two assessment efforts will be briefly described, a major portion of this paper will focus on the integration of information literacy assessment into the program review process. What do these assessments tell us of student information literacy? What conclusions do we draw regarding the efficacy of the Information Literacy Program? What improvements or changes can be made based on these assessments? These questions will guide the conclusions to this paper.

## I. Introduction

Much of what constitutes information literacy instruction—critical thinking, computer literacy, problem-solving, and lifelong learning, directly affects student learning in all their courses. This requires us to work closely with disciplinary faculty and their student learning assessments to fully gather the data on information literacy skills. As pointed out in the *Standards for Information Literacy Competency*,[1] "discussing assessment methods collaboratively is a very productive exercise in planning a systematic, comprehensive information literacy program. This assessment program. . . should make explicit to the institution's constituencies how information literacy contributes to producing educated students and citizens." At the California State University in San Marcos (CSUSM) we wanted to have these discussions.

Collaboration throughout the institution is needed to develop a curriculum that "helps students at various places in their academic studies by seamlessly weaving information competence horizontally and vertically throughout the curriculum, with ample reinforcement occurring in both lower-division and upper-division courses."[2] Over the years, librarians and faculty at CSUSM have worked hard to restructure academic programs to ensure that students have the opportunities to become information literate.[3] Rockman accurately recognizes that information literacy instruction includes a variety of factors when she states, "discipline-based faculty must be collaborative partners in the learning process across the curriculum, courses must be intellectually linked to each other whenever possible, information literacy skills must be reinforced and developed over time, and students must have built-in opportunities for success from freshman to senior levels."[4]

Librarians and disciplinary faculty must work together to not only ensure that students successfully master information literacy competencies but also to gather evidence that students are becoming information literate. At CSUSM, the use of the *iSkills* test as a backbone for the study of first-year students and their retention; information literacy outcomes as measured in the General Education Assessment Plan; and participation in the annual assessments for academic programs are three campus-wide initiatives gathering this evidence. While the first two assessment efforts will be briefly reviewed, a major portion of this paper will focus on the integration of information literacy assessment into the program review process.

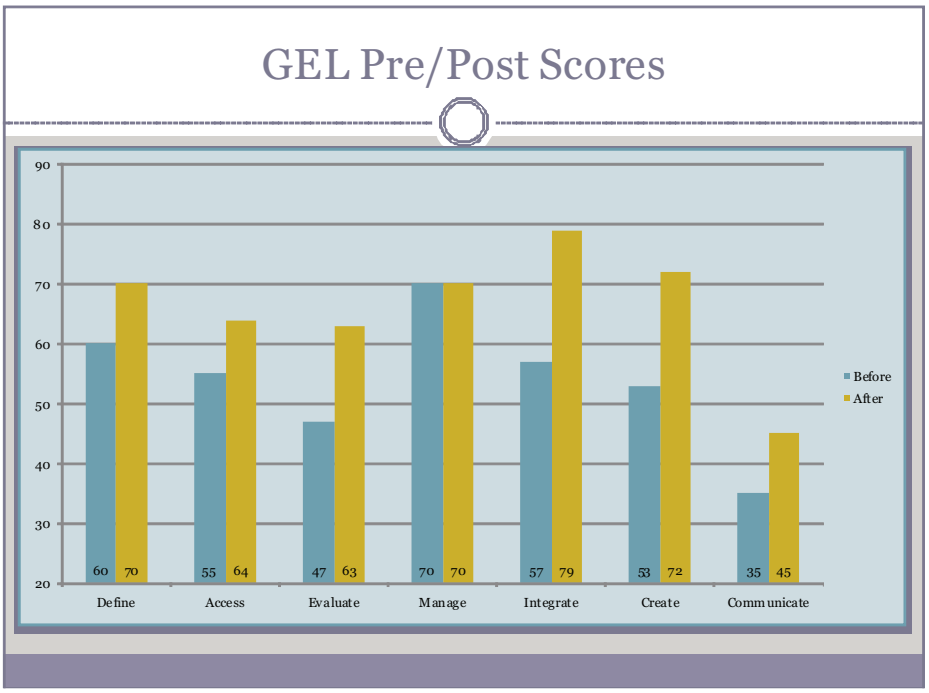
## II. Educational Testing Service iSkills Test

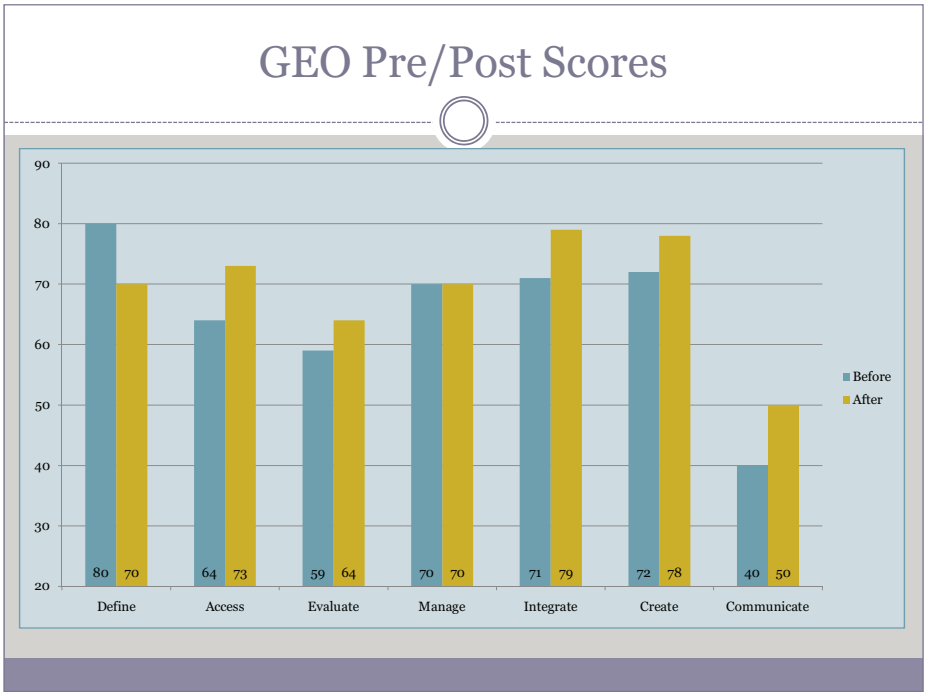
While the criteria for lower-division General Education courses at CSUSM require that the faculty demonstrate how information literacy and use of the library are integrated into their courses, conversations with faculty and reports that result from academic program reviews evidence a perception that students are not prepared for college-level research. In fall 2006, CSUSM began a two-year project using the *iSkills* test as the backbone to accompany data gathered to assess students in their first year of college. The goals of the two-year *iSkills* project were to initiate a campus discussion about students' research skills, to measure students' abilities as presented by the *iSkills* test, and to measure the variables surrounding students' success rates as provided by grade point average, and retention or persistence. In this respect the *iSkills* was just one part of the project with the overarching goal of better understanding our first year students.

The *iSkills* test is an online scenario-based test of student skills in information and technological literacy, loosely based on the *Information Literacy Standards for Higher Education* measuring seven skills areas: Define, Access, Evaluate, Manage, Integrate, Create, and Communicate. Institutions receive several score reports providing data that can be used for various important purposes. For example, they can help determine the placement of transfers in various courses, they can be used to measure specific outcomes such as use of spreadsheets or word processing software, they can provide evidence for accreditation requirements or support the evaluation of the curriculum based on the strengths and weaknesses found. Additionally students receive individual score reports which explain their scores both in terms of their peers and in terms of the highest score that they could have achieved. These can be used by the students to help guide them in their academic career by showing them areas that may need additional attention.

Students taking the Core *iSkills* test are generally in the last year of high school or first year of college making them a good comparison group for our population. Students were pre-tested in the first week of the semester and tested again in the week before final exams. The testing took place during the regularly scheduled class time in a library computer lab. In total, 293 students participated in the project. Additionally, a survey was constructed and administered late in the semester to link student test scores with other information about the students (e.g., SAT scores, whether they used the Writing Center, or visited professors' office hours). This data was summarized and became a valuable part of other institutional data on the first year experience at CSUSM.

In this project two specific lower-division General Education courses were selected for taking the Core *iSkills* test as one goal of the project was to compare students enrolled in the First Year Experience course (GEL) with students in an oral communications course (GEO) in terms of information literacy learning. Although we had expected the GEL students to outperform because they receive three weeks of information literacy instruction, this was not the case. We continue to analyze the factors that lead to this difference in scores including student advising and the students' need for remediation in English, math, or both. However in both courses student scores improved, students in the GEL course are brought up to the GEO level. Second year GPA and retention data is also being reviewed and incorporated into the overall analysis.




The areas that need more instruction can easily be identified using the *iSkills* test. The following chart clearly shows that student's performance improved in all skill areas except the areas Define and Manage, with the largest improvements in the areas of Integrate and Evaluate.




Ralph Catts makes a strong argument against using standardized tests. They can be "unfair, either to an institution which sets goals which are different from those assumed in the standardised test. Or to the individual students who are not drawn from the same culture as the population on which the test was 'standardised.'"[5] Both are very valid concerns that must be addressed. Cecilia Lopez agrees ". . . unless the particular test selected has been found to be appropriate to the specific learning objectives it is being used to measure. . . . They may not provide students an opportunity to demonstrate skills sufficiently in problem solving tasks or they may not adequately measure higher level thinking skills, the practical application of knowledge, or the development of values."[6] Other assessment efforts on campus helped provide more data for analysis.

## III. The General Education Program Assessment

Concurrent with but totally independent from the *iSkills* project was the General Education (GE) Assessment implemented at CSUSM beginning in fall 2006. This first cycle focused specifically on two programmatic student learning outcomes: written communication and information literacy. These two student learning outcomes were measured in all six of the General Education Areas required for all undergraduate students.

Through individual discussions with the instructors of these GE courses, the specific assignments to be used as evidence were identified. Using a common rubric a total of forty-eight instructors assessed 1796 pieces of student writing in nineteen different courses, some with multiple sections. Each piece of writing was scored as to whether students were **locating** appropriate sources for the paper and on whether they were **using** the sources that were cited. That is, sources were not merely listed in the bibliography but rather there was evidence in the writing that the students had actually read the sources and used them.

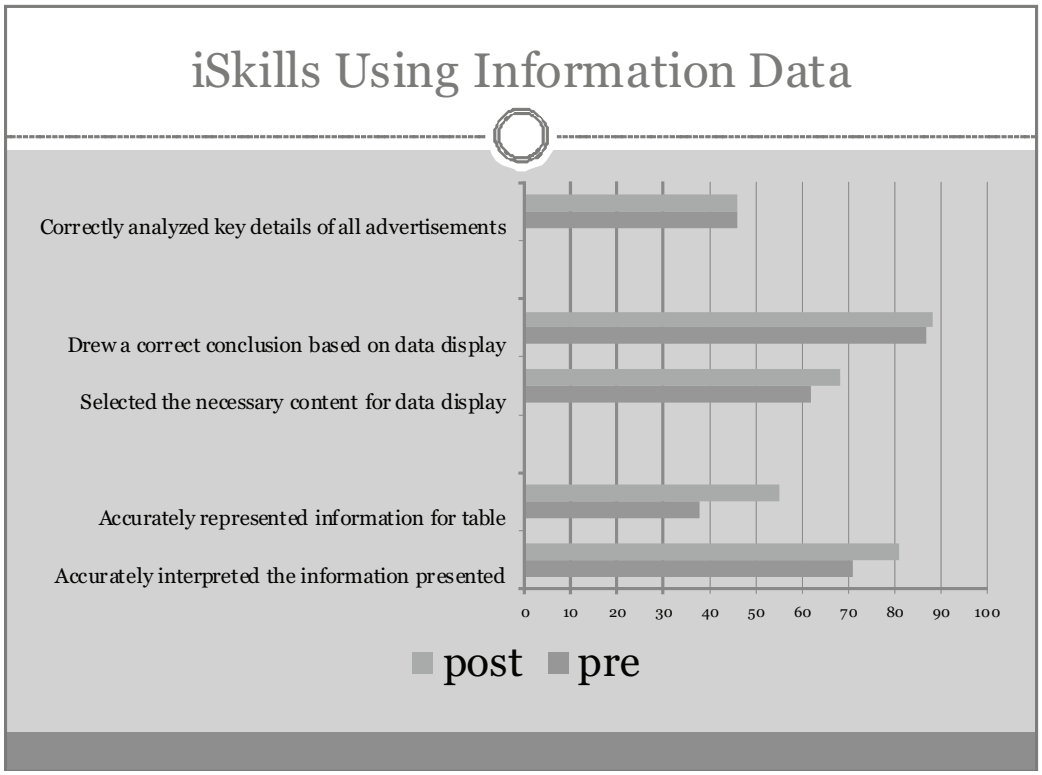
| **Student Learning Outcome** | **Meeting minimum** | **Rated superior** |
|---|---|---|
| Finding sources | 86.5% | 20.9% |
| Using sources | 82.9% | 25.5% |

The results as seen in this table show that students had more trouble using sources than finding them. This is understandable because students generally tend to find information, perhaps not the best information, tend to have satisfactory searching skills using online retrieval systems, and generally have some information literacy instruction during their first year of college targeted to the Information Literacy Standard Two: *The information literate student accesses needed information effectively and efficiently* but not necessarily Standard Four: *The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose*. One area for further research would be to better understand how to help students ***use*** the sources they find.

Our findings also reinforced anecdotal evidence that students do not make connections between one course and another. What they learn in one GE Area is not necessarily applied in another Area. This is true for other learning outcomes such as written communication not just for information literacy. Making these connections is another area that we will target for improvement in the future.

The results of the GE Assessment can be further analyzed to compare students from different courses or majors. For example, taking the results for the entire population and comparing these to the results for the three psychology classes that were tested shows that in the psychology classes the percentage of students with a superior rating is higher, both for finding sources (39.9% versus 25.5%) and for using sources (30.5% versus 20.1%). Two of the three psychology courses that participated in the assessment have regular information literacy instruction and are supported by librarians. This data supports the librarians' efforts to reinforce collaboration with core courses in the major.

A quick comparison of this data with the findings from the *iSkills* assessment shows both assessments confirming that students are better able to find information than they are in using that information. Finding or accessing information was easy to compare but for the skill in *Using* we had to combine three *iSkills* areas: integrate, create, and communicate, and take the average score. A review of the *iSkills* questions with corresponding pre/post scores as seen in the table below makes us doubt whether comparison is possible. None of the skills measured in the *iSkills* adequately captures what we want when we ask students to use information sources in their written research papers because the ability to ***use*** sources for an academic purpose is much more complex.



## IV. Annual Assessments and Program Reviews

Conducting comprehensive reviews of academic degree programs to insure quality education is common practice throughout the United States and mandated by most accrediting agencies. These program reviews study the educational practices, the curriculum, the faculty, and the student learning experiences of a specific degree program. The program review process is guided by academic audit questions that require the program to have clearly articulated student learning outcomes that are aligned to the curriculum, are widely distributed and communicated to students. Starting in fall 2007, academic degree programs at CSUSM are expected to provide annual reports delineating how they have measured student achievement of these outcomes throughout the program but especially upon graduation, and describing how the results of these achievement measures are being used to improve the program. During the program review these annual assessment reports are compiled and summarized as part of the self-study process.

The annual assessment process was seen as a prime opportunity for the Information Literacy Program to get involved in assessment at the campus level in two ways: one was to conduct an annual assessment of student learning in information literacy classes, the other to review the programmatic student learning outcomes of the various academic programs and look for information literacy and the assessment of information literacy at the program level. Being included in the annual assessments has brought attention to the Information Literacy Program but has also posed a challenge.

The Information Literacy Program has programmatic student learning outcomes as embodied by the *Standards for Information Literacy Competency* and the corresponding performance measures. These form the basis for our curriculum, what we teach and what we want to measure. During this first year the librarians chose Standard Three: *the information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system*, as the area of focus. One of the primary goals of the Information Literacy Program is to help students become critical thinkers when using information. Students must evaluate information based on a series of criteria and develop the skills needed to be critical consumers of information—learning to look for bias, and generally to be wary of the information they use. Additionally we want to assure that students can recognize scholarly information and use it in their academic writing.

In this assessment students were asked, "What characteristics do you look for to determine if an item (book, article, Web site) is scholarly, and appropriate for college-level research?" The student responses were coded based on the answer as well as the number of characteristics listed. Student with 1-3 points were rated "Partial," with 4 points were rated "Acceptable" and with five or more points were labeled "Exceptional."

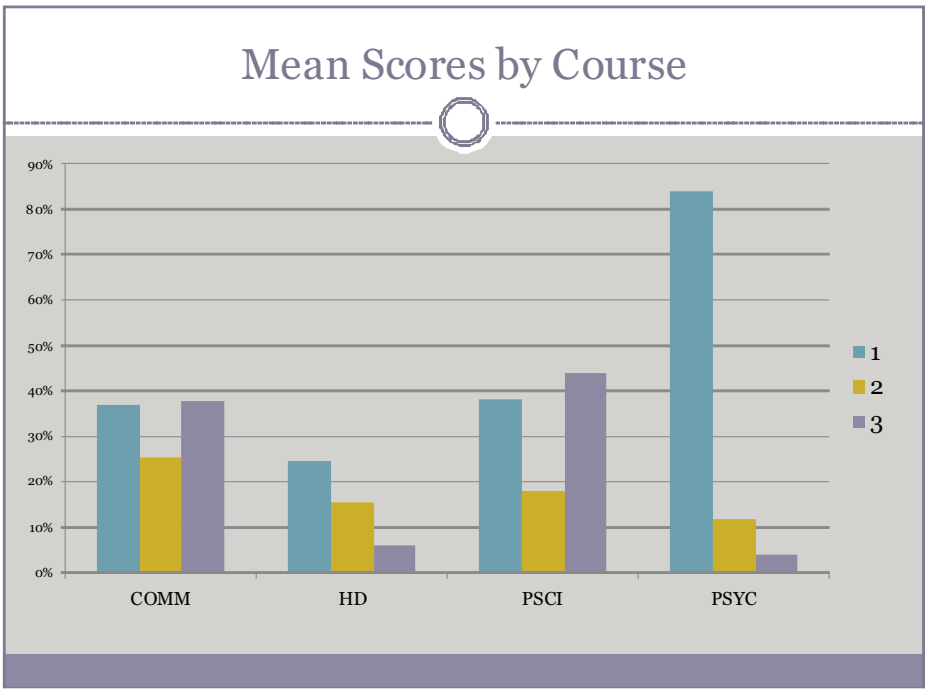
Because librarians generally teach class sessions tailored to specific assignments and usually are not with any particular students more than a few hours, it was decided that all students in all the various classes receiving librarian-led information literacy instruction would be assessed, whether the lesson plan called for discussing evaluation of resources or not. A total of twenty-four different courses were involved in this library annual assessment with 1247 students participating. The 1099 cases were included in the final analysis.

Reviewing the scores by academic standing in the chart below, it is clear that our students do not generally make conscious their criteria for selecting the sources they use. Only half of freshmen failed the test, whereas more upper-division students failed (59.6% for sophomores, 68.2% for juniors and 66.7% for seniors). However the table also shows that freshmen, sophomores, and seniors have comparable excellent percentages (17-18%). Are these differences significant? Yes, a chi square test shows us that there is a significant association between class and score ($\chi^2(1,N=1099) = 34.84$, $p < 0.001$). It is also clear that our first year students are getting more instruction in evaluation of sources than perhaps the upper-division students, many of whom are transfers from local colleges and have received little or no information literacy instruction in their lower-division coursework.

## Class score cross tabulation

| | Partial | Acceptable | Exceptional | Total |
|---|---|---|---|---|
| **Freshmen** | | | | |
| Count | 317 | 198 | 311 | 628 |
| Percent w/n class | 50.50% | 31.50% | 18.00% | 100% |
| **Sophomore** | | | | |
| Count | 59 | 23 | 17 | 99 |
| Percent w/n class | 59.60% | 23.20% | 17.20% | 100% |
| **Junior** | | | | |
| Count | 133 | 39 | 23 | 195 |
| Percent w/n class | 68.20% | 20.00% | 11.80% | 100% |
| **Senior** | | | | |
| Count | 118 | 26 | 33 | 177 |
| Percent w/n class | 66.70% | 14.70% | 18.60% | 100% |
| **Total** | | | | |
| Count | 627 | 286 | 186 | 1099 |
| Percent w/n class | 57.10% | 26.00% | 16.90% | 100% |

Taking a fairly novel approach O'Hanlon[7] at the Ohio State University does an analysis of course syllabi looking to understand the goals and objectives of courses where students would likely be exposed to information literacy instruction. This analysis and a corresponding faculty survey, gather data on what the students are expected to do in research projects or assignments and whether the instructor or a librarian teach the students the skills to be successful in the project. Gathering this data across the entire academic degree program can provide an overview of how information literacy is covered for students and allows librarians to initiate a dialogue with the program faculty about the necessary support for student success. Following this model, librarians at CSUSM did an initial analysis of all the degree programs in order to better understand student scores on this assessment and to compare them with the results of other assessments. A review of how well students in each major or degree program scored in the evaluation assessment shows that **students who stated that their degree program** was mathematics, communication, or political science did very well. Whereas students who stated their major degree program to be psychology or nursing or human development did less well. These findings allow the librarians to dialog with these departments to discuss testing for students in their final stages of their university career to assure that they are information literacy by the time they graduate. Furthermore a review of the performance of students in specific courses participating in this annual assessment gave the following results:




The percentage of students getting a score of 1 partial, 2 acceptable or 3 exceptional in **each of the non-General education courses** that were tested show that students in the two communication courses, and the two political science courses performed surprisingly better in the evaluating sources assessment than the students in either the three human development courses or the four psychology courses. We know that four of the six core courses in communication and four of the six core courses in political science have information literacy components, meaning that students in these majors have repeated information literacy instruction in the classes for their degree. However this is not the only answer to student achievement as human development students also have four of their five core courses with information literacy components. A future analysis will look at the pedagogical methods and the various assignments used in the political science and communication courses to see if the answer lies therein.

## V. Integration of Information Literacy Assessment into the Program Review Process

Inclusion in the annual assessment process gave the Information Literacy Program an opportunity to carefully review the programmatic student learning outcomes of the various academic programs looking for information literacy and the assessment of information literacy at the program level. In 2007/2008, at least five academic degree programs (Economics, History, Sociology, Psychology and Political Science) clearly included information literacy in this first round of departmental annual assessment of student learning. It is particularly exciting to discuss these assessments as they were planned and implemented independent of the library.

The Economics department used the required research paper assignment in one upper division property rights course to measure if students were able to: formulate meaningful economic questions (or define an information need), retrieve information (or access information), apply relevant economic concepts (or use information), and effectively communicate their research.

The History programmatic assessment focused on evaluation of information sources from the Web-based on the ability to "incorporate new digital and multimedia formats into the practice and presentation of history" specifically "questions about what issues are raised in using the Internet for research . . ." The assessment took place in the research methods course, the gateway course for the major, and the capstone seminar. The methods course has a learning objective that reads "ability and desire to gather and critically evaluate information" and includes a strong information literacy component and librarian instructional

support. In the library assessment of students' evaluation skills, those students declaring history as their major did fairly well as 50% of them received an acceptable or exceptional score. A closer review of the data to ascertain differences between the 300 level course and the capstone would prove interesting and allow for a richer discussion between the librarian and the department.

Another department, Political Science, had a very strong showing in the library assessment where 50% of the students declaring this major rated an exceptional score. Students in the two political science courses that participated in the assessment had 40% of the students rated exceptional. In the departmental assessment, a pre/post test was used in the 300 level research methods course to measure the rather general objective: "demonstrate working knowledge of research methods." This included aspects such as formulate research question, (or define an information need), and connect study findings with hypothesis (or use information), among others.

One of the two student learning outcomes measured by the Psychology department was information literacy. This was accomplished via a survey of faculty on their perceptions of student information literacy abilities. The psychology program places great emphasis on information literacy as their programmatic student learning outcomes include:

- "Read interpret, and evaluate empirical investigations in psychology";
- "Work with colleagues to design, carry out and analyze research projects and class assignments";
- "Write a coherent literature review of a topic drawn from an area of psychology";
- "Search relevant databases to obtain information about psychological topics";
- "Routinely use the computer and electronic technologies needed for psychological studies"; and
- "Apply APA guideline."

In the library annual assessment students in the psychology courses did not fare well. Of the four classes tested more than 80% of the students scored a partial answer (one out of three) and of the 116 student declaring psychology as their major 67% rated a partial answer. These results support the faculty survey that identified evaluation of sources as the area where students have the greatest difficulty. On the other hand, as noted during the discussion of the GE assessment results, the students in the psychology courses participating in the GE assessment were clearly more successful than the general population in finding and using information sources. Reinforcing very healthy relationships with the psychology faculty and ongoing discussions about student information literacy are needed.

In this year's annual assessment, the Sociology department concentrated on rating research papers written for the capstone course. Three of the four areas scored relate to information literacy competency including locating, understanding, and summarizing/synthesizing scholarly research. In the library annual assessment on evaluating information, of the students declaring sociology as their major, 45% had a partial or failing score.

Further discussion with these five academic degree programs and a deeper analysis of the results of their annual assessment of student learning will allow for stronger collaboration between the departmental faculty and the library faculty. An analysis of programmatic student learning outcomes provides input to a discussion of the integration of information literacy into degree programs as well as a platform for the assessment of information literacy within this program review process.

## VI. Conclusions and Next Steps

What do these assessments tell us of student information literacy? What conclusions do we draw regarding the efficacy of the Information Literacy Program? What improvements or changes can be made based on these assessments? How do we close the loop? Participating in these various assessments of student learning have provided some evidence that students are learning. The *iSkills* project clearly demonstrated student achievement in the skill areas evaluate and integrate. The General Education Assessment of information literacy pointed to students' ability to find information sources but highlighted weaknesses in their ability to use that information. The library annual assessment focusing on students' understanding of the characteristics of scholarly sources showed statistically significant differences between students' score and their year in college but reinforces the other assessments in giving evidence that students still have much to learn. In these initial assessment efforts one important conclusion is that we too have much to learn.

While the librarians were very enthusiastic about participating in these various assessments, and interested in reading more about the various academic program annual assessments of student learning, there have been challenges. Questions arose such as: do we test the students in all the various courses the Information Literacy Program teaches or should we try to reach non-library users also? Can we mold the lesson plans of these information literacy instruction classes to fit the areas identified as weaknesses or should we stay close to the objectives established by the instructor and librarian based on the specific research assignment? Can we realistically expect students to learn the various information literacy learning outcomes in this haphazard fashion? Can one future action be the development of systematic information literacy instruction in each academic program?

One resounding conclusion echoes Makey and Jacobson[8] who state: "Course-specific strategies enhance institutional assessment efforts by providing a range of instruments to measure information literacy within unique educational contexts." Focusing on one objective each year and using course-specific strategies, a system used in the GE assessment, may prove more effective for measuring information literacy competence than using a standardize measure such as the *iSkills* test.

Using the program review process, an institution-level assessment system, to identify and measure student information literacy learning outcomes in the academic programs will allow us to move further in becoming a learning organization. For to be a learning organization requires more than intelligent individuals, it calls for an organization where everyone is information literate, able to define a problem, find and evaluate information, and use it appropriately to integrate this information into their learning. Webber and Johnston[9] describe an Information Literate University (ILU) and identify the characteristics of such an institution at the embryonic, intermediate and advanced level. This very useful model allows an institution to measure how far they have progressed in their quest to fully integrate information literacy into the institution and then target specific areas for future efforts. The advanced developmental level in the teaching/learning/assessment area includes three main points: a plan that progressively embeds information literacy learning outcomes into the curriculum, a variety of appropriate teaching/learning/assessment methods, and an expectation that information literacy work be assessed in the same way as other assignments, receiving a grade or credit appropriate to the importance of the work. We might further this model by including the importance of information literacy assessment integration into other institutional assessment measurements. Much as we want information literacy teaching/learning/assignments to be part and parcel of the academic program, we also want the assessment of information literacy to be integrated and institutionalized.

Perhaps our greatest challenge is yet to come. Given what we now know based on the evidence gathered, how are we to close the loop? Using this evidence what actions must we take? At CSUSM the curriculum is in place, the partnerships have been made, collaboration does occur. It is through these collaborations and partnerships that the curriculum can be further improved and the assessment institutionalized to assure that our student graduates are information literate and successful.

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# Assessment in LIS Education

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## Abstract

In recent years, librarians, regardless of the type of library in which they work, have become increasingly focused on evaluation and assessment. There are a number of motivations for this shift: a need to improve the quality of services offered, a respond to calls for accountability, a push to position the library as more of an institution player, a sincere desire to support the institutional mission and vision statements. As a result, more and more librarians are adding assessment responsibilities to their job duties many of whom have no formal training in both evaluation and assessment. This panel will differentiate between evaluation and assessment, with greater emphasis placed on assessment. The purpose of the panel, composed of LIS educators, is to discuss what some educational programs are covering. What assessment skills are library and information science schools teaching students to prepare them for the workforce? What new assessment skill sets are emerging? This panel of LIS educators will discuss LIS student learning outcomes, assignments, and courses designed to prepare the next generation of LIS professionals for their assessment responsibilities.

## Megan Oakleaf

At the iSchool at Syracuse University, faculty believe that a solid grounding in assessment is critical to the preparation of pre-service librarians. As a result, assessment of library services is the focus of one core course (*IST 613*) and a part of several other courses.

In IST 613: Planning, Marketing, and Assessing Library Services, assessment theory and practice is taught "in context." Students complete projects proposed by librarians in the Syracuse area and across the country. The projects are focused on new or recently revised services provided by the "host" libraries that agree to work with IST 613 students. In past semesters, services have included digital reference, library 2.0 technologies, downloadable audio, gaming programs, book or summer reading clubs, information commons spaces, single service points, coffee bars, and digitization projects.

The in-context approach to learning assessment is important for three main reasons. First, when students learn new information in context and apply it in real world situations, they have authentic and meaningful experiences. Second, by engaging actively in the learning process, "Students construct meaning and knowledge: they do not have meaning or knowledge handed to them in a book or lecture. Learning, then, is a process of students 'making sense' of how things fit together; factual and procedural knowledge is built along the way".[1] Finally, by learning assessment in context, students realize that assessment is open-ended and there is no one right answer to assessment problems in the real world.

In IST 613, students select from a list of proposed projects, then they prepare three planning documents: a project management plan, a marketing plan, and an assessment plan. Assessment plans are extensive and include a literature review, service outcomes with links to strategic planning goals, target audiences, methods and tools for assessment evidence collection, data plan, result scenarios, decision-making indicators, recommendations for reporting results, responsible parties, and timeline. As students develop assessment plans, they are reminded that the intended outcome of assessment is to enable librarians to make informed, evidence-based decisions in order to increase library patron knowledge and abilities, improve library services, gain needed resources, answer calls for accountability, and improve the assessment process itself.

The assessment plan assignment impacts both IST 613 students and the libraries they work with. For example, students often gain professional positions as a direct result of this assignment. One

student's work earned her accolades as the 2008 Federal Librarian Technician of the Year. Another student was recommended to become chair of the New England Law Library Consortium assessment committee.

Librarians at host libraries also report significant impacts on their work. Nearly all librarians provide very positive evaluations of student work, and most use student assessment plans in whole or in part. They also provide testimonials that are useful in encouraging future library students to take assessment seriously. For example, as a result of an IST 613 assessment plan for a family resource center at a children's hospital, one hospital administrator wrote:

> "We have paid thousands to 'consultants' who have produced reports that don't come anywhere near the level of detail and professionalism that these students provided for us gratis. If we were to move on this we could have a family-centered program at the [children's hospital] that would become a national model."

Another librarian writes to a former student of a new downloadable audio service:

> "If you were wondering if your project was ever touched—most certainly! Your project has been the backbone of my knowledge and launching point for inquiry. Hopefully in 2-3 months you will see these items [downloadable audio] in the catalog and in our marketing."

At the iSchool at Syracuse University, IST 613 students learn assessment and evaluation skills in context, working collaboratively to plan, market, and assess new library services across the country. Happily, Syracuse University is not the only LIS program to consider assessment skills an important component of library education. Other programs that incorporate assessment and evaluation in their preparation of pre-service librarians include those at the University of Illinois-Urbana Champaign, University of Michigan, Rutgers University, University of Indiana, University of Texas-Austin, University of Wisconsin, University of Hawaii, and Florida State University. Taken as a whole, LIS educators are committed to preparing new librarians for the assessment responsibilities they will face throughout their careers.

## Karin de Jager

From my point of view, there were two implicit assumptions at stake in the very topic of this panel discussion: that the workplace requires evaluation and assessment activities from librarians, and that library schools are at least beginning to teach some of the competencies required for these activities. From where I come, both of these are questionable.

Firstly, one has to note that in South Africa there is very little standardized data collection required from libraries—with the inevitable result that there is not a strong culture of assessment evident on the library scene. Evaluation, where it does occur, is ad hoc and usually only done when specifically required by outside donors such as the Carnegie Corporation.

So if evaluation and assessment aren't a high priority in libraries, it seems almost self-evident that they are not a high priority in library schools either. Post-secondary education in SA has historically been tainted by inequalities largely propagated through racial discrimination. "Inequalities were (and still are) also expressed though levels of literacy, wealth distribution, geographic location, and access to education, among other factors."[2] These inequalities are of course no longer legally enforced, but many of them persist, also in library education.

Since the 1990s, LIS education has generally taken place in library schools or departments which are generally small and have reduced in number during the last decade from eightenn to twelve and there are more possible closures in sight. A number of those that remain have merged with other disciplines in order to survive.[3] Some have evolved various survival strategies, mainly by diversifying into adjacent areas like knowledge management, media studies, and publishing,[4] and thereby almost inevitably losing their prime focus on libraries.

The qualifications offered at library schools in South Africa have generally been of two kinds. In the English speaking universities, the model has mainly been that of a post-graduate diploma after a bachelor's degree in order to ensure that students have had at least some subject specialization. At the other universities, a first degree in librarianship with somewhat less emphasis on subject specialization developed. Although the two qualifications were initially envisaged as equal, and both took four years to complete, there gradually emerged a three year qualification in information studies, where much less subject specialization is required.

The result has been that librarians by and large are rather technicist in orientation and prefer to

focus on the practicalities of obtaining, managing, and providing information resources. In university libraries, librarians frequently do not have enough subject expertise to be regarded as equals by faculty and therefore tend to concentrate on undergraduate needs and increasingly on the information literacy of a very diverse and frequently underprepared student body. In such circumstances, library performance assessment may also be regarded with suspicion or fear that one's own institution 'might be shown up' to be of somewhat lesser quality than others.

At my own institution, the Department of Information and Library Studies at the University of Cape Town, we have however introduced a small course on performance evaluation in our postgraduate diploma. Six teaching periods are spent discussing the objectives of performance evaluation, approaches to measuring, and a few informal case studies and examples of processes and procedures. It is emphasized that students might well encounter evaluation in their workplaces in due course. Occasionally students become interested, in which case they might consider an aspect of evaluation for the self-study project in their diploma course or perhaps even for a higher degree. In this way projects or dissertations have been completed on interlibrary loans departments, assessment of information literacy competencies and information needs; statistics for electronic resources and Web usability studies.

More recently, a growing demand for demonstrating quality in libraries is becoming evident and is beginning to force librarians to engage with issues of performance assessment. By 2004, the South African Council for Higher Education had become responsible for quality assurance in all higher education institutions and mandated national institutional audits, requiring universities to provide evidence of the quality of their processes, programs, and services, including library services. University libraries now also have a role to play in the evaluations in their institutions and have to contribute to providing evidence of the quality and impacts of library services on teaching and research at their institutions.

Partly as a result of these mandated audits which expressly demand evidence of quality and benchmarking, libraries also started to show interest in LibQUAL+®, which began to be seen as one way of obtaining reliable and comparable data about user perceptions of needs and services. LibQUAL+® surveys have therefore been conducted on a number of campuses since 2005 and have raised awareness of library assessment in spite of the fact that its language and structure are regarded as very difficult at institutions where English is not the first language of the student body.

This growing interest in performance assessment among librarians was also evident at the Seventh Northumbria International Conference on Performance Measurement in Libraries and Information Services, which was held in South Africa in 2007. About seventy librarians from South Africa attended out of a total of nearly 200 and for many of them this was their first serious encounter with assessment in libraries.

As libraries became more aware of the importance of assessment, it has also become obvious that the whole South African research enterprise is in decline. Research output has effectively been decreasing since the 1990s and while the current cadre of internationally recognised researchers generally is approaching retirement age, there are not enough new researchers to take their place.[5]

The LibQUAL+® survey that was done towards the end of 2005 at the University of Cape Town confirmed that support for research was perceived to be inadequate. While undergraduates were mainly happy with library resources and services, postgraduates and researchers were not: both faculty and postgraduate students, i.e., both current and future researchers, rated Information Control below their minimum expectations.

In response, the library therefore applied to the Carnegie Corporation to fund a major project to support a serious and sustained intervention by academic libraries to support young and emerging researchers. A grant of US$2.5 million was awarded to a consortium of three research libraries in 2006.

One component of the project[6] as been a novel intervention into the South African library education process, with the specific intention to address gaps both in librarians' awareness of the importance of assessment and their ability to assist meaningfully in the research endeavor. Six librarians from each of the three institutions were selected both in 2007 and 2008 to attend a 2-week "Research Academy," where they experience an intense 'total immersion' into the research enterprise.

The best possible researchers in a wide range of disciplines and from very different epistemologies

address participants about the detail of their own research. Each participant is expected to produce a potentially publishable research paper, with data collection, measurement, or assessment as a component. As one of the organizers has said, "We hold their feet to the fire of research and measurement. We make it clear that research is not concerned with rhetorical questions where the answers are already known; that literature reviews are not uncritical descriptions of what other writers have said, but that research involves finding out and counting and measuring in order to understand what is really going on—whether in libraries or elsewhere in the research enterprise."

While it is obviously recognized that research and assessment are not the same, the intention has been for librarians to gain real insight into what research is all about; not only the research that goes on in academic institutions, but also research into what gets done in libraries and how measurement and assessment are essential for demonstrating quality and improving performance.

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6. For a fuller account of the entire Project, see the poster also presented at the 2008 Library Assessment Conference entitled "Assessing Library Research Support in South Africa," by Pat Busby, Colin Darch & Karin de Jager, http://www.libraryassessment.org.

# Use and Non-use of Choice-reviewed Titles: A Comparison between Undergraduate and Research Libraries

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## Abstract

Many academic libraries collect *Choice*-reviewed titles on the as-yet-unproved assumption that "quality" will lead to better collections and, thus, to higher circulation.

Earlier studies compared circulation of *Choice* and non-*Choice* titles using a snapshot of circulation data. Although many libraries rely on *Choice* to make purchase decisions, there have been no large scale studies on the use of *Choice* titles. Can analysis of a large dataset answer whether or not academic libraries are getting reasonable value from their investments in *Choice* titles?

This study examines multiple years of circulation data for all titles added to the collections of a group of fourteen academic libraries during the last six to seven years. The Spectra Dimension collection analysis tool was used to compare circulation data across the entire LC classification system for two subsets of this group: elite liberal arts colleges and a grouping of institutions of varying sizes serving both graduate and undergraduate populations. This large dataset allowed for a more complete and nuanced analysis of collection usage in general and usage of *Choice* titles in particular that sheds additional light on the research patterns of both graduate and undergraduate users.

This study focuses on several pieces of data: annualized use by title for *Choice* and *Choice* Outstanding Academic Titles (OAT) compared with the circulation by call number range for each collection as a whole; the percent of titles in each of these ranges that had never circulated; and collection overlap.

## Introduction

Many academic libraries collect *Choice*-reviewed titles based on the belief that "quality" will lead to better collections and consequently to higher circulation. Many libraries rely on *Choice* to help inform purchase decisions, but there have been no large scale studies of the use of *Choice* titles. Through analysis of a large dataset, this study attempts to determine whether or not academic libraries are getting reasonable value from their investments in *Choice* titles. Perhaps more importantly, this research provides insight into how our collections are used in general.

Comparing collections against *Choice*-recommended titles can be useful since *Choice* is an important reviewing source, being used as a selection tool by a wide variety of academic libraries. According to the *Choice* website, "*Choice: Current Reviews for Academic Libraries* is the premier source for reviews of academic books, electronic media, and Internet resources of interest to those in higher education. More than 35,000 librarians, faculty, and key decision makers rely on *Choice* magazine and *Choice Reviews Online* for collection development and scholarly research."[1] Furthermore, the pre-screening criteria for possible review in *Choice* have a degree of congruence with the factors that recent research suggests influence book selection by undergraduates.[2]

Earlier studies compared circulation of *Choice* and non-*Choice* titles using a "snapshot" of circulation data. This study compares multiple years of circulation data for ALL titles added to the collections of multiple libraries over a number of years. Before diving into the particulars of the methodology and the data, a brief review of collection assessment methods is useful. In *Fundamentals of Collection Development and Management*, Peggy Johnson groups collection assessment methods into four broad categories: quantitative collection-based methods, qualitative collection-based methods, quantitative use-based methods, and qualitative use-based methods.[3] Within this framework, measuring collection size

and growth is a quantitative collection-based method; checking holdings against lists is a qualitative collection-based method; and collecting circulation statistics is a quantitative user-based method. This study combines the three methods cited above into one data set. The methodology used also allows for comparison of overall collection size, circulation of *Choice*-recommended titles against collections as a whole, and ownership of *Choice*-recommended titles individually and in the aggregate among two groups of libraries. Thus the comparison of relative collection sizes, circulation performance and ownership of *Choice* titles among a diverse set of libraries straddles three of the four categories simultaneously. This brings a new dimension to collection assessment.

## Review of the Literature

In 1983, John P. Schmidt and Stewart Saunders compared circulation statistics for a sample of *Choice*-reviewed titles and general titles in a library collection.[4] They discovered that *Choice*-reviewed titles circulated at the same rate as the collection as a whole. They also learned that those titles highly recommended for undergraduate audiences had higher circulation rates than those recommended for more specialized audiences. Lastly, they found a small correlation between positive reviews and circulation of titles in the social sciences, but no correlation for titles in the humanities. In 1996, Saunders, updating the work done on the earlier study, posited that use of *Choice*-reviewed titles would increase as the titles aged, but was unable to prove this thesis.[5] More recently, Karen Carter Williams and Ricky Best compared the use of electronic editions of *Choice*-reviewed and non-reviewed titles and found no correlation between a positive review and use.[6]

Recent research has shown that library use by undergraduates is mainly for study and curricular needs.[7] Because the two groups of institutions compared in this study have significant differences in both the size and constituents of their user bases, one might reasonably expect to find differences in use of *Choice*-reviewed titles between the two groups. Research suggests that library use at liberal arts schools differs from patterns found at other institutions of higher education. In 1974, Stanley H. Benson found that per student, the smallest liberal arts institutions had both the highest volume count and the highest number of circulations.[8] Other research suggests that the quality of use differs among institutional types. Reporting on results from the College Experiences Questionnaire (CSEQ), George D. Kuh and Robert M. Gonyea found that students at liberal arts colleges report significantly higher rates of browsing, preparing bibliographies, checking basic references, and judging the quality of information than those reported by students at other institutional types including doctoral extensive, doctoral intensive, masters, and general colleges.[9] Ehthelene Whitmire, comparing academic library use by undergraduates, found a strong correlation among students between library use and engagement in active learning and engaged writing.[10] Active learners took notes in class, participated in discussions, and did additional reading. Engaged writers took care with grammar and spelling, created outlines and drafts, and solicited feedback on their work. She also found a high correlation for library use with faculty-student interaction in high school and college. Liberal arts colleges are well known for their smaller class sizes and close relationships between teachers and students. Taken altogether, this research might lead one to conclude that library use of all types, especially curricular, is higher at small liberal arts colleges. In fact, Kuh and Gonyea conclude that, "The character of experiences with academic libraries at small, academically challenging baccalaureate liberal arts colleges sets them apart from other types of institutions."[11]

## Comparison Sets

For the present study the authors were able to compare the use of *Choice*-reviewed titles against use of the collections as a whole in two groups of libraries. The first group consisted of eight libraries in the Colorado Alliance of Research Libraries (Alliance): Auraria Library (which serves the University of Colorado at Denver, Metropolitan State College, and Community College of Denver), Colorado College, Colorado State University, Regis University, University of Colorado at Boulder, University of Denver, University of Northern Colorado, and University of Wyoming. Using the 2000 Carnegie Classification System, they can be categorized as four Doctoral Extensive, two Doctoral Intensive, one Masters and one Liberal Arts institution. The second set, a group of elite undergraduate liberal arts colleges, consists of Bates, Bowdoin, Bryn Mawr, Colby, Colorado, Haverford, and Swarthmore colleges. Of these colleges only Bryn Mawr offers any graduate degrees, while the rest are classified as Liberal Arts institutions. Colorado College appears in both sets.

## Institutional Data

Institutional data (Tables 1 and 2) for the group of Alliance libraries and the liberal arts colleges show significant differences. Although their student enrollments are much larger, with the exception of Colorado College, both the number of volumes per student and the annual circulation per student are higher among the liberal arts colleges than among the Alliance Libraries. On average, these larger institutions have 77 volumes per student compared to 427 for the liberal arts schools. This translates to 14 circulations for each student in the Alliance versus 49 at the undergraduate institutions.

**Table 1: Institutional Data—Alliance Libraries**

| Institution | Carnegie Class | Enrollment (2005) | Volumes (2005) | Annual Circulation (2005) | Volumes per Student | Annual Circ per Student |
|---|---|---|---|---|---|---|
| Auraria | Doc Int. | 33,000 | 647,937 | 276,470 | 20 | 8 |
| CO Coll | Lib Arts | 1,998 | 501,234 | 67,475 | 251 | 34 |
| CSU | Doc Ext. | 25,500 | 1,896,848 | 233,810 | 74 | 9 |
| Regis | Masters | 16,800 | 267,791 | 55,229 | 16 | 3 |
| CU-B | Doc Ext. | 32,362 | 3,554,286 | 691,499 | 110 | 21 |
| DU | Doc Ext. | 7,390 | 1,325,641 | 310,219 | 179 | 42 (Includes reserve) |
| UNC | Doc Int. | 10,484 | 1,035,975 | 218,953 | 99 | 21 |
| Wyoming | Doc Ext. | 10,437 | 1,366,006 | 128,665 | 131 | 12 |

**Average Volumes/Student = 77**
**Average Circulations/Student = 14**

**Table 2: Institutional Data—Undergraduate Libraries**

| Institution | Carnegie Class | Enrollment (2005) | Volumes (2005) | Annual Circulation(2005) | Volumes per Student | Annual Circ per Student |
|---|---|---|---|---|---|---|
| Bates | Lib Arts | 1,746 | 591,630 | 88,097 | 339 | 50 |
| Bowdoin | Lib Arts | 1,642 | 995,507 | 57,937 | 606 | 35 |
| Bryn Mawr | Doc Int. | 1,478 | 891,443 | 111,851 | 603 | 76 |
| Colby | Lib Arts | 1,871 | 500,848 | 94,727 | 268 | 51 |
| CO Coll | Lib Arts | 1,998 | 501,234 | 67,475 | 251 | 34 |
| Haverford | Lib Arts | 1,126 | 573,762 | 46,743 | 510 | 42 |
| Swarthmore | Lib Arts | 1,428 | 762,747 | 90,690 | 534 | 64 |

**Average Volumes/Student = 427**
**Average Circulations/Student = 49**

## Methodology

The Spectra Dimension collection analysis tool was used to compare holdings and usage data from both sets of libraries—fourteen in all.[12] Data loaded into Spectra Dimension for all libraries included bibliographic and items records with circulation data for monographic materials added to the collections from 1999 to 2005 or between 1999 and 2006. These data were also matched against the set of titles reviewed in *Choice* between 1998 and 2005 and titles designated by *Choice* as Outstanding Academic Titles (OAT) for the years 2002 to 2005. Because Spectra Dimension provides a measure of "annualized use," a calculation of the number of uses against the number of months that a title is available for checkout, differences in the dates are irrelevant. To summarize, the list of comparison sets is as follows:

- Titles added to the collections of Colorado Alliance Libraries (1999-2006);
- Titles added to the collections of undergraduate Libraries (1999-2005);
- *Choice*-reviewed titles held in Alliance Libraries (1999-2005);
- *Choice*-reviewed titles held in undergraduate Libraries (1999-2005);
- *Choice* OAT titles held in Alliance Libraries (2002-2005); and
- *Choice* OAT titles held in undergraduate Libraries (2002-2005).

## Results

A comparison of the number of titles (Table 3) purchased during the time of the study reveals that both groups of libraries bought a significant percentage of *Choice*-reviewed titles and larger percentages of *Choice* OAT—for the latter almost 98% of all titles were purchased by the Alliance and 94% were purchased by the undergraduate libraries.

**Table 3: Number of Titles**

| | Alliance Libraries | Undergraduate Libraries |
|---|---|---|
| Overall | 421,882 | 189,157 |
| Choice—Number of titles<br>Percent of all Choice titles | 40,528<br>(93.77%) | 34,020<br>(78.71%) |
| Choice OAT—Number of titles<br>Percent of all Choice OAT titles | 2,969<br>(97.95%) | 2,845<br>(93.86%) |

**Table 4: Average Number of Copies per Title**

| | Alliance Libraries | Undergraduate Libraries |
|---|---|---|
| Overall | 2.28 | 2.08 |
| Choice | 4.01 | 3.12 |
| Choice OAT | 4.88 | 3.82 |

Heavy purchasing of *Choice*-reviewed titles resulted in greater collection overlap (Table 4: Average Number of Copies per Title) among the collections of both sets of libraries, rising from 2.28 copies per title for collections as a whole to 4.88 copies per title for OAT titles for the Alliance Libraries. Although collection overlap was not as great, the average number of copies per title rose from 2.08 for collections as a whole to 3.82 for OAT titles among the undergraduate institutions. Clearly both groups of libraries are buying significant numbers of *Choice*-reviewed titles.

**Table 5: Annualized Use per Title**

| | Alliance Libraries | Undergraduate Libraries |
|---|---|---|
| Overall | 0.46 | 0.16 |
| Choice | 0.48 | 0.16 |
| Choice OAT | 0.53 | 0.17 |

Looking at annualized use per title (Table 5) across the Alliance libraries, the average OAT book is used 0.53 times per year, a rate significantly higher than the 0.48 figure for *Choice* titles and 0.46 figure for the collection as a whole. Within the undergraduate collections, there is almost no difference in use between the collection as a whole (0.16), *Choice*-reviewed titles (0.16), and OAT (0.17).

**Table 6: Adjusted Annualized Use per Title**

| | Overall | Choice | Choice OAT |
|---|---|---|---|
| **Undergraduate** | 0.16 | 0.16 | 0.17 |
| **Alliance** | 0.46 | 0.48 | 0.53 |
| **Alliance Adjusted*** | 0.08 | 0.09 | 0.10 |

* Divided by a factor of 5.5. On average the liberal arts colleges have 427 volumes per student. The Alliance Libraries have an average ration of 77 volumes per student. 427/77=5.5

Based on these figures, it appears that the Alliance Libraries are getting a better return on their investment in books than the group of undergraduate libraries, with annual use rates in the Alliance institutions dwarfing those in the undergraduate libraries in all categories. This seems to contradict what earlier research suggests: that students in small, selective liberal arts college are more likely to make greater use of their libraries than students in other types of institutions. When the figures are adjusted for collection size, however, the data tend to validate this research. This comparison (Table 6) reveals that students in small liberal arts colleges use their libraries at a rate almost double that found in other institutional types—0.16 annualized use for collections as a whole in undergraduate libraries compared to 0.08 in the Alliance group with its mixture of institutional types and much lower book-per-student ratios.

**Table 7: Annualized Use by Discipline**

| | Overall | Choice | Choice OAT |
|---|---|---|---|
| **Humanities** | | | |
| Alliance | 0.49 | 0.40 | 0.45 |
| Undergraduate | 0.19 | 0.12 | 0.12 |
| **Social Sciences** | | | |
| Alliance | 0.40 | 0.52 | 0.56 |
| Undergraduate | 0.13 | 0.18 | 0.20 |
| **History** | | | |
| Alliance | 0.43 | 0.47 | 0.49 |
| Undergraduate | 0.15 | 0.15 | 0.17 |
| **Sciences** | | | |
| Alliance | 0.49 | 0.50 | 0.56 |
| Undergraduate | 0.17 | 0.17 | 0.20 |

Analysis of annualized use by discipline (Table 7) reveals a pattern similar to that found by Stewart and Saunders. *Choice*-reviewed titles in the social science disciplines are more likely to be used than general books, a finding directly opposite that for the humanities. This may be accounted for by the fact that many call number ranges in the humanities include both primary and secondary materials. *Choice* titles, because they do not include primary source material, may only appear to circulate at a lower rate than the collections as a whole in those ranges. History, which sits at the intersection of the social sciences and humanities, appears to behave more like the social sciences. A closer examination of the data for a sample of titles may answer these questions. The sciences, meanwhile, behave most similarly to the collections as a whole.

**Table 8: Percent of Titles with Zero Usage**

| | Alliance Libraries | Undergraduate Libraries |
|---|---|---|
| Overall | 39.30% | 68.64% |
| Choice | 15.42% | 50.59% |
| Choice OAT | 13.20% | 44.89% |

The most compelling result is found when comparing percent of titles with zero usage (Table 8). In this measure of non-use, *Choice*-reviewed titles fared much better when compared against collections as a whole. Among the Alliance libraries, the percentage of the collection that has never been used drops to 13.20% for *Choice* OAT titles from a peak of 39.30% for the collections as a whole. Although the data for the undergraduate libraries are not as dramatic, the percentages drop from 68.64% for the collections as a whole to 44.89% for *Choice* OAT.

## Conclusions

When considered collectively, measures of the number of copies per title reveal that libraries are likely to buy more copies of *Choice* and *Choice* OAT titles than other titles. Confirming the earlier studies by Schmitt and Saunders, this study found that *Choice*-reviewed books are not used at a significantly higher rate than the rest of the collection for either group. *Choice* Outstanding Academic Titles are used more by both groups, but the difference is statistically significant only for the Alliance Libraries. Perhaps because of the smaller book-to-student ratio at these institutions, books are used at a higher rate within the Alliance libraries than they are in the undergraduate libraries.

Of particular relevance for collection development librarians, however, is the finding in both sets of libraries that books reviewed in *Choice* are much more likely ever to be used and thus remain a worthwhile investment. What is not clear, however, is why they are more likely to be used than other titles. When Thomas Stieve and David Schoen asked undergraduates to rank 20 factors that would cause them to choose one book over another on the same topic, they preferred books with good publishing apparatus such as a detailed table of contents, inclusion of subheadings and sidebars, and the presence of a good index.[13] *Choice* pre-screens for titles in which "material is presented in a comprehensive, well-organized, and understandable manner. The work contains appropriate supporting apparatus, such as an index, illustrations, bibliography, notes, and appendixes."[14] It is very possible that faced with a choice of similar titles, undergraduates select *Choice*-reviewed titles precisely because the reviewing tool pre-screened for the attributes they prefer in books.

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## Further Reading

Levine-Clark, Michael and Margaret M. Jobe, "Do Reviews Matter? An Analysis of Usage and Holdings of *Choice*-Reviewed Titles within a Consortium," *Journal of Academic Librarianship* 33, no. 6 (2007): 639-646.

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## Endnotes

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2. Thomas Stieve and David Schoen, "Undergraduate Students' Book Selection: A Study of Factors in the Decision-Making Process," *The Journal of Academic Librarianship* 32 (2006): 599-608.

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6. Karen Carter Williams and Rickey Best, "E-book Usage and the *Choice* Outstanding Academic Book List: Is There a Correlation?" *Journal of Academic Librarianship* 32 (2006): 474-478.

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Perspective—The UCSD Libraries User Survey Project," *The Journal of Academic Librarianship* 24, no. 5 (1998): 357-364; and Audrey F. Bancroft , Vicki F. Croft, and Robert Speth, "A Forward-looking Library Use Survey: WSU Libraries in the 21st Century," *The Journal of Academic Librarianship* 24, no. 3 (1998): 216-224.

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10. Ethelene Whitmire, "The Relationship between Undergraduates' Background Characteristics and College Experiences and Their Academic Library Use," *College & Research Libraries* 62, no. 6 (2001): 528-540.

11. Kuh and Gonyea, 266-267.

12. Details available at http://sirius.librarydynamics.net/dimension/.

13. Thomas Stieve and David Schoen, 599-608.

14. Criteria for Selection." American Library Association. 2006, http://www.ala.org/ala/acrl/acrlpubs/choice/selectionpolicy/criteriaselection.htm.

# Library Strategy in the Transition Away from Print

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## Abstract

Virtually every academic library is grappling with decisions about moving from print to electronic formats for scholarly journals. An effective format migration would minimize preservation risks, maximize efficiency, and leave users satisfied with the pace of change. To understand how decisions are being made on these important questions, I visited fourteen American academic libraries for one-three days each, meeting with library directors and staff as well as faculty, campus leadership, and students. The findings indicate that assessment and evaluation of format migration questions are idiosyncratic. Generally speaking, budgetary limitations and space management considerations play an outsize role in the format migration, while the metrics necessary to evaluate options are rarely adequate.

While all libraries see the same digital future beckoning, diverse individual library decision-making frameworks do not seem to be allowing for effective community-wide strategic planning. A variety of recommendations emerge from these findings, both for the local level and for super-institutional collaborations.

## Library Strategy in the Transition Away from Print

As academic libraries replace print acquisitions with electronic resources, the nature of the services they provide to campus stakeholders is changing dramatically. Ithaka's faculty surveys provide significant data about faculty members' changing valuation of the library in the electronic environment.[1] In the 2006 wave of this survey, we found that faculty views of the library have been shifting and that they vary significantly by discipline. From the library's perspective, these findings suggest softness in the sciences in particular and indicate the need to reexamine and renew strategy and services.

We asked faculty members directly which functions provided by the library were very important to them, offering three choices of the many functions that libraries may provide. The share responding that each function was very important to them in 2006 indicates that faculty members most value the library's role as a buyer of resources:

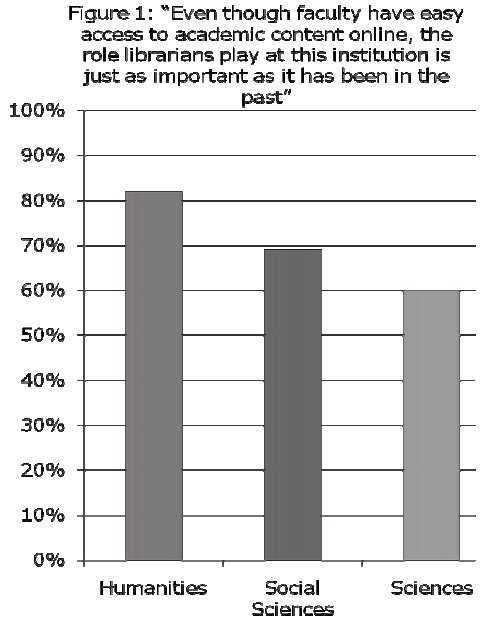
- 63%: The library is a starting point or "gateway" for locating information for my research.
- 84%: The library pays for resources I need, from academic journals to books to electronic databases.
- 74%: The library is a repository of resources – in other words, it archives, preserves, and keeps track of resources.

Faculty members value all three functions highly overall. At a more granular level, however, there was some noteworthy change from 2003 to 2006. Among physical and biological scientists, for example, the share viewing the gateway role as very important dropped from 65% to 53%—below humanists in both years and in decline when humanists' response was stable. Economists experienced similar drops.

This stands to reason, in a way. While libraries are investing significantly in gateway resources for the sciences such as Scopus, these may not be always be recognized as provided by the library. Moreover, numerous gateway resources are not provided by the campus library but by third parties, resources such as PubMed/Central and arXiv (and SSRN and RePEC for economists). Indeed, the most important library-provided gateway—the traditional OPAC—has relatively little value for many scientists and economists who are more journal-oriented than monograph-oriented.

Although scientists and economists only report a decreased valuation of the gateway function and not the other two functions, this decrease coincides with relatively low perceived dependence on the library. Figure 1 indicates the remarkably lower share of scientists who view themselves as just as dependent on the library as they had been in the

past. But this figure actually masks some disciplinary-level data that would be alarming to any library: only 48% of physicists—and only 30% of economists!—claimed in 2006 to have been just as dependent on the library as they were in the past.




Scientists' support for their libraries is lower than in other fields, notwithstanding the massive library expenditures on scientific journal collections. One explanation may be that the physicists and economists who feel the largest decline in dependence have each developed healthy working paper traditions that have become far more effective with the introduction of arXiv, RePEC, SSRN, and similar resources. But more generally, the widespread availability of digital resources in the sciences has changed the role of the selector. Especially in the sciences, many academic libraries have moved away from selection at a title level to selection at an aggregation level. Perhaps scientists recognize that, despite the large amount of money spent on their resources, the value associated with selecting the campus collection adds less value than it once may have.

These issues are not of merely theoretical interest. In 2006, Ithaka asked faculty members a similar question about dependence, but phrased far more bluntly. We asked the extent to which faculty members agreed with the statement, "Because scholarly material is available electronically, colleges and universities should redirect the money spent on library buildings and staff to other needs." Note that this question is carefully worded—it refers to cutting staff and building expenditures but allows for the continued presence of the "buyer" function. Every library should want faculty to respond, on a ten-point scale, with 1s and 2s and 3s—indicating strong disagreement. But in 2006, fully one-third of scientists agreed with the statement—as did 22% of social scientists (which was driven by the economists). In other words, reduced perceptions of dependency and value are beginning to translate into declining faculty support for the library on campus.

Whatever the cause of these figures on dependency, value, and support, libraries should be asking themselves if similar shifts are likely for the humanities and humanistic social sciences. As more of their resources are digitized and made available online, and as they move toward greater utilization of computational research methods, will these more traditionally oriented disciplines see a similar transformation in their value of the libraries functions and their dependence on the library? These are critical strategic questions for any academic library that today prides itself as being the "laboratory of the humanities."

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## Endnote

1. A longer report on the findings as well as links to the underlying datasets are available through http://www.ithaka.org/research.

# Assessment-based Strategies for Building Connections with Academic Departments

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## Abstract
Academic libraries are increasingly compelled to provide evidence of their value; specifically, the extent to which they have a positive impact on their institution's core mission of research and education. Providing department-level administrators with detailed information on the use of library services by their faculty is one strategy for addressing this challenge. Perkins Library at Duke University has provided customized reports about faculty and course use of library services to administrators in academic departments. Combining assessment and outreach in this way has produced greater awareness of academic technology and library services which support academic programs and stronger connections with this key stakeholder group. Creating these reports produced indirect benefits and a stronger culture of assessment through increased staff awareness of the value of operational data for reporting purposes; it also created greater transparency and accountability across library departments, and staff development in evaluative thinking.

## Introduction
Given the financial constraints facing universities and increased political pressure on universities to measure outcomes, academic libraries are increasingly compelled to provide evidence of their value.[1] Libraries must be able to efficiently and effectively gather, analyze, and report on the extent to which they make a positive impact on their institution's core mission of research and education.[2] Academic libraries are of course frequently engaged in a wide range of data-gathering activities. With the exception of face-to-face desk reference, many services provided by an academic library automatically leave an electronic footprint—a Web form submission, a database record, e-mail message, server log entry or chat transcript. However, library service metrics are often reported and used internally only for purposes such as budgeting, service planning, and staffing decisions. Some metrics are routinely reported outside the library, such as those included library annual reports or ARL statistics. However, libraries must find ways to gather and share information about service use and impact to other important campus stakeholder groups in language familiar to them. As Linhauer points out,

> ". . . [A]ll sorts of data are presented in annual reports and program reviews, but they do not explicitly address how the library's resources and services make a qualitative difference to student learning, staff development, faculty scholarly activity, and other campuswide goals."[3]

Competition within the university for resources has increased the stakes for libraries to effectively justify their funding needs and effectively communicate their value.[4] Staff time for data gathering and analysis is typically limited, so evaluation efforts must be directed at developing information that is responsive to the decision-making needs of important stakeholder groups. Libraries must communicate about their value not only to senior administrators but also across campus in order to build broad awareness and support for the myriad ways in which a library is vital to the academic life of the institution. So, along with the growing recognition of the value of assessment programs, academic libraries are also increasing their direct efforts at marketing their services. This paper will describe a departmental reporting effort undertaken at Perkins Library which combines elements of assessment, engagement of academic program administrators, and marketing of library services. In addition to describing data management and reporting technologies that have enabled this project to succeed, this paper will also describe some of the direct outcomes of this project as well as the broader implications raised by this project for libraries looking for strategies to enhance or strengthen their culture of assessment.

## The Evolution of Assessment in Perkins Library

Duke's Center for Instructional Technology (CIT) was founded within Perkins Library in 1998. In support of the academic mission of Duke University, CIT helps instructors find innovative ways to use technology to achieve their teaching goals. As part of its core mission, CIT gathers and shares information about academic technology use at Duke and faculty instructional technology needs.[5] Over the past five years, CIT has been actively engaged in program evaluation activities both internally and more recently has taken a leading role in assessing campus strategic initiatives, including the Duke iPod First Year Experience and Duke Digital Initiative.[6] The success and visibility of these efforts have given CIT and its parent unit, Perkins Library, a reputation for leadership in assessment at Duke. In its most recent strategic plan, "Connecting People + Ideas", Duke University Libraries call for building a stronger culture of assessment, a goal that will be accomplished in part by building on the expertise and within CIT.[7]

## Evaluation Process Use and Organizational Development

The capacity of organizations to effectively conduct evaluations and use evaluation findings can be enhanced by engaging staff more directly in the evaluation process itself. Michael Quinn Patton coined the term "process use" to describe this phenomenon; namely, the benefit that organizations get from participating in the evaluation process itself, independent of whether the outcomes, findings, or recommendations of the evaluation have an impact. Process use may involve the organizational learning that occurs as a result of clarifying the goals of a program or designing the evaluation of the program.[8] Patton later clarified the meaning of process use to be the "ways in which being engaged in the processes of evaluation can be useful quite apart from the findings that may emerge from these processes."[9] Evaluative thinking contains many critical elements that those who routinely engage in program assessment make take for granted that others possess, namely:

> "…clarity, specificity and focusing; being systematic and making assumptions explicit; operationalizing program concepts, ideas and goals; distinguishing inputs and processes from outcomes; valuing empirical evidence; and separating statements of fact from interpretations and judgments. These values constitute ways of thinking that are not natural to people and that are quite alien to many. When we take people through a process of evaluation—at least in any kind of stakeholder involvement or participatory process—they are in fact learning things about evaluation culture and often learning how to think in these ways."[10]

Organizational benefits of process use can include increased capacity to make use of evaluation findings and use evaluation information.[11] Similarly, in their study of the impact of evaluation activities on organizations, Cousins et. al. identified two layers of process use benefits, the first being simply increased skills and use of evaluative logic, but also found a deeper benefit: namely, that organizations through process use enhanced their organizational learning capacity and culture of experimentation.[12]

## The Strategy of Customized Reporting

Focusing evaluation activities on priorities that are aligned with the strategic priorities of the university and produce information valuable to a broad range of leaders across campus is one way CIT has maintained support for assessment and evaluation activities, an important element for building and sustaining a culture of assessment.[13] One of CIT's goals is to ensure that faculty and administrators are aware of CIT services, but also to generate information about patterns of instructional technology use within discipline areas and more broadly across the institution. Seeking ways to improve outreach to faculty and academic departments, CIT sought advice from its advisory board (consisting of faculty, IT staff and academic administrators) as well as other academic administrators. Conversations with these groups revealed that department chairs were an important group to target. Department chairs and program-level administrators in particular were interested in having better information about services available that might benefit their department, particularly monetary award programs. Academic administrators at this level in particular are a valuable and often overlooked target for direct outreach; this influential group has been found to be surprisingly unaware of the availability and use of library services.[14] Similarly, these administrators were typically not aware of CIT services or of

support and awards already provided to faculty and courses in their area. Support of faculty use of instructional technology could easily escape their notice, even when faculty were highly satisfied with the services they received and instructional technology projects were successful. Department chairs in particular indicated that generic reports about CIT services would not be likely to attract their attention; they were, however, interested in receiving specific reports containing details of instructional technology projects undertaken by faculty affiliates in their area.

For CIT to create and disseminate such reports was a reasonable possibility but required some development in the knowledge management and reporting structures. In 2002, CIT had implemented a project tracking system known as the "Project Notebook." This tool enabled CIT consultants to create and edit project records using a Web-based form interface to a SQL database. A typical Project Notebook record contains at least a title and a brief description of the project; project-level metadata, such as start/end dates and type of project; and participant information for both CIT staff and faculty participants. This participant information not only includes contact information but also more crucial data such as departmental affiliation and role (faculty, graduate student, etc.). These Project Notebook records were already mined and used routinely within CIT for internal planning and assessment as well as to answer ad hoc requests for information about use of CIT services.

One important hurdle in making it possible to query this data in meaningful ways for these types of reports was the implementation of a consistent way of describing the affiliation of faculty to academic programs. Given the inherent complexities of faculty appointments and cross-listed courses, a standard list of Reporting Units had been developed within CIT. Due to the complexities of faculty affiliations and other academic conventions such as cross listings, it was often impossible to use directory information to determine which academic department was the most relevant unit of reporting for a particular faculty encounter. As a result, CIT implemented this consistent Reporting Unit field to provide a way to indicate the project participant's most relevant affiliation in the context of a particular interaction.

Now that this Reporting Unit field made it possible to parse out the data into meaningful department-level groupings, the primary challenge remaining was to identify a means of automating the creation of formatted reports to require a minimum amount of hand-editing, yet create reports attractive enough that they were appropriate to an administrative audience. MS Access could certainly query the database adequately and produce reports, but the desire to produce highly formatted and attractive reports compelled us to investigate other tools. Ultimately, business intelligence software commonly used in industry and higher education (Crystal Reports) was a better match for our requirements, creating attractive reports in multiple formats (editable MS Word files and PDF) that combined information from across multiple data sources including both static (Excel) and dynamic (SQL database).

The reports distributed in the first iteration of the project (fall 2007) contained a summary of three years of interactions between CIT and faculty in these departments and programs. A three year window was desirable for the first report since in small departments interactions between CIT consultants and faculty affiliates were less frequent; also, the longer window of time provided a better view of trends over time and could serve as a reference report in future years. Linking assessment and outreach, these reports were used as a jumping off point for an effort to build connections between CIT consultants and departments. Several weeks after the reports were distributed, academic technology consultants in CIT contacted the department chairs to schedule a meeting about needs in their area. Since these contacts were preceded by a custom packet of information summarizing the department's activity with CIT and information about upcoming grant opportunities, department chairs were more responsive than they had been in past years to these contacts. New department chairs also expressed particular appreciation for the report, as it made them aware of projects and initiatives in their area and a better sense of which faculty were more actively engaged in the use of instructional technology. Internally, CIT experienced other benefits from these reports. Using the internal Project Notebook database information for external reporting resulted in more accurate and careful record-keeping; seeing reports with information gaps motivated the consultants to ensure that no interaction with faculty went undocumented. By improving the quality of data and building staff knowledge of how to use business intelligence software to create customized views of information

on faculty use of services, CIT has also been able to respond easily to unexpected requests for information from senior administrators.

By early 2008, preparations for university re-accreditation had created a heightened interest in assessment and opportunities for new initiatives with a strong assessment component. Based on the successful experience in 2007, and in response to the desire for any data that might be of use for the re-accreditation process, CIT planned to continue this department reporting project in 2008 with a one year follow-up report. Enthusiasm grew among library leaders for including more information about library services into these 2008 reports. Librarians in public services and CIT staff clearly shared many of the same difficulties in understanding patterns of use and making connections within academic departments, as well as similar challenges in finding effective strategies for demonstrating value and marketing their services to campus stakeholder groups. Ultimately, a CIT and Public Services collaboration aimed to create a companion library report to accompany the CIT departmental report.

First, an inventory of existing data revealed several sets of extant data that could be culled for information relevant to library support for courses at Duke and coded such that they could be meaningfully parsed into department-level groupings without removing important context. Information identified for inclusion in the library reports included a detailed listing of all custom library instruction sessions offered to academic courses, listings of all courses using the library e-reserves service, and listings of courses where librarians had created custom library resource pages within the course Web site, the "Librarians in Blackboard" project. Library Instruction and Outreach had been keeping detailed records for all library instruction sessions and of participation in the Librarians in Blackboard project. Also, integration between the library catalog and Blackboard left a useful trail of data about which courses used this service. Once these data sources had been identified, a mock-up report was developed to gain buy-in from library leadership. After this approval was obtained, the main effort remaining consisted of extending the lessons learned in the first iteration of the project. Namely, the library data was coded to reflect the system of Reporting Units already developed for the CIT Project Notebook; also, the data were cleaned and normalized to ensure consistent and high quality reports. This cleaning primarily consisted of standardizing faculty names and course numbering. After consultations with librarians about details of the report design, draft reports were sent around to all subject librarian contacts for these departments to review for errors and omissions. Staff were also offered the opportunity to provide additional information about their interactions with the department for inclusion in a final section of the report that had been reserved for this purpose. Approximately half of the reports ultimately contained additional information. Examples of the types of information included by subject librarians included descriptions of specific collaborations with faculty, library support for special events in the department, and notes about librarian office hours and other outreach services. Once the reports were finalized, a packet containing the CIT Report as well as a Library Course Support companion report was sent at the start of the fall 2008 semester to department chairs, directors of graduate and undergraduate study, and program administrators under a joint cover letter from CIT and the head of Public Services.[15]

## Outcomes and Implications of the Project

In addition to the beneficial connections with academic departments, there were several direct outcomes of this project. Both CIT consultants and librarians noted that seeing how the operational records they kept about their interactions with faculty appeared on reports improved the value of this information and seeing the data put to use increased their willingness to engage in what had been previously viewed as low priority administrative record-keeping activities. Also, both groups found these summary reports useful in providing a better 'big picture' overview of services they were providing. They noted that these reports facilitated conversations among CIT consultants and subject librarians serving faculty in the same area about effective strategies for reaching out to a particular department, and in identifying faculty and courses that would be good targets for new outreach efforts.

Overall, the success of the project depended on several key elements: support of library leadership; engagement of staff in a participatory evaluation effort; the use of existent data relevant to library support of academic courses; the development of a practical system for linking that data to one or more specific departments or academic programs; and the implementation of a reporting tool which made

good use of existing data and significantly automated the reporting process.

## Conclusion

A partnership between the university's academic technology support group and library public services, Duke University's Perkins Library has successfully combined assessment activities and outreach to administrators in academic departments. Leveraging a variety of data sources within CIT and other library departments, Crystal Reports was used to create customized reports tailored to an audience of academic administrators. These reports provided administrators with specific information about which faculty and courses in their area have benefited from library services and resources, increasing awareness of use of these services by including information about the whole range of services available and also highlighting ways in which departments and programs could be increasing their use of these services. This project demonstrated one way for libraries to combine assessment activities with outreach to not only proactively build alliances with administrators in academic departments, but also to raise awareness of potentially valuable services.

Data are created both intentionally by librarians and automatically by library systems that could support reporting to academic departments. In many libraries, these data are only analyzed and used internally, and may often be unused entirely. Expanding the notion of whether stakeholder groups outside the library might find this kind of information interesting or valuable can enable new thinking about possibilities for data analysis and reporting about library services. Data gathered in the course of delivering these services will likely require some cleaning first; however, it may require significantly less time and staff effort to create reports which depend on recoding or re-analyzing existing data than to modify staff workflows to create entirely new streams of data for the sole purpose of reporting, an exercise which is likely to generate at best annoyance and more likely resentment toward the reporting project itself. In the Duke example, the use of relatively inexpensive student labor greatly expedited data cleaning and analysis. To paraphrase Voltaire, don't let the perfect be the enemy of the good. If you settle for nothing less than perfect information you may end up with nothing. If the reliability and completeness of the information you provide is appropriate for its intended purpose, small omissions or minor errors due to less than perfect recordkeeping may be acceptable. While this strategy can produce a direct benefit of increasing service use, equally important is creating a foundation for dialogue with stakeholders about the extent to which existing services are used, are meeting their needs, how they could be improved, and about what new services would be of greatest value.

Providing department-level administrators with evidence about the impact of library services on academic programs is also a strategy for preserving and increasing library resources and funding. By proactively provided these reports, the library has built stronger connections with this key academic administrative stakeholder group. Distributing these reports has produced greater awareness about the use of academic technology and library services in support of academic programs. Also, providing evaluation data to key stakeholders is not only valuable for increasing awareness but also promotes transparency and accountability and gives stakeholders an explicit invitation to respond and react to about the kinds of services we provide and the quality of those services.[16] Academic administrators can be better advocates for the library when given clear, specific and locally relevant information about connections between the library and faculty and courses in their department.

Research on evaluation process use has also shown other benefits from having staff participate directly in participatory, stakeholder-driven evaluation effort such as this one. In this case, the evaluation process itself resulted in indirect benefits toward the culture of assessment in the library through better data management practices, increased awareness of the value of operational data for reporting purposes, greater transparency and accountability across library departments, and the development of evaluative thinking among staff.

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# Library Investment Index—Why Is It Important?

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## Abstract

The Association of Research Libraries(ARL) has engaged in the implementation of the Task Force on New Ways of Measuring Collections' recommendations and developed a new index, the Library Investment Index, originally called the 'Expenditures-Focused Index' which was published in the *Chronicle of Higher Education* for the first time in 2007. The Expenditures-Focused Index was renamed the Library Investment Index in 2008 to better reflect the notion that library expenditures are reflective of investments in intellectual, scholarly, and community capital. This paper offers a closer examination of the implications of the Library Investment Index and discusses its importance for the research and wider library community. It addresses both the methodological advantages and limitations as well as the political significance of the development of this index.

## Introduction

In an environment where physical library collections are being replaced or supplemented by terabytes, petabytes, exabytes, zettabytes, and yottabytes of information, it is questionable whether the units of volumes held, volumes added, and serial subscriptions can continue to offer the utility they had in the past. The challenge of measuring collections in new ways gave rise to the work of the Association of Research Libraries (ARL) Task Force on New Ways of Measuring Collections which engaged into a two year process and moved from debate to action on these issues. The Task Force[1] was convened in December 2004 and built on much of the earlier work and debates that engaged the ARL directors during the 1990s.[2]

During its two-year investigation, the task force systematically collected qualitative feedback through one-on-one interviews with nearly every ARL library director. During the second year of its operation, the task force deployed two top researchers in qualitative and quantitative methodologies, Yvonna Lincoln and Bruce Thompson. Two reports were produced for the ARL community: "Research Libraries as Knowledge Producers: A Shifting Context for Policy and Funding,"[3] documenting the results of the qualitative inquiry, and "Some Alternative Quantitative Library Activity Descriptions/Statistics That Supplement the ARL Logarithmic Index," documenting the results of the quantitative inquiry.[4]

## ARL Task Force on New Ways of Measuring Collections: Interview Results

During interviews conducted by Task Force members with more than 100 of the 123 ARL directors in the spring and summer of 2005, a number of key issues surfaced that needed to be addressed. Themes from these interviews highlighted that:

- Data is not expressing uniqueness of materials;
- Relevance to teaching, learning, research is not adequately reflected;
- Collections go beyond printed volumes;
- Research library is more than collections—it

includes its services and ARL is not telling the story with the ARL Membership Criteria Index;
- Increase in expenditures for electronic resources is changing collections;
- Ownership and access are not contradictory approaches;
- Consortial relationships/cooperative collection development is increasingly important;
- Shared storage facilities are a necessity;
- Duplicate serials based on bundling is a huge problem for research libraries since quality control issues vary from product to product;
- Special collections are not reflected in our current statistics; and
- ARL Membership Committee does not use the Membership Index exclusively like it used to in the past; it also takes into account qualitative indicators now.

Many directors recognized the historical significance of the long standing ARL Statistics[5] dataset to show trends, as a way of accounting for university investments, and its importance for comparison and benchmarking. But the voices expressing serious concerns with the ARL Membership Criteria Index were clear in that the Index was misunderstood, misleading, and unhelpful.

During the second year of the investigation, Bruce Thompson was engaged and did an exhaustive and thorough analysis of the ARL Statistics data set, attempting to identify additional patterns in the data though factor analysis. In his analysis, he confirmed the statistical validity of the ARL Membership Criteria Index and suggested an improved alternative, what came to be known as the Library Investment Index (or Expenditures-Focused Index).

## Task Force Recommendations

In February 2007, the result of the two year investigation of the Task Force resulted in the formation of an action agenda approved by the ARL Board of Directors, the ARL Task Force on New Ways of Measuring Collections, and the ARL Statistics and Assessment Committee. The action agenda has a number of R&D components but it stands as a practical approach to support research libraries as they are transforming their operations from what has been a 20th century approach into a 21st century approach.

The practical and political readiness of different research libraries to adopt new ways of describing their operations varies and is presented in Figure 1. The action agenda offered a wise compromise that keeps what is valuable from the past and also helps libraries move boldly into new territory. A conscious decision was made to maintain the ARL Membership Criteria Index for institutional purposes but not publish it in the *Chronicle of Higher Education (The Chronicle)* as it contains variables like volumes held, volumes added gross and current serial subscriptions that are undergoing transformative changes. For a stable way of describing libraries, the Task Force relied on the expenditures variables, and promoted and published it in the *Chronicle of Higher Education* the Library Investment Index.

**Figure 1. New Ways of Measuring Collections: An Action Agenda Adopted February 2007**

1. Reserve use of the current membership criteria index for those occasions when it is needed for consideration of membership issues.
2. Implement an expenditure-focused index.
3. Use the new expenditure-focused index for any public reports, such as in the Chronicle of Higher Education.
4. Begin to develop a services-based index that combines the following three factors: collections, services, and collaborative relationships.
5. Revise definitions for collections-related data categories currently collected and experiment with a variety of new measures, including usage data, strength of collections, and service quality measures to develop a richer set of variables for potential inclusion in the three-factor alternative index (see above).
6. Collect qualitative data to develop a profile of ARL member libraries.

Figure 2 presents the variables that are comprising the ARL Historical or Membership Criteria Index and the Library Investment Index. A special note is made here regarding the naming convention of the ARL Historical or Membership Criteria Index. Although the ARL Membership Criteria Index was historically used to determine membership, this is not the case any more as the membership criteria have been supplemented with qualitative indicators. Currently, the ARL Membership Criteria name is more a reflection of the history of the old practice of determining membership based on the index. It is used as only one indicator among many others to be taken into consideration when identifying potential candidate institutions for membership to ARL. Thus, we interchangeably refer to the ARL Membership Criteria Index as the Historical Criteria Index in this paper. The indicators that supplement the Historical Criteria Index are qualitative in nature and to date they have not been tested in an affirmative way as ARL has not accepted any new member libraries based on the combined (qualitative and quantitative) criteria. The new Library Investment Index is yet another way to supplement these criteria with an objective approach when considering potential members.

**Figure 2. The Story of Two Indices**

| Historical Criteria Index or Membership Criteria Index | Library Investment Index (previously named Expenditures-focused Index) |
|---|---|
| • Volumes Held<br>• Volumes added gross<br>• Current Serials<br>• Total Expenditures<br>• Professional plus support staff | • Total Expenditures<br>• Salary Expenditures<br>• Materials Expenditures<br>• Professional plus support staff |

## The Library Investment Index

As noted by Thompson in his report, the two indices correlate highly but there is a distinct advantage in using the Library Investment Index: "The use of a measure of total expenditures versus the use of some combination of (a) volume counts (historically part of the older statistics) and (b) expenditures on digital resources (only recently measured as part of the supplementary statistics) could (1) finesse the difficulty of distinguishing these two resources (2) while at the same time recognizing the changing face of the library in an increasingly digital world."[6]

In Figure 3, we report the correlations between the two indices and their ranks for the 2002-03 ARL Statistics showing that all correlations coefficients are very high. The same analysis was performed for every year between 2002-03 and 2006-07, and shows strong correlations.

**Figure 3. Correlations between the ARL Membership Criteria Index and the Library Investment Index (formerly known as Expenditures-focused Index)**

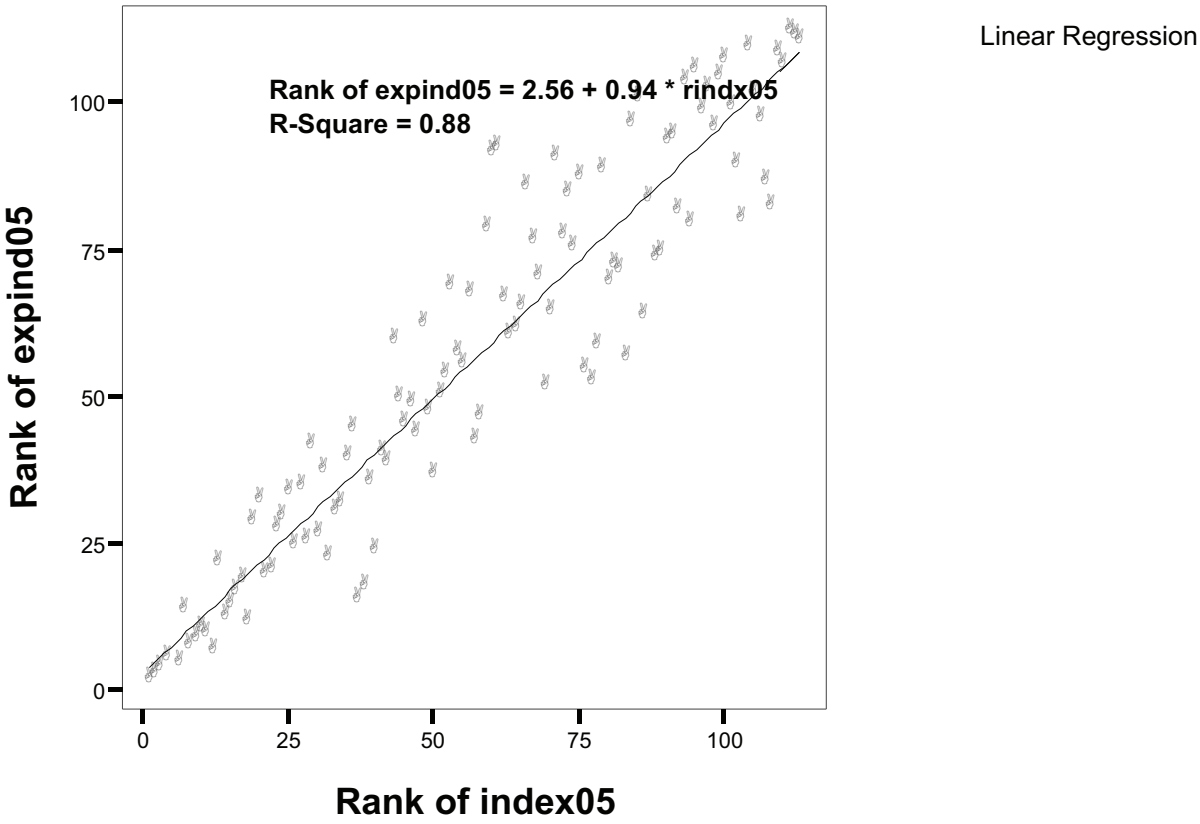
**Correlations**

| | | index03 | rindx03 Rank of index03 | expind03 | re03 Rank of expind03 |
|---|---|---|---|---|---|
| index03 | Pearson Correlation | 1 | -.955** | .903** | -.911** |
| | Sig. (2-tailed) | | .000 | .000 | .000 |
| | N | 113 | 113 | 113 | 113 |
| rindx03 Rank of index03 | Pearson Correlation | -.955** | 1 | -.785** | .943** |
| | Sig. (2-tailed) | .000 | | .000 | .000 |
| | N | 113 | 113 | 113 | 113 |
| expind03 | Pearson Correlation | .903** | -.785** | 1 | -.817** |
| | Sig. (2-tailed) | .000 | .000 | | .000 |
| | N | 113 | 113 | 113 | 113 |
| re03 Rank of expind03 | Pearson Correlation | -.911** | .943** | -.817** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | |
| | N | 113 | 113 | 113 | 113 |

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 4 demonstrates the regression line between the ranks of the two indices based on the 2004-05 ARL Statistics data and shows that the relation between these two is again very strong (R-square =.88).

**Figure 4. Regression of Rank of the Library Investment Index and the ARL Membership Criteria Index**




So, why is the Library Investment Index a better choice? As can be seen from Figure 5, the ARL Historical or Membership Criteria Index as calculated using the Principal Component Analysis Method every year has an Eigenvalue that is lowering each year, year after year. The underlying factor is undergoing a gradual transformation primarily due to the serial subscriptions, volumes held and volumes added gross data.[7] As collections are transforming, the Historical Criteria Index is capturing this evolution alas resulting in a less robust indicator over time. The variance explained has been lowered from 90.5% in 2002-03 to 81.7% in 2006-07 (Figure 5). The Principal Component Analysis of the Library Investment Index on the other hand explained more than 92% of the variance and is stable over the same time period.

**Figure 5. How Is the ARL Membership Criteria Index Changing?**

| ARL Historical Criteria Index (previously named ARL Membership Criteria Index) | | |
|---|---|---|
| Variance Explained from Principal Component Analysis | | |
| | | |
| | Eigenvalue | % of Variance |
| 2002-03 | 4.53 | 90.50 |
| 2003-04 | 4.46 | 89.23 |
| 2004-05 | 4.40 | 87.94 |
| 2005-06 | 4.39 | 87.94 |
| 2006-07 | 4.08 | 81.70 |

External research also confirms that library expenditures relates to factors like institutional reputation. Sharon Weiner, Dean of Library Services, University of Massachusetts Dartmouth, published "The Contribution of the Library to the Reputation of a University"[8] where she explores the relationship between a peer-assessed reputation rating for doctoral universities with cross-institutional performance indicators for universities and their libraries, using the ARL Statistics among other sources. Weiner finds that library expenditures is the only consistently significant variable in this relationship. These findings are supportive of the ARL direction to make publicly available the Library Investment Index (formerly known as Expenditures-Focused Index).

## Conclusion

Clearly 'measuring the size of library collections cannot be what it used to be.'[9] The continued work of collecting profile descriptions from ARL member libraries[10] as well as the potential of developing a three-factor index[11] hold promise for richer and more fulfilling ways of capturing the value of research libraries. Currently, we have a rich array of assessment tools which continues to be supplemented with new efforts and explorations describing effective and successful library services.

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   - Shirley Baker (Washington University, St. Louis)
   - Dale Canelas (University of Florida)
   - Colleen Cook (Texas A&M University)
   - Carol Pitts Diedrichs (University of Kentucky)
   - Eileen Hitchingham (Virginia Tech)
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   - Lou Pitschmann (University of Alabama)
   - Alice Prochaska (Yale University)
   - Jennifer Younger (University of Notre Dame)

   ARL staff:
   - Julia Blixrud
   - Mary Jackson
   - Martha Kyrillidou

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# Evidence-based Management: Assessment to Plan to Budget to Action

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## Abstract
For the past two decades, the University of Northern Colorado's (UNC) University Libraries has utilized an Assessment Committee to assess user satisfaction. In recent years, they have implemented an evidence-based management model that involves a cycle of assessment, planning, budgeting, and action. This use of this model has resulted in successes in a variety of library areas.

## Introduction
The University of Northern Colorado's (UNC) University Libraries has implemented an evidence-based management model that relies upon assessment of collections, services, and instruction as an integral step. This cycle of assessment, planning, budgeting, and action has proven to be a valuable and insightful tool over the past five years.

A Carnegie Research-Intensive institution, the University of Northern Colorado, with a student FTE of 12,000 and a nationally-recognized undergraduate business program, as well as a critically-acclaimed music program, is the teacher education university in Colorado, offering graduate degrees in a number of disciplines. The University Libraries include the Howard Skinner Music Library, supporting the Music and Musical Theater programs, and the James A. Michener Library, which supports the majority of curricula across campus. The combined University Libraries hold more than 2.5 million items, and have made significant investments in digital collections.

In 1988, the first Libraries Assessment Committee was formed, conducting a survey of user satisfaction that fall.[1] Since then, numerous instruments have been implemented, including locally-designed surveys and questionnaires, focus groups, and LibQUAL+®, which was first deployed in 2003, then again in 2004, 2005, and 2007. Findings of the Assessment Committee have informed planning within the Libraries for the past two decades, providing evidence of the changing needs of faculty and student patrons.

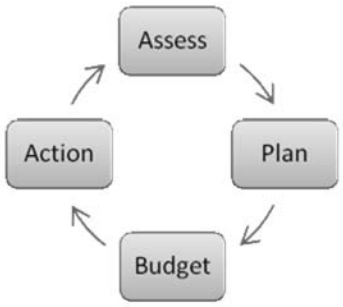
## The Libraries' Evidence-based Process
In 2003, "Charting the Future," an initiative of the University President, spurred even greater interest in accountability and evidence of rationale for planning and budget requests, resulting in an initiative for evidence-based management at all levels of the university, including the libraries. UNC's Libraries must submit a budget for each academic year, requesting not only those ongoing funds that support staffing and collections, but also special projects such as furniture upgrades and remodeling plans. "Charting the Future" created an opportunity for the Libraries to position itself as a Teaching Library, collaborating with academic colleagues across campus to attain "our shared educational objectives".[2]

The Libraries designed an evidence-based management process, as seen in Figure 1 to facilitate university-wide collaboration in redefining and reinvigorating the role of the academic library. The intent was to move the perception of the library from a traditional and generic role characterized by a warehouse mentality, isolationist perception, exclusion from institutional priorities, limited funding, and lack of stakeholders to a role incorporating the exuberance of the Teaching Library concept, the characteristics of which were identified as:

- The intellectual heart of the campus;
- A welcoming place for all students;
- An outstanding resource recognized both on and off campus;
- Student-centered and dedicated to fostering student success;
- An essential partner in producing students with the information literacy skills necessary to be productive members of society;
- Cost effective in providing excellent services; and
- Responsive to internal and external change.

The evidence-based management process was specifically designed to foster university-wide acceptance of the Teaching Library role, including its importance to the recruitment and retention of faculty and students. Incorporating this redefined role into the university culture became a major function of the Assessment Committee as it pursued the realities of campus perceptions and needs.

Figure 1. The Evidence-Based Planning Process.




## The Cycle: Assessment

Assessment, and consequently the role of Libraries' Assessment Committee, became the focal point of the evidence-based cycle. Historically, the committee has been comprised of both faculty and classified staff, with staggered three-year terms. Past chairs of the committee stay on for an additional year as the new chair becomes accustomed to the role and responsibilities. This additional service is particularly important to the success of LibQUAL+® in that administering the Survey can be complex. To counter survey fatigue in campus populations, incentives and promotion have been used to increase participation. Sampling of the population has involved a greater degree of collaboration and cooperation with the campus Information Technology unit.

Assessment Committee data has provided evidence to support an increased emphasis on library instruction, including the creation of new faculty positions and the design and implementation of LIB credit-bearing courses; increased investment in online and digital monographic, periodical, and reference resources; as well as furniture upgrades and remodeling project scheduled for completion in fall 2008.[3] Ongoing investment in assessment activities indicates the value placed on knowing what our patrons want and expect from the Libraries. Information gathered by members of the Assessment Committee is disseminated throughout the Libraries, fostering a climate of communicative transparency and encouraging collaboration and consensus.

One of the more ambitious projects undertaken by the Assessment Committee in recent years was the 2006 implementation of a Library Summit.[4] This event brought together nearly eighty individuals from all areas of campus for a luncheon, followed by what was essentially two large focus-group activities. Attendance was based on invitations from the president, provost, and dean and resulted in over ninety percent of the invitees attending. Plus, the president and provost opened the Summit with presentations on the importance of the Teaching Library to faculty and student success and to overall recruitment and retention.

Building on the comments and scores of the previous year's LibQUAL+® survey, the 2007 Summit sought input from students, faculty, and administrators across campus to help address areas of concern. Generating more than seventy flip-chart pages of suggestions, many of which have since been implemented, the event was a success on many levels. The Libraries are now seen as genuinely concerned about satisfying the needs of the campus community, dedicated to solving problems in original ways, and committed to building community through directed collaboration. The Summit fostered relationships across campus, established the Libraries as a team player, and raised awareness of the libraries' teaching and learning role. Suggestions and recommendations made during the Summit were infused into library planning and budgeting, exemplifying the strength of evidence-based management.

The Assessment Committee approaches its work confident that recommendations will be taken seriously and be incorporated into the planning process fully aware of the importance of tracking changes in population, curriculum, and policies. For example, the most recent project, undertaken in spring 2008, used Appreciative Inquiry methods to determine how to better serve graduate distance students, a population that is overlooked by traditional methods of inquiry. The committee devised a way to obtain rich qualitative data from students pursuing graduate level degrees in Education and Nursing. This project was a direct result of the data garnered through LibQUAL+® surveys, and a reflection of the increasing

importance of distance education, primarily of graduate students, at UNC.

## The Cycle: Planning

Every fall, the results of the assessment process are incorporated into an annual University of Northern Colorado Libraries Planning Goals Statement. The purpose of the goals statement is to establish priorities for Libraries' activities and to facilitate the budgeting process, which is the next step in the evidence-based management cycle.

Since 2003, the University Libraries Five-Year Plan planning goals have mirrored the organizational structure of the *University Plan,* with sections for organization and personnel, collections, services, instruction, technology, facilities, assessment, and external support. The objectives under each section have come directly from the assessment process.

Beginning with 2008, the University of Northern Colorado Libraries Planning Goals Statement[5] will mirror the Academic Plan,[6] which was drafted by a steering committee of students, faculty, and administrators and adopted by the university's Board of Trustees in the spring of 2008. The goals of the Academic Plan emphasize exemplary teaching and learning, a superior faculty of teacher-scholars, transformational learning, dedication to the teaching and learning community, and effective partnering with the local community. The Libraries will draft a five-year plan reflecting goals set by the university's academic plan and will be based once again, on the outcomes of library assessment.

## The Cycle: Budgeting

Assessment results, as reflected in the planning goals, comprise the basis of the Libraries' annual budget request. The university process requires that all requests for base increases and one-time allocations be fully justified in terms of enhancements to the university community. As such, all requests from the Libraries are divided into two evidence-based narratives, recruitment and retention or additional evidence. Both cite the assessment process and subsequent results. The global narrative that accompanies the entire request is based on the Teaching Library concept, the redesigned role incorporated into that concept, and how affirmative responses to the request will enhance the teaching and learning process, and subsequently, faculty, and student recruitment and retention.

Basing budget requests on assessment evidence and resultant planning goals has led to unprecedented funding for the Teaching Library. The materials budget has increased equal to or above the annual inflation every year since the Libraries implemented evidence-based management. In addition, allocations have been received for new positions and facility improvements.

## The Cycle: Action

When the budgeting process concludes, with proposed new projects approved and funded, libraries personnel move quickly toward implementation. Not only does the "action" phase of evidence-based management provide proof that allocations are administered efficiently and effectively, it allows the Assessment Committee to analyze those actions in the next iteration of the assessment process.

The action phase also shows the entire university-community that the Libraries take the assessment process seriously and that their involvement does, indeed, result in change. This, in turn, stimulates the expansion of internal and external stakeholders who then emphasize, especially during the budget process, the importance of the Libraries being given priority for redirected and new dollars. This combination of evidence-based management and stakeholder development has resulted in, among other initiatives:

- Inflationary and curriculum-based increases to the materials budget;
- Additional library faculty positions and a development officer;
- Replacement of the circulation desk and remodeling of access services work space;
- Expansion of community events;
- Expansion of the Libraries' credit-generating curriculum and course-integrated instruction;
- Refurbishment, including technology upgrades, of group-study rooms;
- Refurbishment of general student-use space;
- Embedded Library faculty in college-specific buildings;
- Incorporation of instant messaging into reference/research instruction; and
- Improvement of scoping and resource management in the public access catalog.

## Now What?

Over the past five years, improved LibQUAL+® scores have reflected the success of implemented projects and initiatives. The tailored research classes fill rapidly and generate waiting lists. "Library as Place" scores have reflected improvement as well as raised expectations through refurbished soft furnishings and enhanced access to electrical outlets. Collections scores improved, as did circulation statistics, as a result of retaining book jackets, weeding aggressively, and improving stacks signage. Perhaps the most significant single response to assessment findings that increased visibility of the libraries across campus and into the larger community was the creation of an advancement committee, which coordinates participation in the Homecoming parade, job fairs and other "welcome to campus" events at the start of each semester, and tailgating parties complete with miniature footballs imprinted with library information.

University of Northern Colorado's University Libraries is committed to continued use of the assess, plan, budget, act cycle of evidence-based management. Future assessment projects will continue to monitor trends as well as target areas of concern and new initiatives. Balancing quantitative and qualitative methods of data collection in order to garner a deep understanding of the needs of changing populations will continue to guide the assessment committee. Using methods that generate solutions, rather than simply collecting complaints, will introduce new ideas into the planning stage of the management cycle, while methods that measure the success of implemented projects will provide the evidence needed by administration, in the libraries and at the campus and state levels.

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# Assessment Cycle or Circular File: Do Academic Librarians Use Information Literacy Assessment Data?

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## Abstract

Academic librarians design and implement information literacy assessments, but do they use their assessment results? This survey-based study explores the degree to which academic librarians assess information literacy, produce assessment data, and use results to achieve the purposes of information literacy assessment. It identifies numerous barriers that impede librarians progress throughout the assessment process including too little time and too few resources, difficulties understanding of assessment and how to produce and use results, a need for centralized support of assessment activities and increased campus collaboration, and a lack of assessment tools that adequately measure information literacy and provide detail descriptions of student skills. Finally, areas for supporting librarians who seek to overcome these assessment barriers are suggested.

## Introduction

Over the last few decades, academic librarians have become increasingly aware of the need to assess student information literacy skills for a number of purposes including:

- To increase student learning;
- To improve instruction;
- To collaborate with faculty;
- To collaborate with other librarians;
- To provide data for accountability measures such as accreditation or program review;
- To argue for increased resources; and
- To inform future assessment efforts.

Librarians have responded to the growing need for assessment by designing and implementing surveys, tests, performance assessments (such as research paper bibliography and portfolio evaluation), and Classroom Assessment Techniques.[1] The literature of information literacy instruction is rife with allusions to such assessments; however, the use of assessment results to achieve these purposes is less apparent.[2] One might conclude (1) that academic librarians do not possess the results of their assessments; (2) that they possess assessment results, but do not use them; or (3) that they both have and use assessment results, but do not include them in their publications. If librarians do not have assessment results, or have them but do not use them, then that begs the question, "What barriers interfere with academic librarians' ability to obtain or use information literacy assessment results?" Only by understanding these barriers will librarians be able to address and overcome their challenges and so, in an effort to answer this central question, the present study was conducted to investigate seven research questions:

1. Do academic librarians assess information literacy skills?
2. If they do not assess information literacy skills, why not?
3. If they assess information literacy skills, do they possess information literacy assessment results?
4. If they do not possess assessment results, why not?
5. If they possess assessment results, do they use them?
6. If they do not use assessment results, why not?
7. If they use assessment results, how do they use them?

## Literature Review

Academic librarians are not the first in academia to struggle with assessment; faculty and student support professionals have also confronted significant challenges. An examination of the barriers encountered by faculty and student

support services provides a useful list of difficulties librarians might face.

Academic faculty often cite three major barriers to assessment: time, resources, and lack of understanding of assessment.[3] Student support professionals report four additional challenges: lack of understanding of student learning theory; lack of collaboration with others, especially faculty; lack of trust; and difficulty managing expectations.[4]

Lack of time and resources appears to be a universal challenge to assessment processes. Faculty and student support professionals state that the time required for assessment often comes at the cost of time spent doing the activity that will be assessed. They report difficulty in balancing competing time commitments and reallocating time from one job responsibility to another.[5] Other resources in short supply include funding, staff time, and professional development opportunities[6]; a lack of any of these resources presents a barrier to assessment.

Another barrier to assessment is lack of knowledge. Faculty and student support professionals who feel that they are not competent are unlikely to engage rigorously in assessment processes.[7] Lack of knowledge can result in anxiety or even fear—fear that assessments will reveal personal incompetence or program failures.[8] These barriers are exacerbated when combined with a lack of time, resources, or process coordination.

The assessment process requires coordination as well; when that coordination is missing, it becomes an additional barrier for faculty and student support professionals. In academia, assessment coordinators and committees are necessary for shepherding assessment processes and creating an organizational culture and framework that values and supports assessment work. The presence of assessment coordinators and committees also signals an institutional commitment to assessment.[9]

A lack of conceptual framework for assessment presents one more challenge to assessment.[10] On many campuses, assessment is traditionally tied to measures of student satisfaction rather than student learning. In order to move forward with outcomes-based assessment of student learning, the historical link between assessment and satisfaction must be minimized and replaced with a conceptual understanding of assessment as an examination of student learning. Furthermore, the role of faculty and student support professionals in assessing student learning needs to be clarified, especially their roles in large-scale accreditation and program review.[11] This is particularly true for student support personnel, who may be viewed as secondary or "auxiliary" by faculty, rather than as true partners in the assessment of student learning.[12]

Lack of trust and difficulty managing expectations round out the major barriers to assessment for student support professionals. Some student support professionals report anxiety about who might view assessment results and how the results might be used; others are concerned about the continuation of programs and positions in the face of negative assessment results.[13] The final barrier for student support professionals who conduct assessment is the challenge of managing expectations. For example, student support professionals are concerned about a possible disconnect between what they expect students to learn and what they can be expected to teach and measure. They also report concerns about the rigor with which they can embrace assessment, the amount of descriptive detail available in assessment data, and their ability to report and document results.[14]

While much is known about the barriers to assessment confronted by faculty and student support professionals, no previous systematic research has been undertaken to examine the barriers facing academic librarians. The present study seeks to begin to rectify this omission.

## Methodology

This study employed a survey methodology. A twelve-question multiple-choice survey was distributed via two professional listservs. First, the survey was sent to the ACRL Institute for Information Literacy Instruction Alumni listserv. Members of this listserv have attended a rigorous 5-day program that covers the pedagogy and assessment of information literacy instruction.[15] Second, the survey was also shared via the Information Literacy Instruction listserv (ILI-L), an open list for reference and instruction librarians at community college, college, and university libraries and others interested in information literacy and instruction. Participation in the survey was voluntary; those who wished to respond clicked a link in the listserv message and were forwarded to the online survey.

Over two weeks, 437 volunteers participated in the survey, and 84% completed it (n=365). Ninety-eight percent of respondents were academic

librarians, and 96% conduct information literacy instruction. Thirty-five percent also supervise librarians who provide information literacy instruction. Years of experience varied: 31% had been a librarian for 0-5 years, 21% for 6-10 years, 14% for 11-15 years, 9% for 16-20 years, and 24% for more 20 years.

## Results

### Do Academic Librarians Assess Information Literacy Skills?

Seventy-six percent of survey participants (n=332) reported that they assess information literacy skills, a result that is gratifying. It should be noted, however, that this number may be inflated due to the participation of Immersion alumni. Even so, nearly a quarter of participants responded that they do not assess information literacy skills. Those that do not assess information literacy skills cited a number of barriers to assessment.

Lack of time is a significant barrier for librarians who do not conduct information literacy assessment (n=105). Of those who indicated that they faced assessment barriers (n=72), 26% stated that they spend their work time on other responsibilities and 21% were unsure how to reallocate their work time to accommodate assessment. Lack of resources is another important barrier. Twenty-nine percent stated that they have insufficient staff to conduct information literacy assessment, and 19% said other library services monopolize available resources. Lack of knowledge about assessment is a problem area as well. Twenty-one percent said their understanding or expertise in assessment was limited. Seventeen percent were concerned that they were not competent in assessment, 15% don't know how to select and implement assessment tools, and 14% don't know how to analyze assessment data. Librarians also felt a lack of a coordinated assessment process was a problem. Twenty-nine percent cited the lack of centralized support and/or commitment for assessment as a barrier. Twenty-two percent noted the lack of an assessment coordinator, and 15% mentioned the lack of an assessment committee. Eighteen percent stated that assessment was not valued by their library. Some librarians felt a lack of conceptual framework for assessment was problematic. Eighteen percent said it was difficult to integrate with college-wide assessment efforts and 17% reported difficulty in understanding librarian's role in assessing learning. Furthermore, 21% librarians cited lack of faculty collaboration as a barrier to assessing information literacy. Nineteen percent stated that faculty consider the library an auxiliary service and 11% said faculty will not collaborate with librarians at all. Finally, 17% of respondents who do not assess information literacy said that available assessment tools don't adequately measure information literacy. In conclusion, librarians who do not assess information literacy need:

- More time or help reallocating their time;
- More staff;
- Greater understanding of information literacy assessment;
- Centralized support and/or a coordinator of assessment; and
- Increased faculty involvement.

### Do Academic Librarians Who Assess Information Literacy Skills Have Results of Those Assessments?

Eighty-six percent of librarians (n=276) who conduct information literacy assessment have results and 14% (n=46) do not. Those librarians who conduct assessments and do not possess the results of those assessments but who indicated reasons why (n=29) cite numerous barriers. Lack of time is a significant barrier for these librarians; 31% stated that they spend their work time on duties other than producing assessment results. Twenty-four percent don't have time for the added responsibility of producing assessment results, and 21% are unsure how to reallocate their time to make room for these duties. In addition to time limitations, these librarians do not feel they have sufficient resources. Twenty-four percent do not have the necessary staff to produce assessment results, and 10% stated that they would not be rewarded for the production of assessment results. Thirty-one percent said they have limited expertise or understanding of how to produce assessment results and 14% don't know how to select or implement tools to support the process. Librarians also say that lack of a coordination of the assessment result production process is a barrier. Twenty-four percent say that there is no centralized support and/or commitment for producing assessment results. Ten percent cite a lack of assessment coordinator, assessment committee, and institutional support as problem areas. Seventeen percent say it is difficult to integrate with college-wide assessment efforts and faculty involvement is limited. Indeed, 24% say that faculty do not collaborate with librarians or vice versa. Finally,

31% of librarians who do not have information literacy assessment results say that available assessment tools do not adequately measure information literacy skills, and 17% say the results of these tools do not provide an adequate level of detail. As a result, librarians who assess information literacy, but who do not possess assessment results require:

- More time or help reallocating their time or responsibilities;
- More staff;
- Greater understanding of how to produce assessment results;
- Centralized support for producing assessment results;
- Increased faculty collaboration in producing assessment results; and
- Assessment results that adequately measure or describe student information literacy skills.

### Do Academic Librarians Who Have Assessment Results Use Them?

Eighty-two percent of librarians who have assessment results have used them (n=228) but 17% have not (n=48). According to the librarians that have, but do not use, assessment data (n=40), several barriers impede their progress. Time is a major problem for these librarians; 45% say they spend their time on other work responsibilities, 25% don't have time for the added responsibility of using assessment results, and 18% are unsure how to reallocate their time. Similarly, lack of resources is a barrier. Fifteen percent state that they lack the budget, professional development opportunities, and staff required to use assessment data. Fifteen percent also say they won't be rewarded for using assessment data, and that other library services and priorities monopolize available resources. Lack of knowledge is a problem for many librarians who do not use their assessment results; 40% say they have limited knowledge in this area, and 33% don't know how to select and implement tools for using assessment results. A lack of a coordinated assessment process also is a challenge. Twenty-eight percent report a lack of centralized support and/or commitment for use of assessment results. Fifteen percent and 13% feel the use of assessment results is not valued on their campus or by their library, respectively. Ten percent cite the lack of an assessment coordinator as a barrier, and 13% say the same of an assessment committee. The lack of a conceptual framework for assessment is a significant difficulty for this group of librarians too. Thirty-five percent find it hard to grasp the expectations for using assessment results, and 28% say it is hard to understand the librarian's role in using assessment results. Thirty-three percent state that it's difficult to integrate the use of assessment results with college-wide assessment efforts. Faculty collaboration is a challenge as well. Thirty percent of respondents believe that faculty do not collaborate with librarians, and 28% feel that faculty collaboration is limited. Interestingly, a large number of librarians who do not use assessment results state that their results can't be used because they do not adequately measure (48%) or describe (40%) student information literacy skills. The librarians in this category indicate that, in order to use assessment results, they need:

- More time;
- Increased training in how to use assessment results as well as how to select/implement tools for using results;
- Centralized support for using results;
- Clearer expectations for using results (especially librarians' role in the process);
- Increased faculty collaboration and methods for integrating with campus-wide assessment efforts; and
- Assessments that adequately measure and describe student information literacy skills.

Happily, 83% (n=228) of survey respondents assess information literacy skills, have results, and use those results. In the group that indicated how they use their results (n=225), 96% of librarians report that they use information literacy assessment data to improve instruction and 73% to increase student learning. Fifty-eight percent use the results to inform future assessment efforts, and 52% use the results to respond to calls for accountability. Assessment results are also used to collaborate with others. Half of the librarians who used assessment data employed it to collaborate with faculty, and 36% used it to collaborate with other librarians. The least mentioned use of assessment results was to argue for increased resources; only 20% of librarians leveraged assessment results for this purpose.

## Discussion

This study is the first to examine the barriers confronted by academic librarians who seek to assess student information literacy skills; future research will be required to learn more about each challenge librarians face. Even so, this study reveals

two broad areas that must be addressed in order to support librarians who strive to overcome assessment barriers: (1) education and prioritization and (2) coordination and collaboration.

### Education and Prioritization

First, librarians and library administrators need to be educated about the challenges of information literacy assessment. Librarians require additional training about information literacy assessment in general. This training may take the form of professional development opportunities, immersion in assessment literature, or consultant visits.[16] Librarians also need to become familiar with the tools available for assessing information literacy (adequately and in detail), producing assessment results, and putting those results to use. Library administrators need to be informed of the time and resources required for information literacy assessment—not only for the assessment itself, but also for producing and using results—so that they can rearrange priorities and allocate both materials and personnel to facilitate the assessment process. Additionally, librarians and library administrators need to establish a common language, agree upon a conceptual framework for assessment, and clarify the roles and expectations of librarians who conduct assessments, produce results, and use those results for a variety of purposes.

### Coordination and Collaboration

Second, librarians need to coordinate of the assessment process and collaborate with others—including faculty and other librarians. Librarians should coordinate assessment efforts both within the library and across the overall institution. The addition of a library assessment committee and/or assessment coordinator provides a source of both expertise and organizational structure. Furthermore, librarians need to integrate their assessment efforts with campus-wide structures and personnel. Information literacy assessment is student learning assessment. Consequently, aligning information literacy assessment with other institutional learning assessments will help both the library and the overall campus to achieve their assessment purposes.

## Conclusion

Do academic librarians use information literacy assessment data? Certainly, many do. However, librarians who do not conduct information literacy assessment, conduct assessment but do not produce data, or produce data but do not use it face similar challenges: too little time and too few resources; difficulties understanding of assessment and how to produce and use results; a need for centralized support of assessment activities and increased campus collaboration, and a lack of assessment tools that adequately measure information literacy and provide detail descriptions of student skills. Although additional investigation of these barriers is merited, initial findings suggest that academic librarians require assistance in four areas—education, prioritization, coordination, and collaboration—to overcome these barriers and successfully achieve the purpose of information literacy assessment.

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# Voices of Authentic Assessment: Stakeholder Experiences Implementing Sustainable Information Literacy Assessments

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## Abstract

A panel presentation comprised of librarians, administrators, faculty and students shared their perspectives and experiences implementing two unique assessment projects. Both authentic assessment efforts resulted in sustainable models and tools for future assessment projects both large and small scale and long- and short-term. Additionally, the evidence collected through such assessments has been used to improve the value of information literacy learning and instruction in both of these institutions and has enhanced librarian-faculty-administrator collaborations, impacted student learning, influenced institutional development, and altered the content and quality of pedagogy and program planning.

The Humanities librarian at the Campus Library, serving both the University of Washington Bothell and Cascadia Community College, worked with faculty and students at Cascadia to assess information literacy learning in English 102: Writing from Research, a course required for transfer degree, and where information literacy instruction is closely integrated into the course content. This authentic assessment project utilized course learning goals, pre-existing assignments, and student self assessments based on a rubric to assess student information literacy learning in four sections of English 102. This enabled the librarian and faculty of this multi-section course to evaluate and modify their approaches to information literacy instruction for enhanced student learning, as well as gain insight into how students move through the course regarding the information literacy learning goals.

Librarians at WSU Vancouver participated in the development of a General Education Program and built in a plan for assessment of the six campus learning goals, including an information literacy goal based on the Association of College and Research Libraries (ACRL) Standards. ePortfolios were utilized alongside rubrics, also based on the ACRL Standards, to collect and assess student work, enabling librarians to evaluate their information literacy instruction at the programmatic level. Students provide samples of their work three times over the course of their education at WSUV. This longitudinal evaluation allows for a broad view of the progress and success of the General Education program in general, and information literacy instruction specifically for librarians.

## Cascadia Community College: Student Self Assessments as a Measure of Student Learning

Cascadia Community College (Cascadia) is co-located with the University of Washington Bothell on a single campus in Bothell, Washington, a suburb about 15 miles northeast of Seattle. The Campus Library and its librarians work with students and faculty at both institutions to strategically integrate information literacy instruction into core classes in the curriculum. The assessment project described here was implemented within Cascadia's English 102: Writing from Research course, a required course in their general education program. With a full time equivalent student body of about 1,400 and many students aiming to transfer to a four-year university after attending Cascadia, the English 102 course is offered throughout the year with multiple sections offered each quarter, emphasizing the need for sustainable information literacy instruction and assessment methods.

The typical English 102 class includes traditional college students right out of high school, high school students participating in Washington State's Running Start program to earn college credits before graduating, adult learners returning

to or just beginning college, transfer students from other institutions, and students formerly in the English Language Learners curriculum. Class sizes are usually about twenty-five students.

While there is not a standard or required syllabus English 102 instructors must adhere to, there is an institutional document (the Course Outcome Guide) outlining learning goals instructors must strive to meet within their conduct of the course. Typical assignments in English 102 include an introduction to and practice with: critical thinking, summary and paraphrasing, library research techniques and tools, a written research proposal, constructive peer review, and rough draft and final research papers anywhere from 8-14 pages in length. Librarians integrating information literacy instruction into this course typically have anywhere from 1-3 sessions (2-6 hours) with the students depending on how the faculty has structured the syllabus and assignments.

Information literacy assessment work with this course began in 2006 when student work was collected into a "mini" portfolio and rated by librarians and English faculty against an information literacy rubric created by the Humanities librarian. This assessment exercise was fruitful in bringing faculty and librarians together around information literacy goals and student performance. It also offered librarians the opportunity to review students' final papers but the concluding data was not largely useful in terms of moving forward to modify learning goals or information literacy instruction in the course.

In 2007, the Humanities librarian and a faculty member teaching two sections of English 102 decided to try and get more qualitative information by offering students the opportunity to do an extra credit presentation at the end of the quarter discussing and sharing their research process along with a little information about their research topic. Most students took this opportunity and the librarian and faculty were able to get much richer data to use moving forward. For example, students shared with us the points in the research and writing process where they were most challenged and/or successful while also sharing what they learned from the course and how they will apply it to other courses or their lives outside of school.

While the student presentations were very useful for learning about how students perceive and learn in this course, the Humanities librarian wanted to adopt a self assessment tool based on the previously used information literacy rubric that yet another English faculty successfully experimented with previously.[1]

## The Value of Self Assessment

Self assessments are a method of authentic assessment well suited for assessing process-based skills.[2] This form of assessment also fosters students' reflective thinking skills which, in turn, promotes the development of critical thinking.[3] Having students perform regular self assessments can empower them to take responsibility for their learning. As the learning goals of the course become transparent through the self assessment tool, students become aware of what is being asked and expected of them, and thus can internalize and set goals for themselves in progressing within and meeting those learning goals. Additionally, the qualitative data collected via self assessments or reflections can potentially be more useful than the quantitative data garnered from rubric scores, which we recognized after collecting and reviewing the students' first self assessment. Lastly, the methods described below for administering the self assessments were very practical and sustainable.

## How We Did It

The Humanities librarian selected and worked with one English 102 faculty member teaching two sections of the course in both winter and spring quarters in 2008. This faculty also worked on our assessment efforts in 2006 and 2007, and thus was familiar with our information literacy instruction program and our assessment goals for the course. At the beginning of the quarter the faculty asked students to give written permission to use their anonymous work and self assessments for course improvement and for sharing this project with the broader library and English faculty communities both formally and informally. Some students questioned the intentions of using their work but all gave permission and there was no penalty if a student did not want their work used.

At the start of the quarter the librarian and faculty reviewed the syllabus to identify strategic points to offer the self assessment to students. It was initially decided to have students complete the self assessments three times throughout the course: one very early in the quarter before any exposure to the library or their librarian; a second after attending two information literacy instruction sessions and completing and submitting their written research proposals; and a third after one

last library working session and completing and submitting their final 10-12 page research papers.

The self assessments were administered during class time and were not graded. Due to the caveats involved in using self-reported data, the librarian and faculty purposefully made the self assessments a "low-stakes" activity to minimize the "inflation" of skills in the students' self-reporting and to encourage open and thoughtful responses.[4]

Each self assessment was administered and completed in electronic format. The faculty often used a computer lab for instruction so students could conveniently access the self assessment tool in Microsoft Word format from their English 102 Internet research guide, constructed by the Humanities librarian for the course. After completing the self assessments students would print them out in class and turn them in to the faculty, who then passed them on to the Humanities librarian for review. The librarian reviewed the self assessments after each round to note trends and skills students expressed wanting or needing more practice with as well as ones they already felt confident performing. The librarian would share this information with the faculty, allowing for swift adjustments to the syllabus or information literacy instruction as needed. As the course progressed and students performed their second and third self assessments, the faculty would provide them with their previously completed form so they could reflect and record their progress between each one. Please see Appendix A to review the self assessment tool used for this project.

## Outcomes

There were many positive outcomes to this assessment project and it will definitely be repeated in future English 102 sections with the participating faculty member. There is also interest among other English faculty regularly teaching this course to implement the same project and a good possibility of having students perform at least one self assessment in each section offered by integrating this requirement into the Course Outcome Guide referred to earlier.

### Enhanced Student Learning

One strong outcome of the project was the enhanced learning students demonstrated in various ways. Students exhibited stronger research writing by the end of the quarter as expressed within their self assessments as well as by the faculty who administered more "A" grades than normal. By the third self assessment, students were using language not evident in the previous self assessments to describe their information literacy and research writing skills, such as: *stronger, confident, better, improved, strengthened, successful, capable, developed, prepared, effective,* and *comfortable.*

Students also demonstrated and expressed enhanced metacognition, or thoughtful reflection on learning, which was one outcome the librarian hoped the self assessment tool would encourage. The following student quotes from the feedback they offered on performing the self assessments are just a few of many where students express this sentiment:

> "[The self assessments] helped me think critically of where my skills in this class not only stood, but how they improved throughout the class."

> "I feel like I was able to track my learning because the self assessments told us exactly what we should know how to do."

> By writing it down, "the information I have learned becomes ingrained in my head. Therefore . . . I will be able to apply the concepts learned in this class more effectively in other classes."

Additionally, students emphasized the usefulness of the information literacy instruction and self assessments in their formal course evaluations, and as mentioned earlier, the faculty administered more high grades than normal and noted that the rough drafts of student papers were of much better quality and thoroughness than previously experienced.

### Enhanced Librarian-faculty Collaboration

Another strong outcome of this project was the enhancement to the librarian and faculty collaboration. The data which was collected allowed for increased communication between all three parties in addition to flexibility and responsiveness in course planning and information literacy instruction. The faculty and librarian were able to discuss and address trends in the students' reflections.

The faculty made it transparent to students that the librarian would be reviewing each self assessment as well as other information literacy

instruction worksheets, which also included reflective prompts. The librarian reviewed and commented on the worksheets, while the faculty took those comments into consideration when assigning grades. This transparent feedback loop including all three parties was found to be effective in enhancing collaboration as well as imparting the relevance of the librarian's participation in the course to the students.

### Enhanced Visibility and Relevance of IL Instruction Program

The qualitative data collected via the student self assessments has already been useful in many arenas. The student narratives and voices offer powerful data for informing information literacy instruction at the course and program levels as well as for communicating the efficacy and relevance library instruction programs have regarding student learning to campus administrators. This information could also be useful in advocating for sustained or increased funding for information literacy instruction programs, for budget and annual reports, for faculty and librarian promotion and tenure documentation, and for increasing the visibility of the library's instruction program with administrators and faculty.

In terms of program planning, the data from the student self assessments also reaffirms and informs the library's strategic partnering with faculty in courses where information literacy instruction and research skills are critical to student success. Strategically targeting relevant courses for instruction offers increased sustainability within the program's resources as well as opportunities to build continuing and consistent dialog and relationships with faculty and their respective departments.

## What Did Not Work: Feedback from the Students

On the students' third self assessment the librarian built in a section to collect feedback from the students on what they thought about performing the self assessments throughout the quarter.

The general student feedback was overwhelmingly positive with just a few students indicating the self assessments did not improve or alter how they learned and mastered the skills taught in the course. Many indicated the self assessment tool helped them keep track of their learning, understand the course and library learning goals, and identify what skills to practice and work towards improving.

Students from the winter quarter classes also offered some great suggestions for improving the process and tool for the spring quarter implementation. A few students mentioned they felt three self assessments for the quarter was too many. They felt there was little change between the second and third self assessment, rendering the third one "redundant" and extraneous. In response, the faculty and librarian only administered two self assessments during the spring quarter, which seemed just as effective.

Some students also indicated the language on the self assessment tool was confusing. The tool does include information literacy and pedagogical jargon so for the spring quarter the librarian tried to simplify the language and include examples to help illustrate the concepts and skills included. This seemed to help but still needs attention as students in the spring quarter classes expressed the same problem. The faculty and librarian also observed that fewer instructions provided to the students resulted in increased data and more thoughtful responses.

## Next Steps: Refining the Tool and Process

There are several ways to move this project further and continue developing it. There is interest among many English 102 faculty in trying the self assessments in their classes and a strong possibility of incorporating it into the English 102 Course Outcome Guide, which would require all faculty teaching the course to implement at least one self assessment. Collecting this data across multiple sections of English 102 would create a vast library of qualitative student data and narratives faculty and administrators could draw upon for programmatic assessment efforts.

A few students suggested adding proofreading and peer review skills to the self assessment and this is an idea the librarian and faculty will carefully consider for future iterations. Many students also lamented the self assessment form was "weird" to fill out in a Microsoft Word document formatted with tables. In response, the librarian created an online version using institutional Web survey tools.

Lastly, as the librarian and faculty continue to work with and refine this assessment process and tool, there is interest from library administration in identifying additional programs and/or courses at both Cascadia and the University of Washington

Bothell where this model would be effective for gathering student data for various assessment initiatives.

## Washington State University Vancouver—Background

In the fall of 2006, Washington State University Vancouver admitted its first freshman class. Until that time it was an upper division and graduate institution only with approximately 1,500 FTE. In 2005, the Washington State Legislature charged the campus with accepting 200 entry-level students for the fall of 2006 semester. In preparation for these new lower division, students the Lower Division Planning Committee, including librarians, designed a General Education Program built on six campus learning goals.[5] One of these goals is information literacy based on the ACRL Standards. Because the planning committee had decided to use an electronic portfolio (ePortfolio)[6] to bring cohesion to the student's educational experience, it was also decided to use the tool to assist in assessment of the general education program. For the librarians it was an opportunity to engage in authentic assessment of information literacy on a wider scale than had been possible before.

Evaluation was embedded into the program through the use of the ePortfolio. In order to facilitate longitudinal study, students provide evidence of their learning in each of the learning goals three times over the course of their education. Participation is insured as students enter material into the ePortfolio as part of three one-credit, required, general education classes. Students chose from work they have done in any of their courses or fill out a form that helps them to describe, employment, volunteer work, or other life experience as evidence of learning. The evidence is placed in a matrix in the ePortfolio attached to a refection written by the student explaining why a particular artifact exemplifies their best work in that learning goal.

An evaluation committee of faculty from across the disciplines then evaluates the student work using a rubric designed for each of the learning goals.[7] Over time they will evaluate samples of work from each level of the matrix, looking for progress in the learning goals over the course of a student's academic career at WSU Vancouver. Discovery of progress or lack of progress will inform program development and alterations. Librarians involved in the evaluation process have already learned the level of information literacy competency of incoming freshman and can gauge the type of information students are lacking. This assessment is invaluable in designing instruction to meet the students' actual information literacy needs.

## Collaboration

Other benefits to the library of this assessment process began before the assessment took place. Collaboration between teaching and library faculty started with librarians as members of the committee to design the general education program. Faculty and librarians have worked together through the creation, teaching, and evaluation of the program. This was especially true during the development of library instruction modules that were imbedded into the courses and the creation of the assessment rubrics. During these processes librarians and teaching faculty gained insight into the specific details of how each envisioned the learning goals and interpreted them in concrete detail. Librarians offered a cross disciplinary view of the program and were able to bring information literacy into the forefront. Additionally, librarians now have a higher profile on campus because they teach many of the general education classes. Librarians have gained a more intimate knowledge of courses, as well, bringing that insight into library services and collection development choices.

## Student Learning

Student learning has also benefited. When students place work in the ePortfolio and are prompted to write a reflection on their work, they gain the skill of being introspective about their learning. They are able to make connections between the learning goals, coursework, their current employment or volunteer work and their educational goals. One student's feedback at the end of a freshman general education class was, "During the course, it was very useful to participate in class activities, as well as assignments to reflect on the individual learning goals. These projects enabled me to connect my new knowledge of each goal with my previous knowledge and then apply it to situations in other classes and even life off of the WSUV campus."[8]

## Institutional Development

In the wider context, developing an assessment program for general education has created a greater awareness of and discussions around authentic assessment techniques on campus. While there is disagreement about how assessment should be

done, just having the discussions is critical to developing an assessment culture. Additionally, because of the need to have focused attention on general education assessment, the campus, for the first time, has an assessment coordinator position and a standing faculty assessment committee. These will help lower some of the traditional institutional barriers to building an assessment culture.

### Pedagogy and Program Planning

The impact of having an assessment process for campus learning outcomes on overall program and course planning has been dramatic. For the first time, learning outcomes are more clearly integrated into the curriculum as an expectation that students will achieve in areas over and above the content in their major-related courses grows. More revisions are being made to courses, curriculum, and campus services based on student feedback and learning. For example, librarians have changed their approach to instruction sessions for freshmen since they now see students two to three times in the students' first semester. This has enabled the librarians to scaffold these sessions and approach bibliographic instruction in a more programmatic way. Campus support services are also being influenced by the assessment data from the first year. Feedback from the ePortfolio raters combined with the students' scores on the Quantitative Reasoning outcome has prompted a more serious look at math tutoring services.

The expectation is to see a greater impact on pedagogy and curriculum once longitudinal data on student learning in the six campus learning goals has been collected. Data on the incoming students' level of achievement has been collected and analyzed and the campus is waiting to learn how future data will reflect student progress.

## Sustainability

The WSU Vancouver general education program assessment is time- and resource-intensive. It not only takes investment on the institutional level but it also requires buy-in from faculty and students. Stakeholder interest in assessment of this new program is high for now—initially because the campus needed a program for its new students and now because it is close enough to accreditation that the interest is sustained. Our challenge now is to develop a strong assessment culture on campus to carry us through as stakeholder interest moves to the next new program. It is essential that we build partnerships with others who can see the benefit to themselves and their programs through involvement with the assessment program. Sustainability of such an intensive program will be built one small budget request, one faculty member, and one student at a time.

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## Endnotes

1. Thank you to Cascadia Community College English Faculty lead, Todd Lundberg, Ph.D., for initiating the self assessment tool and idea.

2. Lorrie A. Knight, "Using Rubrics to Assess Information Literacy," *Reference Services Review* 34, no. 1 (2006): 43.

3. Sonia Bodi, "How Do We Bridge the Gap between What We Teach and What They Do? Some Thoughts on the Place of Questions in the Process of Research," *The Journal of Academic Librarianship* 28, no. 3 (2002): 109.

4. Valery Sonley, Denise Turner, Sue Myer, and Yvonne Cotton, "Information Literacy Assessment by Portfolio: A Case Study," *Reference Services Review* 35, no. 1 (2007): 41.

5. Washington State University Vancouver, "General Education at Vancouver: Learning Goals," http://www.vancouver.wsu.edu/gen_ed/learning%20goals.html.

6. For more information on portfolios and electronic portfolios see: George Lorenzo and John Ittelson, "An Overview of E-Portfolios," Educause Learning Initiative, ELI paper 1 (2005), http//www.educause.edu/ir/library/pdf/ELI3001.pdf; Lorenzo and Ittelson, "Demonstrating and Assessing Student Learning with E-Portfolios," Educause Learning Initiative, ELI paper 3 (2005), http://www.educause .edu/ir/library/pdf/ELI3003.pdf.

7. For more information on rubrics see: Barbara M. Moskal, "Scoring Rubrics: What, When, and How?" *Practical Assessment, Research & Evaluation* 7, no. 3 (2000), http://pareonline.net/getvn.asp?v=7&n=3; Craig A. Mertler, "Designing Scoring Rubrics

for Your Classroom," *Practical Assessment, Research & Evaluation* 7, no. 25 (2001), http://pareonline.net/getvn.asp?v=7&n=25.

8. Karen R. Diller and Sue F Phelps, "Learning Outcomes, Portfolios, and Rubrics, Oh My! Authentic Assessment of an Information Literacy Program," *portal: Libraries and the Academy*.8, no 1 (2008): 75-89.

**APPENDIX A:**
English 102 Research and Information Literacy Skills and Processes Self-Assessment tool

## English 102 Research and Information Literacy Skills and Processes Self-Assessment

| **Dimension 1: Defines the topic and/or research question** | **Where am I? What do I need to work on?** |
|---|---|
| ***Often, a writer entering English 102:***<br>• Selects a broad topic rather than defining a specific topic or question<br>*(i.e. "globalization" or "globalization and society")*<br>• Identifies minimal key concepts within the topic or question<br>• Determines the extent and nature of some of the information needed<br><br>***Upon successfully completing English 102, a writer:***<br>• Selects and defines a specific research topic or question<br>*(i.e. "effects of globalization on young women in developing countries")*<br>• Identifies many key concepts within the topic or question<br>• Is able to determine the extent and nature of most of the information needed<br><br>***An established researcher:***<br>• Selects, defines, and clearly articulates a research topic or question with subsidiary, embedded, or implicit aspects<br>*(i.e. "gender and globalization: female labor and women's mobilization")*<br>• Identifies many key concepts and specifically addresses the topic/problem through sub-topics/sub-questions/multiple perspectives<br>• Shows strong ability to determine the extent and nature of the information needed to adequately address their question/topic | |
| **Dimension 2: Uses various techniques and resources to access information** | **Where am I? What do I need to work on?** |
| ***Often, a writer entering English 102:***<br>• Demonstrates awareness, but selects inappropriate searching methods and/or information retrieval systems<br>*(i.e. only uses Google or other search engines, wikipedia, Encarta, etc.)*<br>• Experiments with new information seeking strategies and/or methods to learn about their research question/topic | |

| | |
|---|---|
| ***Upon successfully completing English 102, a writer:***<br>• Selects appropriate information seeking methods and/or information retrieval systems<br>*(i.e. library research databases and catalog, academic books and articles, etc.)*<br>• Applies new information seeking strategies and/or methods to modify, update or learn about their research question/topic<br>*(i.e. Boolean searching, relevant keywords, bibliographies/reference lists, etc.)*<br><br>***An established researcher:***<br>• Self-consciously selects relevant and appropriate information seeking methods and/or information retrieval systems<br>*(i.e. seeks out specific or specialized subject research databases, catalogs, people/experts, and other resources)*<br>• Applies a repertoire of creative and flexible information seeking strategies and/or methods to modify, update or learn about their research question/topic<br>*(i.e. Citation tracking/analysis using bibliographies/reference lists, using specialized sources from related fields of study, etc.)* | |
| **Dimension 3: Uses multiple types of sources** | **Where am I? What do I need to work on?** |
| ***Often, a writer entering English 102:***<br>• Distinguishes some types or formats of potential sources<br>*(i.e. websites, newspaper and magazine articles)*<br>• Uses a few types or formats of information<br><br>***Upon successfully completing English 102, a writer:***<br>• Distinguishes many types or formats of potential sources<br>*(i.e. academic journal articles, books, videos, audio clips, government reports, etc.)*<br>• Uses many types or formats of information<br><br>***An established researcher:***<br>• Distinguishes many appropriate types or formats of potential sources<br>*(i.e. in addition to those listed above, experts, researchers, government documents, artifacts, data, maps, institutions/organizations, primary research, etc.)*<br>• Uses many appropriate types or formats of information | |

| **Dimension 4: Evaluates sources for accuracy, relevancy, and bias** | **Where am I? What do I need to work on?** |
|---|---|
| ***Often, a writer entering English 102:***<br>• Articulates and/or applies evaluation criteria to some sources of information *(i.e. date of publication, title of source)*<br>• Shows an awareness of the audience or purpose or point of view of information sources<br>• Shows an awareness of the characteristics (significance, contradictions, etc.) or context of information and sources<br><br>***Upon successfully completing English 102, a writer:***<br>• Articulates and applies specific evaluation criteria to most sources of information *(i.e. authorship, commercial or academic publication, relevance to topic, organization, format, appearance, etc.)*<br>• Explains the audience and purpose and point of view of information sources *(i.e. audience of publication, bias, point of view of author, etc.)*<br>• Appraises explicitly the unique characteristics (significance, contradictions, etc.) or context of information and sources *(i.e. understands contributions the source makes to the topic)*<br><br>***An established researcher:***<br>• Articulates a sophisticated evaluation criteria and consistently applies that criteria to sources of information<br>• Consistently analyzes the audience, purpose, and point of view of information sources<br>• Explains how unique characteristics (significance, contradictions, etc.) or context of information and sources affects meaning conveyed | |
| **Dimension 5: Organizes, synthesizes and incorporates information into knowledge base** | **Where am I? What do I need to work on?** |
| ***Often, a writer entering English 102:***<br>• Minimally summarizes main ideas and/or information from sources<br>• Establishes interrelationships among ideas and/or does little comparison of new and prior knowledge<br><br>***Upon successfully completing English 102, a writer:***<br>• Accurately summarizes main ideas and/or information in context and with detail | |

| | |
|---|---|
| • Establishes interrelationships among ideas and/or does some comparison of new and prior knowledge<br><br>***An established researcher:***<br>• Accurately summarizes main ideas and/or information as well as their sub-topics/sub-questions/multiple perspectives<br>*(i.e. delves deeper into all facets and perspectives on a topic)*<br>• Establishes interrelationships among ideas and/or accurately compares new and prior knowledge to construct new concepts/ideas/insights<br>*(i.e. uses new knowledge to create new ideas or ways of thinking about the topic)* | |
| **Dimension 6: Uses information ethically and responsibly**<br><br>***Often, a writer entering English 102:***<br>• Cites some sources appropriately<br>*(i.e. bibliography/reference list/works cited present)*<br>• Demonstrates minimal knowledge of legal or ethical standards for information use<br>*(i.e. credits quotations or excerpts from sources)*<br><br>***Upon successfully completing English 102, a writer:***<br>• Cites most sources appropriately<br>*(i.e. mostly uses correct format and style for source type and parenthetical citations within text)*<br>• Demonstrates more knowledge of legal or ethical standards for information use<br>*(i.e. cites ideas/concepts as well as text quotations/excerpts from sources, aware of subtle forms of plagiarism)*<br><br>***An established researcher:***<br>• Consistently cites sources appropriately<br>*(i.e. always uses proper format and style for citations in text or reference lists)*<br>• Consistently demonstrates full knowledge of legal or ethical standards | **Where am I? What do I need to work on?** |

# Personas and a User-centered Visioning Process

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## Abstract

Understanding and assessing the information seeking and managing needs, habits, and expectations of a library's audience is crucial for creating a digital library environment that is relevant to users. Anthropological studies are most meaningful, but what if there is no time in a project plan for conducting one? Can you be sure that results produced at other institutions are complete and relevant for your own environment and purpose? This paper outlines a fast track process Cornell used to develop a user-focused vision and recommendations on how Cornell University Library should present itself and the information landscape to its users. A consultant was hired to conduct local interviews probing audience work habits and needs and to synthesize them into composite personas segmented on the basis of "like" behavior. These "imaginary friends" helped validate and supplement user studies done elsewhere and existing quantitative data from Cornell, thus influencing all the decisions and recommendations that the team produced. The personas can also serve as a way to effectively communicate about and develop empathy for user needs throughout planning and implementation. Personas have been mostly used in industry, but in our process they proved a useful and relevant benchmark for the academic library environment.

## Background

Founded in 1865, Cornell is a private, Ivy League university and the land-grant university for New York state. It has more than 13,500 undergraduate and 7,000 graduate/professional students, as well as 3,000 faculty and 12,000 staff.

Cornell University Library (CUL) is a distributed system comprised of twenty unit libraries, the combined collections of which exceed 7.8 million print volumes and 8.5 million microforms. The Library subscribes to nearly 88,000 print and electronic serial publications and provides access to more than 51,000 full-text electronic journals and 350,000 networked electronic resources.

The collections are accessible through Ex Libris' Voyager OPAC and the CUL library home page (http://library.cornell.edu/), a.k.a. the Library Gateway, which provides access to research resources, variously segmented as Catalog, e-journals, databases, articles, and images, and serves as the Library's informational and promotional face. The original site was developed in the fall of 1997 and redesigned in August of 2002.

In 2006, CUL purchased a federated search product, WebFeat, which allowed for simultaneous searching of the librarian-identified top 500 electronic resources within and across subject categories. While the implementation of federated searching, branded as Find it!, achieved significant improvement in the discovery path of licensed and most local digital content, both the CUL Web presence and the online catalog interface have remained largely static for a number of years despite huge changes in standards and services on the open Web. They appear more and more archaic and unusable to Cornellians whose expectations are shaped daily by commercial Web sites that are quick to take advantage of Web 2.0 functionality. In fact, according to the findings of the LibQUAL+® survey that CUL did in 2003, the dimension where patrons report lower satisfaction is *access to information* and specifically *personal control*, compared to *affect of service* and *library as place*.

To respond to the changing information landscape, the pressure from external competitors, as well as known changes in user research behavior, the senior management team at CUL charged a Web Vision Team "to develop a compelling vision for how CUL should present itself and the information landscape to its users, highlighting the unique value that the Library brings to the Cornell community. The content should encompass print, non-print and electronic holdings (current catalog), licensed and free electronic information resources and digital collections (current Find services), library information and services (rest of the Gateway), and relevant aspects of the discovery environment

external to CUL. The presentation has to be simple and intuitive yet flexible enough to reveal the multi-faceted complexity of this rich content. The functionality needs to be based on a thorough understanding of the information seeking and managing needs, habits and expectations of Cornell students, faculty and administrators, whether they are library users or not. Established Web conventions need to be employed against the backdrop of Web 2.0, collaborative technologies, web services, emerging systems options and implementations."

The team was constituted in February of 2007 and completed its report in July of 2007. In order to understand the research, teaching, learning, and other library related behaviors of our users, the team consulted existing and ongoing user research elsewhere and analyzed existing CUL data from multiple sources. To supplement these sources, we conducted original qualitative research with the help of an outside consultant, and constructed 10 personas, or composite descriptions of like user behavior and attitude. It is this process that this paper focuses on.

## Personas in Design

Although user-centered design is an already well-established approach in user interface (UI) design, using personas is a relatively new development and, to our knowledge, has only rarely been applied to an academic library setting. What is more, it has rarely been applied beyond UI work in general, to which it brings "clarity and accountability of reasoning"[1] and ensures that user needs, as opposed to software developers' and engineers' perceptions of user needs, are the starting point of UI development.[2]

Personas are considered to combine the benefits of quantitative and qualitative methods and have been argued to be more engaging than scenarios as a design technique.[3] Each persona represents a group of target users with shared behavioral characteristics. Personas are variously glossed as "user archetypes, "target customer characterizations" or "abstract/fictitious representations of users." They embody behaviors that a group of real users might exhibit, which are relevant to the design task at hand. Personas contribute greatly to the creation of usable products.[4]

Perhaps the greatest benefit that personas bring, besides their potential to engage both users and developers, is the fact that they are goal-directed and in the setting of a library information landscape, they reverse the emphasis from the library to the users. They not only have the potential to target the users' needs, but also to serve as the primary communication vehicle within the design team,[5] and thus bring focus, build empathy, encourage consensus, create efficiency and ultimately bring about better decisions.[6]

Personas can be used to bring to life data collected using a variety of methods, both qualitative and quantitative. The most frequent data collection methods include interviews and/or observations but surveys can also be used.[7] However, interviews and/or observations are the preferred method since they allow interviewees to discuss their goals and work habits, including frustrations with current systems at greater length.[8] Contextual interviews can also be combined with diary-keeping, job-shadowing, etc.[9] and analyzed with qualitative data analysis software or ethnographically by an expert. It is also possible to use existing quantitative data to create personas.[10]

Personas, needless to say, are only one method of understanding users and are certainly not unproblematic. Being a relatively new technique, they are sometimes regarded as too artsy or too abstract. Various methods have been proposed to counterbalance the "abstract" nature of personas: e.g., dramaturgical readings in order to make the personas "come to life"[11]; or a combination of scenarios and personas or claims-based personas.[12] Blomquist[13] describes the challenges that a design team faced when attempting to use personas and trying to imagine the user, challenges that were partially overcome by further involving users.

When based on qualitative data collection techniques, personas can be perceived as too subjective and lacking "scientific rigor,"[14] and they can be resource intensive and require specialized skills. Another shortcoming of personas is their failure to take into account power structures and social patterns of dominance,[15] but the biggest challenge personas face as a technique, and especially an assessment technique, is the fact that they are often based on a sample that is not statistically significant.[16] Generally speaking, enriching personas with additional targeted interviews and observations is a well established method for counterbalancing some of their shortcomings.[17] It is also important to remember that the identification of user characteristics and groups is an iterative process and user descriptions evolve when more data is gathered.[18]

To be effective, personas need to be believable (and one way of ensuring this is by basing them on data), communicated well, usable in all stages of the development cycle[19] and working towards a consistent vision.[20]

For our purposes we found personas to be a useful presentation technique that does not necessarily suffer from the shortcomings identified above. They are, of course, only as reliable as the data and segmentation that they present. As long as quantitative, qualitative or a combination method is selected appropriately and the data and analysis fit the purpose of the study, personas are going to be relevant and useful.

## CUL Process

The CUL personas were developed during April and May of 2007 as part of CUL's Web Vision Project. They were designed to provide insight into and communicate the various research practices and processes used by the primary clients of the library.

In the interest of time, CUL employed Craig St. Clair of TKG Consulting LLC who had prior experience with developing personas. He conducted the most labor-intensive parts of the project such as interviewing and various aspects of data analysis. The design of the entire process, development of the interview protocol, recruitment of subjects, as well as segmentation of the data and bringing the findings to life through multiple rounds of reality checks were based on a multi-stage process of give-and-take between the project team and the consultant.

During the week of April 23, 2007, the consultant conducted a series of thirty-six interviews with Cornell faculty, graduate students and undergraduates. The interviews, each lasting approximately thirty minutes, were captured via recordings and notes. The notes and recordings from the interviews were summarized and synthesized into a standard framework that included basic background information on the individual being interviewed, general projects and research areas, preferred work locations, research patterns, indications of library use, and any challenges, concerns and recommendations experienced by the interviewees. The personas were developed from this document and supplemented by excerpts from the recordings.

The step-by-step process for developing the personas involved several discrete stages. First, we separated the interviews into three groups, namely, faculty, graduates, and undergraduates. Table 1 presents the demographic distribution of the interviewees:

**Table1: Demographic Distribution of Interviewees by patron status and college distribution.**

| Primary Demographic | CALS | AAP | AS | E | HO | HE | IL R | Law | Vet | Med |
|---|---|---|---|---|---|---|---|---|---|---|
| Faculty | 1 | 1 | 4 | 1 | 1 | | 2 | | 1 | 1 |
| Graduates | 2 | 1 | 3 | 1 | | 1 | | 2 | 1 | |
| Undergrads | 2 | 1 | 2 | 2 | 2 | 3 | 1 | | | |

The next step was the analysis of the interviews within each group and the extraction of the primary research and library interaction patterns. The interviews were then further grouped by primary research patterns and these patterns were used as a secondary demographic and the main organizing construct of each persona. The final step was the process of populating each persona with real-world examples from each associated interview cluster.

The resulting ten personas were presented in identical rubrics: *Background*, *Library Interactions and Transactions*, *Key Experiences*, *Luxuries, Comforts and Necessities*. They also included a stock photo, a fictional name, a representative patron category (faculty, graduate student, undergraduate student), a tag line that metaphorically captures the essence of the persona, and a college affiliation, including career point. The resulting personas were:

**1. Faculty Persona One**
Name: Ken.
Tagline: "One degree of separation."
Affiliation: Tenured Professor of Economics in the College of Arts and Sciences.

**2. Faculty Persona Two**
Name: Gerald
Tagline: "Practical experience is primary, library is secondary."
Affiliation: Associate Professor in the School of Hotel Administration.

**3. Faculty Persona Three**
Name: Lisa
Tagline: "Seamless access."
Affiliation: Assistant Professor in the College of Agriculture and Life Sciences

**4. Faculty Persona Four**
Name: Marilyn
Tagline: "Secondary sources are secondary."
Affiliation: Professor in the College of Arts and Sciences in the Humanities.

**5. Graduate Student Persona One**
Name: Jason
Tagline: "Sometimes it's important to be near the books."
Affiliation: Third year PhD student in the College of Arts and Sciences.

**6. Graduate Student Persona Two**
Name: Amy
Tagline: "Online access all the time."
Affiliation: Second-year PhD student in the College of Agriculture and Life Sciences.

**7. Graduate Student Persona Three**
Name: Soo-Jin
Tagline: "Heads down in the Law School."
Affiliation: Second year law student.

**8. Undergraduate Student Persona One**
Name: Stacy
Tagline: "No boundaries."
Affiliation: Sophomore in the College of Architecture, Art and Planning.

**9. Undergraduate Student Persona Two**
Name: Simon
Tagline: "Getting the job done."
Affiliation: Junior in the College of Agriculture and Life Sciences.

**10. Undergraduate Student Persona Three**
Name: Ben
Tagline: "Little need to go beyond the basic search engines."
Affiliation: Freshman in the School of Hotel Administration.

The complete interview protocol is included as Appendix 1. The full personas are available at http://hdl.handle.net/1813/8302.

## Outcomes

For our purposes, personas served as an assessment tool for two very different things: first, they helped us assess our current users' research and study patterns as they relate to the Library's information landscape and what lies beyond this landscape; and second, they served as a gap assessment tool for the state of our Library Web presence and information resources and our users' expectations. Lastly, personas served and are still serving as a decision-making tool in our redesign processes. Below we focus on the use of personas as an assessment tool and only briefly discuss their use in the decision-making process of redesigning the information landscape of CUL.

### A. Personas as an Assessment Tool: Users' Research and Study Patterns

Our personas reveal the following patterns in our users' research and study habits:

Ken, the persona which embodies faculty in the sciences, collaborates with his colleagues and graduate students and views collaboration as a major research and output mode. In regard to his student-collaborators, he serves as the research "director." He views his contact with the Library as minimal and focuses primarily on "keeping current" by using electronic subscriptions, using virtual reference to solve problems with access, and heavy reliance on delivery services. He seems generally unaware of specific services provided by the library beyond his immediate need for access and delivery.

Gerald, the persona which embodies faculty in the professional schools, relies on graduate students to a much smaller degree and views research as moving from practical experience to more general models, which are then applied to real-life

situations as standardized practices. Thus he often begins his research with hands-on experience (his own or someone else's) and supplements his "field" work by online sources, which, notably, focus on documentation, and codes, and regulations. He uses scholarly journals as a "check" and similarly to Ken, a mode of keeping current. In general, Gerald views the library more as a teaching materials resource than a research materials source. While he begins his library searches online with the library catalog and journal collections, he often augments his online searches with trips to the library stacks.

Lisa, the persona which embodies faculty in the life sciences, works independently using primarily online journals and specialized databases and search engines. She does not rely on graduate students for her research. She occasionally uses Wikipedia herself, while discouraging students to do so. She is very attuned to the role the library plays in her research and recognizes that even when using Google and Google Scholar, she often accesses full-text because of the CUL subscriptions.

Marilyn, the persona which embodies humanities faculty, follows a classic humanist's pattern of combining published sources of current scholarship that keep her up-to-date and provide inspiration, with primary research in archival repositories that include manuscripts, image collections, quantitative data, and artifacts. She looks for primary archival materials in a variety of ways, both conducting online searches of repositories with published finding aids and digitized collections, and when necessary, making actual visits to repositories with collections that are only available in hard copy. Many times, new research and writing projects are inspired by questions and ideas that arise from earlier research. She works largely independently on these projects, and only occasionally calls on graduates and undergraduates to do analysis on statistical and quantitative data. Marilyn uses the online catalog, journal databases, physical repositories, and Borrow Direct services, as well as archival databases and finding aids. She has been at Cornell for twenty-two years and has developed understanding and expertise in the information resources, as well as built personal relationships with librarians.

Jason, the persona which embodies PhD students in the humanities, is engaged in literature searching in preparation for his dissertation writing. He supplements his journal reading with authoritative texts in his field recommended by his professors or found in bibliographies. He uses a wide variety of sources: online bibliographies and journals which often lead to obscure resources in repositories that he was unfamiliar with. After getting a sense of the current scholarship online, he often supplements his search in the library stacks. In order to stay current with the literature in his area, he regularly reads three to five journals and monitors the websites of several international organizations. Jason works independently although he is in periodic contact with the professors in his department and a small group of his peers. He is in the physical library every day: reading, accessing journals online and books in the stacks or on reserve, or requesting materials not held at Cornell. He uses Google Scholar to target his searches and Google Books to access the full text of books but relies on the Library for newer books. He occasionally uses Wikipedia and other popular websites for brief but unreliable information gathering. The information he collects is then researched and verified through library resources.

Amy, the persona which represents graduate students in the life sciences, relies on her lecture notes rather than on additional library resources. She consults with her peers, the graduate students in her lab, her faculty advisor, and other professors. Due to the nature of her research, she uses companies' and professional organizations' websites. She uses library resources primarily when preparing to teach undergraduate courses. In this process, she starts with Google, ask.com, etc. and then moves to CUL resources through Web of Sciences and Pubmed. For her own research, she uses Google to locate citations to journal articles and the Library Catalog or Amazon for books. She also uses the Library to access full-text journal articles.

Soo-Jin, the persona which captures graduate students in the professional schools, does not perform any wide-ranging research. Instead, she uses her lecture notes and casebooks to complete her class assignments. She rarely uses scholarly publications or databases and when she does, it is in a very directed and goal-oriented way. Her interactions with library resources are exclusively online, but she regularly uses librarians to help her with checking her sources.

Stacy, the persona which embodies undergraduate art students, has three phases in her research pattern: first, she looks for artistic inspiration, specific design models, and related information; then she synthesizes the information she has gathered, and finally executes a design in the studio. She uses art and architecture books in the Library to get inspiration. She does not use the journal collection and instead relies heavily on books. To locate those, she starts with the online catalog but spends most of her time browsing the physical stacks.

Simon, the persona which exemplifies undergraduate students in the life sciences is very focused on completing his work, which translates into a very task-oriented view of research, He receives directions from his professors and teaching assistants and then looks up the required information. He tends to use Google for beginning searches and when he does not know too much about the topic, but for his assignments he uses the library's website to access the prescribed electronic databases. He does not use Wikipedia because of perceived inaccuracy. He does not use the physical collection in the library at all because it is "just too time-consuming." If the article he needs is not available online, he will look for an alternative: "It's just not worth the hassle to keep searching for the original article." He finds it easier to stick to a few databases only and master these instead of to perform comprehensive searches across all relevant resources.

Ben, the undergraduate persona which embodies beginning students in the professional schools, has very applied coursework, which requires him to rely on information beyond the traditional scholarly resources of CUL. When he uses the Library's resources it is to access newspaper databases, and, more rarely, online journals.

### B. Personas as an Assessment Tool: CUL's Information Landscape

The most often identified problem across all personas is invariably access to full-text electronic journal articles, spanning the spectrum from lack of subscriptions, through unreliable URLs, and confusing holdings information, to overly complicated multiple ways of requesting available and unavailable items. Personas emphasize their frustration with the fact that there are often three different versions of the electronic journal but no direction on which version to choose. They also clearly expect full-text as opposed to abstracts only, but most of all, they expect relevant information about full-text availability and holdings to appear in a clear manner before their attempt to access the item. At the top of their frustration lists is the access problem which results from vendors moving resources, pulling sources out, and the authorization mechanism failing from off-campus.

They also point out the fact that relevant research information (e.g., government reports and documents) are often not readily or transparently available through the library resources. Personas also perceive a need for a single, fully-developed platform for access, management, and distribution of digital images that aggregates various image collections.

Personas also question the need to differentiate between Cornell-held and non-Cornell resources and express frustration with having to learn/ know the system instead of being guided by it. They advocate a seamless "one-click" experience. As Lisa puts it, "Efficiency of systems translates into efficiency of work."

### C. Personas as a Decision-Making Tool

The personas helped us formulate our audience's needs and expectations, which included:

- delivery is a bigger frustration than discovery for our users;
- users expect a limited number of starting points;
- users expect the incorporation of trusted networks into tools;
- users expect the library to be where they are;
- they expect to see the world, not just Cornell;
- they expect simple and quick solutions; and
- they need a better emphasis on awareness and outreach.

These in turn helped us formulate a vision for the Library Web presence and information landscape, which includes the following elements:

- break out of the institutional silo;
- streamlined homepage, designed around users' key tasks, not the full array of possibilities;
- single search box for diverse information with post search faceting and visual clustering;
- locally created content as part of the general discovery flow;
- delivery and other services integrated into the discovery path;

- no library jargon; and
- constant evaluation and development.

Based on the personas, we identified our users' key tasks on the library home page and designed it around those tasks. We also used information from the personas to initiate projects to implement WorldCat Local and LibGuides as well as to pilot ways of bringing CUL to non-library parts of the Web. We expect to unveil the new environment in spring 2009.

## Conclusion

The persona findings validated, supplemented and amplified other user-research findings and quantitative research at Cornell. Most importantly, they served as a decision-making tool in our process of recommending WorldCat Local as the next-generation library catalog and the re-design of our web-presence. They anchored our thinking throughout these processes and provided a reality check for our ideas. As an added bonus, they also served as an assessment tool of the research practices and work habits of our audiences and for the gaps that exist between our users' needs and expectations and the state of CUL's information universe.

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# Appendix
## Interview Protocol – Information use at Cornell

April 15, 2007

**Personal Background information:**

**Undergraduates:**
1. Where are you from originally?
2. What is your major?
3. What is your year of study?
4. What college or school do you belong to?
5. What are some of the courses you are currently taking?

**Graduates**
1. Where are you from originally?
2. Which college or school are you primarily affiliated with?
3. What is your primary area of study?
4. What is your degree goal?

**Faculty**
1. What are your primary areas of scholarship?
2. Which colleges or institutes at Cornell are you primarily affiliated with?
3. What is your teaching role or position?
   Prompts if necessary: professor, associate professor, assistant professor, research associate, extension associate, lecturer
4. How long have you been at Cornell?

**Administration**
1. What college or unit at Cornell do you work in?
2. What is your role?
   Role prompts
3. How long have you been at Cornell?

*(continued on next page)*

**Questions:**

1. Context of information tasks and use:
    a. Can you tell me in general about your worklife at Cornell? What you are working on at the moment?
    b. Can you give me an example or a couple of examples from your worklife at Cornell that involves looking for information, doing research, seeking answers that help you complete your work? Can you walk me through the steps that you generally take?
    c. What about sharing information with others? Do you have an example of how that typically occurs?
    d. Building on the previous example, what sources of information or information tools do you often use in order to complete your work?
        prompts: experts, professors, people you know, physical libraries, internet, Google, Cornell Gateway
    e. What types of content are you accessing?
        prompts: news, books, articles, periodicals
    f. How about your use of library resources, how does that figure in? Are you a user of library resources? Would you consider yourself a frequent user of the library's services? What library resources you typically use?
    g. What about online library resources? Do you use the MyLibrary functions? If so, how?
2. Successful instances:
    a. Can you tell me about an experience information seeking or knowledge sharing that was particularly successful? Something that worked quite well?
3. Issues and problems:
    a. What are some of the barriers that you have encountered in seeking information or in doing research?
        prompts: connectivity issues, lack of availability of specific resources, no centralized sources of information, no knowledge of where to begin
4. Recommendations:
    a. What would make the research process easier and more successful?
        prompts: additional tools, better processes, additional content
    b. Describe an ideal scenario of information services and products.
    c. What online functionality have you seen or are aware of that would be helpful?

# Patterns of Culture: Re-aligning Library Culture with User Needs

**Nancy Turner**
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## Abstract
Radical changes in technology and information access have given rise to new academic disciplinary connections, new research and teaching practices, and new modes of communication. With the support of the Andrew W. Mellon Foundation, Syracuse University Library has undertaken a research project to better understand these changes at the University's S.I. Newhouse School of Public Communications. We intend to develop an in-depth understanding of one multi-disciplinary academic culture and then to examine the library's culture and work practices to discover where services and resources are meeting needs and where they are not.

The qualitative methods used in the *Patterns of Culture* project is informed by the ethnographic work conducted at the University of Rochester. The research team, four librarians and a graduate assistant, received training in interview and observational techniques from anthropologist Nancy Foster. Our data gathering, conducted from spring 2007 to spring 2008, involved interviews with faculty, librarians, and students about their work practice, eliciting photographic diaries from students and conducting observations in classrooms and public spaces.

The goal of the *Patterns of Culture* (after Ruth Benedict's landmark work) is threefold: to gain a better understanding of the needs, research, and work practices of the faculty and students and to gain the same type of understanding of library staff; to develop a plan to align library culture, resources, and services more closely with the needs of faculty and students; and to produce a model for data gathering and analysis that can be applied by the library to other academic settings. Our project is unusual in that it applies the same ethnographic methods to three groups, using comparison as a means for deeper understanding.

## Introduction
Syracuse University Library received funding in October 2007 by the Andrew W. Mellon foundation to support ethnographic research for better understanding of the cultures, practices, and stories at Syracuse University. We would use our results to inform ways of synchronizing library services more closely with user needs. Although our initial effort was the S.I. Newhouse School of Communications, we planned to use the project as a test case, evaluating the methodology as a model for use in other schools on campus. Finally, we wanted to explore the ways in which a research effort employing ethnographic techniques might serve as a change agent, affecting the ways librarians listen to and work with users.

## Background Literature
Emerging from the field of anthropology, the ethnographic method utilizes interviews and participant observation to discover the unspoken "culture," or values, belief, and practices of a group. Ethnography can also be useful in design because it provides insight into the worldview of users—how they work, behave, and what they value. This type of information is exceedingly valuable to marketers and designers, as well as usability engineers. In the 1980s, a group of anthropologists at the Xerox Palo Alto Research Center helped to pioneer the use of ethnography in studying how people use software and interact with computers.[1] Jones argues for a larger role of ethnography in design.[2] She points out how ethnographic methods can draw attention to the environmental characteristics, practical applications of abstract ideas, the sociality of design spaces, and models of how people work.

Applying ethnographic methods as a method for assessing library services and facilities is relatively new. Ethnographic methods have been used to assess digital library services,[3] student library behavior,[4]and faculty attitudes toward library instruction.[5] In 2005, Nancy Foster used ethnographic techniques to study how faculty at the University of Rochester used institutional repositories.[6] The University of Rochester has been conducting additional projects that use

ethnographic methods to inform library design, services and student space.[7]

## Context

Syracuse University is a private, independent four-year college located in Syracuse, New York. Founded in 1870, Syracuse University serves 18,000 students, including approximately 13,000 undergraduates. Syracuse University Library supports the teaching, learning, and research at the university by providing a wide array of on-site and online resources and associated research support services. The Library's collections include more than 2.9 million volumes, over 21,000 online and print journals, over 400 reference databases, as well as extensive collections of microforms, maps, images, music scores, sound recordings, video, rare books, and manuscripts.

The library staff is comprised of 55 librarians and professional-managerial staff and 125 unionized support staff. The public desks are staffed 104 hours a week; a learning commons provides 24-hour access during the school year. Libraries are equipped with wireless access, laptops for loan, and provide a variety of study spaces including group study rooms, individual study carrels, and designated quiet study areas. The largest SU library is E.S. Bird Library, which houses non-science disciplines, library administrative offices, and the Special Collections Research Center. There is a separate Science and Technology Library and branch libraries for earth science and mathematics. In the process of creating a learning commons area on the first three floors of the building, the library has opened a café on the first floor of the Bird Library and is re-designing its common space and service areas.

With the opening of Newhouse III in October 2007, the S.I. Newhouse School of Public Communications is now comprised of three buildings linked together by a café and includes computer facilities, editing suites and presentation rooms. The school has 65 faculty plus many adjuncts, enrolling about 1800 undergraduates and 200 graduate students. As a professional school, faculty constitute a mix of "professors of practice" with backgrounds and professional networks in the industry and research faculty who publish in the more scholarly academic literature. All faculty, including administrators, teach. Departments at Newhouse include public relations, broadcast and print journalism, advertising, television, radio & film, and new media. The school supports programs and centers for arts journalism, free speech, legal reporting and television and popular culture in addition to the collaborative work conducted in partnership with campus schools of business, law, visual and performing arts and public citizenship.

## Methodology

We conducted pilot interviews with faculty prior to writing the planning grant proposal. From those conversations, we developed these questions:

- Is ethnography a feasible method for learning about our users?
- Can ethnographic data be used as a framework for looking at our own organizational culture?
- Can we compare library and academic "cultures" in a meaningful way?
- Do we share a common understanding with our users as to what the "library" means?

We wanted to use ethnography because it is a non-evaluative approach to assessment. Rather than instructing users in how to use the library, our interviews became opportunities for us to listen and observe how users do their work, in very specific ways, and discover the kinds of barriers they experience as they're doing that work.
Examples of our interview questions about work practice include:

- Tell me about a recent article or piece of information that you read.
- How did you find it?
- What did you do to prepare for your most recent class?
- When you started work in your office today, what was the first thing you did?

These questions were adapted slightly for use with students and with librarians—for instance, students used digital cameras and brought those pictures to the interview as prompts in talking about how they do their work in finding information and carrying out course assignments. The librarian interviews focused less on research and teaching, as librarians at SU don't routinely do extensive academic research for publication or teach credit-bearing classes. We interviewed 38 faculty members at Newhouse from all departments. We interviewed 18 librarians, 5 of which were also manager or department heads. We had 9 students—5 graduate students and 4 undergraduates. We took a Grounded Theory

approach to our analysis of the transcripts. We did not start with a specific expectation of the data or theory, but let topical codes within the transcripts and observation notes emerge from the text itself. These codes were then organized into broader themes.

| Cultural Theme | Theme | Example Codes |
|---|---|---|
| **Tools** | Collections/Resources | Named Resources, Personal Collections |
| | Use of Technology | Technology |
| | Software | Names Resources, Software |
| | Communication Technologies | |
| **Daily Life and Behavior** | Physical Space | Physical Space |
| | Time Management | Time |
| | Learning Technology | Learning Technology |
| | Finding Information | Finding Information |
| | Skills | Student Skills |
| **Relationships** | | Communication |
| | | Dissemination of Information |
| | Teaching | Teaching, Instruction, Reference |
| | Social and Work Organization | Collaboration; Collegiality |
| **World View** | Perception of the Library and Research | Taxonomy; Library Culture |
| | Change | Change |

As is the nature of all qualitative research, there is a subjective aspect to this approach as well as a limited sample size, particularly for students. To overcome bias, all materials were coded by at least two reviewers. We maintained a glossary that defined codes and conducted brainstorming sessions to analyze results and emerging themes as a research team.

## Findings

### Tools

> *"We have several books and anybody who wants to do extra credit borrows some of my books—that's why I have so many books here, students actually borrow them."[Faculty]*

All permanent faculty members at Newhouse have offices, and those offices accommodate extensive personal collections of books, media, journal runs, and files. Between faculty and students, the exchange of these personal collections, particularly books and CDs, is a way of creating and maintaining a relationship. Many faculty members rely on their personal collections for their own research—often these are tapes of television programming, collected over the course of many years, or collections of music on CD.

There isn't really a comparable exchange between librarians and patrons, except perhaps when materials are purchased expressly upon the recommendation of a faculty member. Faculty, students, and librarians use different types of technology and for different purposes. Faculty and librarians were more likely to describe technology as useful for professional purposes, such as getting access to information more quickly and effectively. In addition to the portable technologies they use in their personal lives, students utilize sophisticated software programs for their laboratory work in fulfilling course assignments. Librarians are the only group utilizing Wiki software for communication and management purposes. There is a range of interest in new technologies among librarians, from enthusiastic to discouraged, but many possess sophisticated technical skills and are

early adopters of new technologies for productivity and organization. A managing librarian says,

*"I really love the Wwiki that I showed you because I think for management purposes, and communication purposes, I think it serves a lot of different needs for our staff."[Librarian]*

Additional examples include Firefox add-ons, table of contents services, and readers for Really Simple Syndication (RSS) feeds. The current awareness and interest that librarians have for these tools may be a fertile area for expertise sharing, particularly with time-challenged faculty.

For communication, faculty use real social networks (not virtual), Blackboard, and e-mail. The University makes available the Blackboard course management system by default for all campus classes; not all faculty members find it useful. Students are using cell phones, Facebook, and Blackboard when required. Facebook is acknowledged to be most useful in communicating with friends and family, and as something fun; e-mail is preferred for use with instructors.

*"Well the Facebook message is nice I guess if you are going to be under 100 words. The layout is so skinny that a 300-400 word e-mail is so long in length. So if I am just going to say 'Hey, what's up?' or 'Did you see the last episode of The Wire?' then I will do a wall or message. Or if there is something short that I don't want on a wall, I will do a message. But if it is anything that I am asking a serious question I will use e-mail because it is easier to read than a Facebook message." [Student]*

Students have a fine-tuned approach to what technology tool works best for particular communication needs. Librarians also depend on e-mail, with additional reliance on listservs for keeping up in the profession. They are using Web 2.0 technologies, including Wikis, as noted, Facebook, and instant messaging for connecting with colleagues and students.

### Daily Life and Behavior

*"I've just been running at 100 miles an hour since I got here and have never stopped to think what else could I be doing to know some history of things I've been teaching that I haven't read up on. There's just no time. I have no time. I work 7 days a week, 12, 14 hours a day." [Faculty]*

Faculty just can't find enough time in their day to keep up with what they need to do for their teaching and professional obligations; keeping up with trends is a "huge, huge, challenge." In summer, faculty are either doing research, teaching in concentrated summer programs and boot camps, or sharpening their own professional skills as photographers and journalists. Students did not express this kind of frustration about time management, although by college they are expected to have developed workable systems for keeping organized. They are also creative in their use of the limited physical space to which they have access.

*"I would say I am a neat freak so everything is organized."[Student]*

*"My room is pretty small, so if I were actually at my desk, I would be blocking my doorway." [Student]*

*"I just keep my computer in the windowsill; I don't actually have a desk." [Student]*

We also asked students about their favorite place to study and those spaces were a little different than their dormitories and apartments. One student photographed a lounge in a building separate from both the Library and Newhouse:

*"I really like studying in here because I like the chairs first of all because they are really comfortable, and I also like that fact that people are kind of talking, but they are not talking really loud." [Student]*

*"To tell you the truth, I don't like studying in Newhouse itself, because I get this feeling like major corporate office, it is a nice looking building, don't get me wrong, but I get this kind of soulless feeling whenever I am in there." [Student]*

Librarians frequently spoke of frustration related to lack of private space for meeting with students or faculty. While close quarters was cited as a positive reinforcement of community and facilitating communication, it is a barrier in affording privacy and working comfortably with patrons.

We were not surprised to find differences between faculty, students, and librarians in finding information and accessing library resources. This is frequently experienced as a barrier to getting work

done, particularly for faculty, less so for students, rarely for librarians.

*"I do find negotiating the electronic databases confusing at times . . . And I do it from home sometimes, I'll run into permission errors." [Faculty]*

*"Sometimes it is a hassle to phrase your search right." [Student]*

Roy Tennant's claim that librarians like to search, but everyone else likes to find[8] is true for us:

*"Almost all of us really like those kind of questions, it is a challenge, it is a scavenger hunt, it is one of those little puzzles that you have to figure out." [Librarian]*

Like frustration with finding information, access barriers related to technology were mentioned frequently. These included unfamiliar log-in prompts for access to databases and electronic journals, requests for payment, or interoperability of media formats—particularly frustrating when time for class preparation is limited. To the extent that faculty can get to free Web sites more easily than library journals and databases, this becomes an access and navigation issue.

*"A lot of these Web sites are easy to access over again compared to when I search for a journal article, sometimes it is hard to search and find that journal article again." [Faculty]*

*"We could sit at our library and access it, but if I were trying to access it off campus, you would be met with 'username' and 'password' and you would have to pay hundreds of dollars for access to these things." [Faculty]*

*"Every time I download a photo it kicks me back out." [Faculty]*

Faculty, particularly those conducting research, are typically more motivated than students to weather difficulties with access. Students, who are using these licensed resources less frequently, did not describe problems with access. Although librarians working primarily from on-campus are faced with these access problems least often, their frustration becomes one of not having the resources to adequately troubleshoot the problems their patrons are experiencing.

*"I'm not sure what his problem is. It seems that he is failing to go through the proxy and not realizing it. But without a trip to his home I'm not going to be able to determine."[Librarian]*

As with finding information, librarians do not experience barriers for access in the way that faculty and students experience them. Faculty are the most likely to be trying to get into licensed library resources during off hours and from remote locations. Students are less likely to be using these at all, and librarians most frequently may be accessing the resources from campus. If librarians are only demonstrating "canned" searches, they may not be picking up on the difficulties are users are having when working away from the class environment.

### Relationships

Within this theme we looked at quotes related to relationships between students, faculty, and librarians within the context of classroom teaching and library instruction. We also used our observations of the classroom in understanding faculty—student relationships. We were impressed by the close relationship the instructors develop with their students, and the back and forth relationship they appear to have. Students contribute to class content in formal presentations as well as informal sharing, from interesting Web sites to technical expertise.

*"I try to do as much research into their world as they'll allow me to do. Sometimes they're happy to teach me about things I've never heard of." [Faculty]*

*"I think of my job as not only teaching them what I need to teach them but also creating situations where they learn from one another." [Faculty]*

Classes we observed were more interactive than lecture, and faculty go to a lot of trouble to bring in media clips and visuals to maintain interest. That's something the librarians don't do as often. Librarians we talked with about instruction were describing instruction sessions which are often one shot sessions.

*"I am sort of one of those people that feels that, I don't sort of trust myself to remember everything I need to talk about, so I basically write out a script for the whole class."[Librarian]*

*"Librarians are always trying to make their instruction more meaningful and a little more long-lasting."[Librarian]*

These differences are not necessarily pedagogical but due to the fact that librarians have a much shorter time period in which to interact with students. Because faculty and students spend the semester together and have a built-in status relationship (i.e., the instructor is grading the student), their relationship with the students is different than that of the librarians.

Whereas Newhouse faculty are continually updating their teaching materials based on the constant change in their field, librarians may use the same instructional materials from semester to semester. Where faculty encourage dialogue and collaboration in the classroom, library instruction sessions are more uni-directional in nature. When faculty at Newhouse sometimes teach in a free-form manner and let students drive the direction of the class, librarians feel constrained by time limitations as well as, perhaps, by the expectations of the faculty.

### Worldview: Perceptions of the Library

*"Well you have to understand that we're drones at Newhouse so that everything we read, see, touch, feel is part of our work. We're not academics, so we're not looking for journal articles." [Faculty]*

*"So for that course, are they doing in-depth library research? No. They're reading screenplays I make available to them." [Faculty]*

*"But I essentially, every story I do I start from scratch. I'm reporting, I get court records, and I talk to people. So I do next to no library research, or what I think of in my ignorance as library research. I just do reporting." [Faculty]*

Newhouse faculty and students differentiate between research and 'library' research. Regular research may be conducted online, using search tools such as Google. It may consist of conducting interviews or surveys. Library research usually means going to the physical library building or utilizing scholarly journal articles and databases. For the majority, the library is equated with books—old ones. Several faculty brought up reasons for why they did not use the library, which almost always centered around the fact that the books at the library were too out-of-date for their needs.

*Book resources are good for points of view, different takes on what's happening. But what I'm doing sometimes requires up-to-date information and books are already old. [Faculty]*

This does not negate the fact that many Newhouse faculty are avid supporters of the library, its rich resources, and the expert services provided by staff.

*I think the library does an absolutely wonderful job and I've been just thrilled with everybody I've met over there. I've had great results. I will admit to my own ignorance about some or much of what you guys might have available. [Faculty]*

## Recommendations

### Communications

Faculty use Blackboard to communicate with students as a class. Librarians have no comparable way of communicating directly to an entire class in this proactive way. Our communication with students is dependent on students coming to us for help or their instructors, the faculty, pushing the library on our behalf. This is a key area for development. For a start, librarians should utilize the communication tools that are already being used between faculty and their students, insuring that links to the library and subject librarians from Blackboard courses are standard. For those many courses that have no Blackboard presence, subject pages or links from faculty pages to the library with appropriate, co-selected resources, should be available for each department.

Librarians have developed Facebook pages, but that is not how faculty communicate with students. In fact, some faculty discourage their students from requesting friend status. On the other hand, many of the technology tools that we do learn about through our own profession, like journal table of contents services and feed readers, may be of real use to faculty and students.

### Space

Students don't have a wide choice about their dormitory or off-campus space while they are at the University. But they do make decisions as to where to study and access computers. They desire comfortable and quiet, but not too quiet, space for study. At computer labs, they need access at the

times of day that accommodate busy schedules as well as knowledgeable staff that can assist them with technical questions. For librarians, space must accommodate their needs to meet privately for interactions with students. Librarians may also consider that they can be as effective *away* from their library desks, since that is not where most Newhouse users are working.

### Finding and Accessing Information

Faculty at Newhouse want their students to use critical thinking skills in evaluating their sources. However, in our research we found that students may not use the library to develop those skills unless it is expressly expected by their instructors. Students prefer to use online tools such as Google and YouTube for their class assignments. When these tools are appropriate to the assignment, instruction in the efficient and best use of these tools would be welcome expert knowledge. Librarians could be those experts, helping students to search Google effectively, or how to embed short YouTube videos into multimedia presentations. Improvements to the navigation within our own Library's Web site, a more user-friendly catalog with intuitive interface, and context-sensitive help—these are additional areas for resolving barriers to both finding information and access.

Faculty, especially, need more information about the resources available to them; we've considered an information fair: a stop in event at Newhouse that would be devoted to library databases and journals in the communications field, and bringing vendors in as well. There is opportunity we think as well for more subject-oriented pages that connect up with Blackboard courses but also available from outside the course management system. A more collaborative approach to subject Web pages and customized portals may also improve awareness.

### Classroom Relationships

Many of the characteristics of students that we learned could be applied to improving instruction sessions. Both faculty and librarians approach a classroom situation with a plan and sometimes, even a "script." There is an overarching requirement to deliver specific content areas. But faculty seem willing and eager to learn from their students, and students gain confidence from teaching faculty new things. We would like to consider more interactive, less scripted instruction sessions. Students learn from their peers. Peer instruction could be integrated into instruction sessions. Students often experience failure in their information-seeking and get frustrated. It might be enlightening for them to see librarians not only modeling searches but strategies to use when those searches fail. Finally, in our data gathering, the observation of classroom instruction was most useful. It provided us an opportunity to witness firsthand the dynamics within the classroom between an instructor and the student. In observing how assignments are described, librarians can see the requirements asked of student and expectations. Observing in the classroom is a way of demonstrating real interest in what is going on. It makes the librarian a visible face for students, and puts that librarian in a space outside the library building.

### Re-framing What "Library" Means

As librarians, we see the library in its rich array of collections and services. We assume that our values for are those of all our users. Our users may see us differently. In their outreach with faculty and instruction with students, librarians should be listening carefully to these users. Instruction is a place for student engagement, as well as a place to dissuade them of outdated ideas about the library and its resources—at least as more than a repository for old books. Librarians and faculty would both benefit from an open dialogue regarding the whole constellation of research resources and instruction services available through the library and its staff. These may include skills not currently considered traditional library instruction, like critical thinking about information sources, plagiarism, effectively searching the Web, and technologies for staying current and organizing Web resources. A collaborative project, in which students create a public relations campaign for the library, marketing it to fellow students, this is would provide a win-win opportunity.

## Conclusion

The ethnographic method we have used has provided us with some rich data that illuminates the needs of users in a different light. Our intended next step is to use the methods of ethnographic interview and observation beyond the Newhouse School. We want to investigate how other academic cultures, more traditionally tied to the academic library values and collections, compare to the Newhouse culture. The question of what library "means," particularly across the disciplines and in

the face of changing information seeking behaviors, is an intriguing one. We would also like to conduct more in-depth interviews with librarians, learning more about this organizational culture and how it is changing. Analyzing this data has been a time consuming process, but one that provides new insights into our own work and suggests many directions for change. Beyond the information gathering, the process of listening and observing as a group has led to some very productive brainstorming about these "disconnects" and ways we, as librarians, can begin to address them. And those conversations are a good start in fostering organizational re-invigoration.

## Acknowledgements

Thank you to the research team members contributed to this presentation and paper: John A. Olson, Bonnie C. Ryan, Ilka N. Datig, Ann Skiold, Michael J. Pasqualoni, and Suzanne E. Thorin.

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# Mixing Methods, Bridging Gaps: An Ethnographic Approach to Understanding Students

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## Abstract

This paper discusses the ethnographic methodology used in two recent studies of doctoral students, with particular emphasis of the efficacy of a mixed-methods approach that combined qualitative interviews and participant observation with quantitative data gathered via a survey distributed to all students in the School of Arts, Sciences, and Engineering at two leading research universities: The University of Rochester and Colorado State University. It details how the project was divided between core and project teams and the according responsibilities. It will also discuss how librarians participated by videotaping the interviews and then coordinating viewing sessions where they could discuss their observations.

The study was an ideal way to proactively assess the need for new Web-based services while balancing students' needs with the primary objective of the design teams. It allowed librarians and Web site designers at both universities determine priorities of their software development projects, thus getting the most value for the resources at hand while maximizing the impact of their product. It also clarified areas of disconnect between librarians and the doctoral students, highlighting areas where we might improve interactions and communications between these two populations. The paper concludes with some of the base findings of these studies and suggest how these and similar research endeavors might be used to better serve the needs of graduate students.

## Objectives, Goals, and Purposes

This paper relays the tentative results of two ethnographic studies conducted in 2008 by two prominent research universities in the United States: the University of Rochester (UR) and Colorado State University (CSU). The purposes of both studies were similar. The UR study was funded through a grant from the Institute of Museum and Library Studies (IMLS). The two-year project goal was to create a Web-based authoring program that would enhance and eventually supplant the university's institutional repository (currently D-Space). The goal at CSU was to design and create a Web-based search and information discovery tool that will interface with research resources, Internet-based tools, and repository tools in order to facilitate, support, and improve graduate student research and performance. These similar purposes yielded similar and overlapping goals: to understand how doctoral students in the schools of Arts, Sciences, and Engineering conduct research, write papers and dissertations, and collaborate with each other and their advisors. Secondarily, librarians at both institutions sought to explore how doctoral students use the campus library and the services it provides. I participated in both studies as the Staff Anthropologist (UR) and the Lead Ethnographer (CSU).

A complimentary PowerPoint presentation to this narrative can be found on the Library Assessment Conference Web site http://libraryassessment.org/schedule/index.shtml. The reader is encouraged to download the accompanying PowerPoint file as this paper will frequently reference particular slides.

## The Research and Advisory Teams

Both research endeavors were highly collaborative and involved librarians and members of the universities' IT teams. At UR, the Principal Investigators were Nancy Foster, Susan Gibbons, and David Lindahl. At CSU, the co-investigators were Liaison Librarian Allison Cowgill and anthropologist C. Todd White. The UR study was administered through two teams: a core team and a project team. The core team consisted of the PIs plus the main software designer, Nathan Sarr; UR Research Coordinator Suzanne Bell; and the staff anthropologist, Todd White. The project team consisted of the core team plus six reference librarians and a graphic artist. At CSU, an ethnographic advisory board consisted of the two co-investigators; Assistant Dean Carmel Bush;

Liaison Librarian Brian Westra; Digital Repository Coordinator Dawn Bastian; and two computer programmers, Dennis Ogg and Greg Vogl (slides 6–8).

The UR core team met once a month, a week prior to the project team meeting. The project team meeting agendas were determined during these sessions and the fundamental project goals and procedures discussed. The project team also met monthly. These sessions frequently resembled focus groups with the librarians, software designers, and social scientists gathered to monitor and assess the software design and provide feedback as needed. Project team members participated in the study by helping to videotape the interviews and acting as advisors to the core team.

The ethnographic advisory board at CSU met weekly to design and monitor the study's progress. Advisory team members were actively involved in designing and implementing the study at all phases and stages of development. Members also assisted by videotaping interviews.

## The Mixed-methods Approach

Both qualitative and quantitative methods were employed in both of these studies. Qualitative methods involved videotaped interviews between thirty and sixty minutes in length that were transcribed verbatim and analyzed by the social scientist and the members of the project teams. Students at UR were often videotaped in their homes or offices where they could demonstrate their work practices in the environment where they most often worked. At CSU, a computer was set up in my office in the Morgan Library where students could come and demonstrate their internet search strategies.

The interview schedules were loosely adhered to in order to facilitate discussion, remain open for serendipitous discovery, and to inspire conversation between the social scientist and the consultants. However, key points were covered as necessitated by our research purposes and questions. Each interviewee was selected from those who had returned a survey, and those completed surveys provided a good launch point from which to tailor and focus the interview questions.

In the spirit of participant observation, I obtained and learned the software used by the students and familiarized myself with the Web sites, search engines, and databases that they most frequently used. In this way I learned to about reference management applications such as Sente, RefWorks, and Zotero. I became acquainted with authoring applications, like Scrivener and LaTeX, and brainstorming assistants such as Inspiration. I learned firsthand from the students about which Firefox plug-ins they used, such as ClipNotes and del.icio.us, and asked them to demonstrate such tools when appropriate. After several interviews, I found myself offering advice to those who were stymied with a problem that other graduate students had solved and often had to refrain from offering more information than was needed. When students had a problem or issue that I knew could be resolved through a specific application or resource that another student had brought to my attention, I offered to meet with that student later. At one point, I met with three students at a coffee shop in my off hours to give a primer in EndNote. I frequently communicate with students from the study via Facebook and feel privileged to have been able not only to have learned from them but also to have contributed to their scholarship in a positive way. The qualitative aspects of this study allowed me to engage with the doctoral students in a way that was informative, enjoyable, and mutually beneficial.

While far more impersonal, the quantitative aspects of the study as collected through the survey provided a valuable overview of what electronic tools and Web-based resources the doctoral students were using en masse. The software designers in particular were essential in designing and implementing the survey questions and the actual instrument. At UR, I compiled and pilot tested the survey question with the help of the project team and distributed the survey to all 405 doctoral students as an MS Word form. Students were given $10 as incentive for each survey they completed and returned. The response rate was 26% (N=104), which yielded a margin of error of about 7%. The advisory team at CSU created their survey based on the one used and UR and, after pilot testing, Greg Vogl posted it online using SurveyMonkey. Rather than offer remuneration, the CSU team offered all 1,106 doctoral students on record three 80-gigabit iPods and other prizes that would be awarded to randomly selected respondents. The response rate was much higher than expected: 44% (N=467), which yielded a margin of error of less than 5%.

In both studies we elected to forgo a random selection of graduate students because of the prizes or cash being offered; we felt that every doctoral

student in the college of Arts, Sciences, and Engineering should have an opportunity to respond and have a chance for an award. Since the survey respondents were not randomly selected, I needed to measure and assure validity though another means. I did this my dividing the target population into three subcategories: students in sciences, social sciences, and humanities. I then compared the ratios of my target population to those of my sample population and used a chi-square analysis to compare the two data sets. Since my goal in the quantitative analysis was to extrapolate from my sample population onto the target population within an acceptable margin of error, this step of the analysis was essential.

I was unable to contact nine of the doctoral students at UR from my sampling frame, which reduced my sample population to 396. Based on the ratios of my target population, I expected my sample population to consist of fifteen (14%) students in the humanities, twenty-six in the social sciences, and sixty-three in the sciences. The actual sample population consisted of fifty-four science respondents, twenty-seven social science respondents, and twenty-three social science respondents. While the social sciences were right on—I'd expected twenty-six responses and received twenty-seven—I had eight more humanities responses than anticipated and nine fewer responses from the sciences. This caused me to ask two questions: 1) Why were humanities students more likely to respond to the survey and science students slightly underrepresented? 2) Was the validity of my study in jeopardy? If so, might I have to weight my data in order to get the projections our software designers needed?

A chi-square analysis suggested that the data need not be weighted; the skewed results were noticeable but not statistically significant. The obtained chi-square value was 5.59 whereas the critical value with two degrees of freedom and a risk level of 0.05 was 5.99. While the skewing away from science and toward humanities is notable and worthy of comment, the results can stand, especially since the interviews conducted with twenty-six of the graduate students would further validate the findings and conclusions. (slide 27).

The response rate at CSU was much higher at 44%, as mentioned. The fit between the target population (N=1106) and the sample population (N=467) was very good (slide 30). Contrasting our response rate as contrasted to graduate student enrollments, we expected 350 responses from the sciences and received 363. We expected twenty-eight in the humanities and received twenty-six, and in the social sciences we expected eighty-nine and received seventy-eight. The chi-square analysis confirmed that we could easily extrapolate our survey results onto the entire population of doctoral students: the critical value with two degrees of freedom and a risk level of 0.05 was again 5.99, and the obtained chi-square value was 1.804. With validity thus verified, we were now ready to begin the statistical analysis, and the rest of this paper presents some of the findings of both studies.

## Survey Results

The first survey question in the UR study asked what kind of computers the graduate students owned. Unsurprisingly, a great majority of the students, 82%, owned one or more PC, and 25% owned one or more Macintosh. The average PC owned was 1.25, and the average Mac was .31 (N=103). In terms of ownership, students were more likely to own a laptop than a desktop system: 52% owned one or more desktop and 76% owned one or more laptop computer. In asking about computer ownership we were, in effect, finding what students preferred; if we would have asked what computer they used most frequently, desktop computers would probably have taken the lead. This is reflected in the next question, pertinent go the amount of time the graduate students spent on their computers. The average UR graduate student reported spending 3.9 hours per day working on a laptop computer and 4.5 hours on a desktop. Many students, while they owned laptop computers, often worked on department-provided desktop systems in their office. In interviews, many students complained that the laptop was heavy and inconvenient, and where possible they preferred to leave it at home.

The CSU team decided to ask what computers the graduate students work on most frequently rather than what types of computers they own. When a student owned one computer, it was most likely to be portable: of the 514 students who reported working regularly on one computer, 327 (64%) worked on a laptop. When the students who worked on multiple computers were considered, desktop systems became more common, and when all students who worked on one or more computer were considered, laptop and desktop use became balanced, with desktops eking a slight edge at 51% (slide 36).

Graduate students at both universities were asked which operating systems they used regularly. At UR, 25% of the students reported owning one or more Macintosh, and 82% own one or more PC. After learning through the interviews that several of the UR graduate students preferred to use Unix or Linux operating systems, I added this to the CSU study and found that 67% of the graduate students there regularly used Windows, 20% used Mac, and 12% used Unix. It should be noted that these categories were not mutually exclusive; some students regularly used Macs and PCs, for instance. These findings are interesting in that though while twenty to twenty-five percent of the computers being used by doctoral candidates at both universities used the Macintosh operating system, neither universities provided Macintosh machines for student use. The IT department at UR does not support Macintosh at all, and at CSU they provide only minimal support (see slides 37–39.)

One of the most important questions our software designers had was what web browsers the graduate students were using. At UR, 73% of the students reported using Firefox frequently (N=104). Only 25% reported that they regularly used Microsoft Explorer, which is surprising since Explorer currently boasts over 76% of the market share in web browsers.[1] Safari made a notable showing, with 13% of students using it regularly. At Colorado State, Explorer and Firefox were neck and neck, with a 60.5% and 60.7% response rate respectively (N=473). When I asked students why they preferred Firefox, they replied that it was a more secure browser and that they liked the plug-ins that are available for it (slides 40, 41).

While there were many more findings that could be discussed, I will conclude here by discussing two of the most surprising results of the study. The first regards the use of reference and citation managers such as Endnote or RefWorks, and the second it the use of social networking services by graduate students. I was alerted to the importance of these tools during the interview phase of the UR study; unfortunately, I did not probe their use through the survey. At CSU, however, I asked which reference/citation managers the graduate students used and found that 52.4% used EndNote, less than 1% used RefWorks, and approximately 10% used other reference managers (such as Sente and Zotero) (N=471). I was surprised to learn that 40% of the graduate students did not use any reference/citation manager at all (slide 48). When I explored this in the interviews, students acknowledged that they could see how such an application could be useful for tracking and organizing their sources, but they did not know how to use these tools and did not have the time to explore them on their own. I was also surprised to learn that many of the students who reported having EndNote installed on their computers did not use it, again stating that they never took the time to learn how to use the application.

Another surprising finding was in how few of the graduate students use social networking services. A small majority of the UR respondents, 52%, did not have any personal Webpage or blog (N=103). Of those that did (N=49), twenty-two (45%) had Facebook pages, ten (20%) were on MySpace, and four (8%) used Friendster. Very few of the UR graduate students maintained blogs: only two (2%) were on LiveJournal, three (6.1%) were on Blog Spot, and four (8%) used Blogger. Though the interviews, I found that many who did use blogging services did so to keep in contact with distant family and friends and not so much for their academic pursuits. When I put these percentages into the context of the target population, I can estimate that 21.4% of the graduate students have Facebook accounts, 9.7% use MySpace, and 3.9% use Friendster. Regarding blogging, 1.9% blog on LiveJournal, 2.9% are on BlogSpot, and 3.9% use Blogger. Only 15.5% of the graduate students use university-provided server space to host their own Web sites or personal Web pages (slides 50–53).

Students at Colorado State likewise did not utilized social networking services, blogs, or personal Web sites. Most doctoral students, 57%, do not use any sort of social networking services (N=467). Of those that do, most (34%) use Facebook and some use MySpace (21%). Only 4% used similar services such as Linked In, Ning, orkut, LiveJournal, or Friendster. Of the 467 respondents, only eighty-four (18%) reported maintaining a personal Web site or blog.

This suggests that graduate students are not using Web 2.0 tools to the extent that many have suggested; these students are not as net-savvy as we might expect them to be. While there is much that could be said about these findings, my research results caution that rather than develop new Web-based search or authoring tools, libraries might do well to allocate time and resources to training the students on what tools are already available. The students that I met were not clamoring for new

tools. They did desire, though, to be trained in the tools that were already available to them.

Library faculty and administrators are constantly looking for ways to get the most return for their investment—the most "splash," as one librarian put it. It is therefore discouraging for librarians to offer training sessions in EndNote, Facebook, or Second Life applications and only have a handful of students show up. I hope that librarians will continue to offer such sessions, though, and continue to seek ways through which they can engage all students and to help them to navigate through the bewildering choices of references, services, and tools that are now available to them. It is great, for example, that many libraries are now providing EndNote and RefWorks to their students free of charge. It is wonderful that librarians are reaching out to students using Facebook and other social networking services. But if students are not taught how to use these tools—and if they are never really told why these tools could be useful to them in the first place—then libraries run a serious risk of investing in or creating products, services, or spaces that will not be used.

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## Endnote

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# Employees as Customers Judging Quality: A Quality Focus for Enhancing Employee Assessment

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## Abstract

This paper argues that employees have the ability to assess quality in ways external customers cannot do. It also argues that quality assessment needs to be an additional form of employee assessment from that of employee satisfaction or organizational climate initiatives. Several organizational climate surveys from Association of Research Libraries were gathered and analyzed for words and phrases identified as associated with quality assessment. A content analysis of the items in these surveys was performed to accomplish this task. Conclusions were made based on this analysis. Though there was no consistent focus on quality identified, each of the organizational climate surveys examined included some measures of quality. Quality issues in these surveys included work load issues and alignment with library vision and mission.

## Introduction

Employee assessment in libraries has not always had a focus on measuring quality, though traditionally libraries have sought ways to measure quality in their services and activities in other ways. Employee assessment more often has emphasized employee satisfaction more than the process of quality in the work done. This phenomena has followed the trends in employee assessment attributed to the private sector for many years, from employee satisfaction surveys to organizational climate and culture surveys, and often informed by such theories of management such as Management by Objectives (MBO), and on through Total Quality Management. Dickinson, for example, documents several studies of measuring job satisfaction in libraries. Job satisfaction assessment initiatives are grounded in the research that employee satisfaction contributes to higher productivity.[1] Siggins states, "For many years, organizational behaviorists have debated and analyzed the elements affecting job performance. A review of their results leads to the conclusion that there is a connection between work-related attitudes and performance."[2] More recently, public and private organizations have begun to add a different form of employee assessment, in the field of "organizational climate and culture" surveys. Organizational climate assessment differs somewhat from that of job satisfaction assessment. Though some texts on this subject indicate that it is hard to define, it has been said to be the process of "quantifying the culture of an organization."[3] Organizational climate assessment examines the impact on an organization of various factors, such as morale and work conditions, and many more factors not typically included in the traditional job satisfaction surveys in addition to traditional job satisfaction measures. Current "organizational climate" assessment initiatives in the library profession have begun to appear, including a project managed by the University of Maryland, a survey known as the Organizational Climate and Diversity Assessment (OCDA). The Association of Research Libraries partnered with the University of Maryland for later survey iterations. OCDA has been renamed ClimateQUAL™: OCDA, and is now part of the ARL assessment toolkit.

## Theoretical Framework

The current study is grounded in two theoretical approaches for the development of these views on employee assessment. The first regards employee assessment, including the measures described above. In this approach, it is recognized that "In order to compete effectively, organizations need to recruit and retain good employees, have their employees work hard on behalf of the organization, and draw on the experiences and expertise of employees to move the organization forward. Research has shown that job satisfaction plays an important role in maintaining well-staffed, vital, and healthy organizations that contribute to the bottom line as well as the personal well-being of employees."[4] The other theoretical approach is grounded in Continuous Quality Improvement principles and argues that "customers judge quality." However, it must be recognized that there

are two types of customers: (1) external customers—an organization's clients, patrons, users, etc. and (2) internal customers—an organization's employees and stakeholders supporting the production process. Waterman, co-author of the seminal quality management book *In Search of Excellence* (with Tom Peters), says, "What makes top performing companies different is their organisational arrangements. Specifically, they are better organised to meet the needs of their people, so that they attract better people than their competitors do and their people are more greatly motivated to do a superior job, whatever it is they do. They are better organised to meet the needs of customers so that they are either more innovative in anticipating customer needs, more reliable in meeting customer expectations, better able to deliver their product or service more cheaply, or some combination of the above."[5] Waterman, therefore, argues that in order for an organization to compete effectively, organizations need to know what the needs and expectations are of its employees and its customers.

Extending this theory to employees as customers is not a stretch. This sense that employee assessment of quality is crucial to library organizations is also recognized by Heath, in an interview in *Library Administration and Management,* stating, "When Professor Parasuraman addresses this topic, he observes that there must be a dozen different ways of listening to or evaluating an organization. It is important to realize that LibQUAL+® only addresses one or two of those. I recommend that you take a look at his books . . . to get a feel for the many other ways, such as focus groups, e*mployee surveys* (emphasis this author's), and the like."[6] Cook and Heath also confirm the acceptance by the library profession of the belief that "customers judge quality," stating "Service marketing has identified the customer or user as the most critical voice in assessing service quality"[7] in their article discussing LibQUAL+®

## The Call for a Focus on Quality

To examine whether improving productivity or quality should be a purpose of employee assessment, it would serve to define these concepts. Libraries are concerned about both productivity and quality, but for the purpose of assessment, understanding how they are different is crucial to assessment design and understanding. Productivity is generally defined as "The rate at which goods or services are produced especially output per unit of labor."[8] On the other hand, "quality" is defined as "the degree or grade of excellence."[9] Organizations desire both but measuring these must take different approaches. The Quality movement (TQM, CQI, etc), has been successful in many industries at showing how important high quality is to organizations' success. There is also a significant amount of literature in the quality movement that has documented how there have been many industries that have struggled and failed due to the emphasis on higher rates of productivity by sacrificing quality, for example.[10] Some of Deming's Fourteen Points address this issue, especially Point 7, Institute Leadership: the responsibility of managers must change from sheer numbers to quality.[11] Most literature on TQM and CQI emphasize that continuously improving the processes of production builds quality. Rieley notes, "The core values of an organization need to include the belief that the organization can always improve. This is the underlying philosophy of CI."[12] This study seeks to answer whether or not there is a means within employee assessment that aids in building quality. The CQI movement suggests a path for using employee input for this goal.

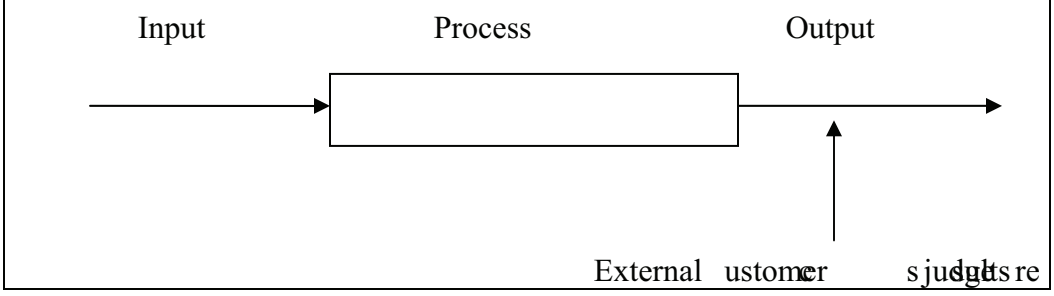
In order to develop this path, two questions must be asked and answered. The first is, "Do employees have the ability to judge quality of the production process and goods and services delivered?" Dougherty makes a strong case that employees have the knowledge to evaluate the organization and its goods and service, stating, "Library staffs are much more knowledgeable than is often appreciated. The true wisdom embedded in an organization will emerge from its staff when they all share the same base of information and are thus able to see the whole picture. When information is shared, it is the staff who will find the best answers for most of their own challenges."[13] Much of the recent literature on measuring service quality has focused on the external customer, such as the LibQUAL+® survey. However, Nitecki argues, "But to improve the service quality, the service providers must be engaged . . . The people most involved with providing the service, at every level, will behave differently if they have the opportunity to make the assessment their own."[14] Additionally, the study asked, "Does the assessment of employees' needs and expectations for their role in building quality into production benefit the organization, the employee or both?" Heath suggests that evaluating organizations' effectiveness, a measure of quality,

can benefit from employee surveys.[15] Leifeld describes the application of the Malcolm Baldrige National Quality Award's category on human resource development and management as a full circle of assessment using employee data that is used to evaluate and improve the organization's quality and organizational growth.[16]

Organizations seek to improve both productivity and quality because the main goal of an organization is **producing high quality goods and services**. These organizations use job satisfaction and organizational climate surveys to achieve the ultimate goal of organizational effectiveness, not the ultimate goal of improving employee satisfaction. An organization's concern for the employee is extremely important, and so is the need to measure and improve employee satisfaction, but it is a means to an end and that end is the production of quality goods and services. If quality is an organization's primary goal, then it serves the organization well to ask employees for their assessment of that quality, and not just the external customer, because employees have knowledge of the process that creates those goods and services that the external customer could never have. Nitecki confirms, stating, "Conceiving service quality as existing solely in the eye of the beholder—the recipient of the library services—also has its shortcomings . . . Service quality goes beyond satisfying customers, it reflects the interactive relationship between the library and the recipients of its services and should not be viewed from one perspective."[17]

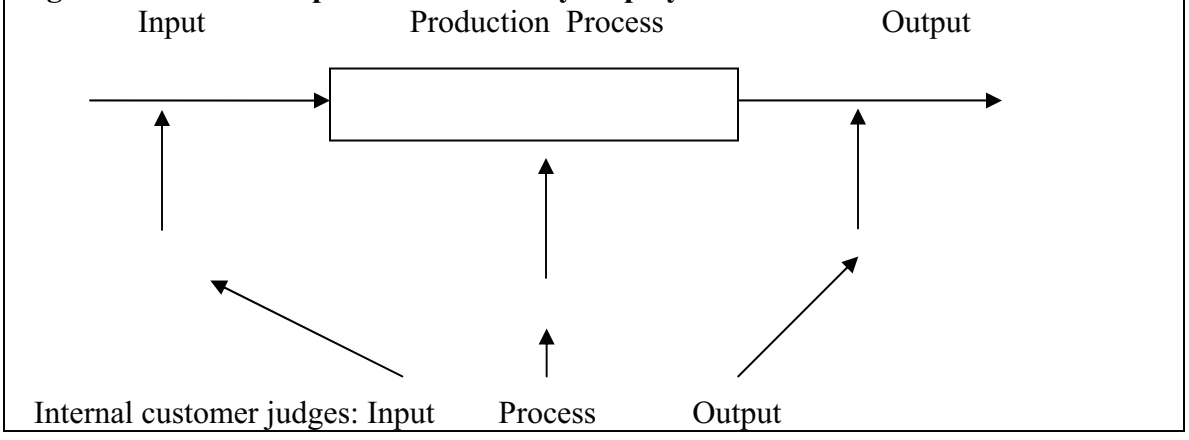
This concept can be illustrated graphically. If we assume that we can simplify the production processes of all organizations to a basic "input, production process, output" model, (though it is fully recognized that organizations are much more complex than this), we would have: (see Figure 1)

**Figure 1: Production process assessed by external customers**




In this model, external customers judge quality at the point of output, the finished results. However, they are unable to judge issues of quality at the input stage or production process stage. These two stages are cloaked from their viewpoint because they are not privy to how the output is produced. However, internal customers potentially judge quality at three points of the process, at input, at the production process, and at the output stages: (see Figure 2)

**Figure 2: Production process assessed by employees**



In this model comparison, employees have a perception of quality at three points within the production process while external customers have a perception of quality at only one point within the production process. Each of these points of process have distinct differences as to what can effect quality and how quality can be measured, seen or perceived. For example, inputs, such as raw materials needed for the production of goods, delays in the flow of inputs, and relationships with vendors are part of the input process that may affect quality. Examples can be identified within the production process as well as output process. Increasing the measure of quality within the production process three-fold has a vastly greater potential for actual improvements in quality goods and services than measures by external customers alone. From a Continuous Quality Improvement perspective, adding employee assessment, as shown by this model, is more viable because quality improvement data gathering on variations in the process, the crux of any quality improvement program, can be facilitated at the actual points of production.

## Methodology

This study was designed to be a content analysis of existing documents of employee assessments currently in use in academic libraries. A letter was prepared to request these documents and sent to human resource managers at Association of Research Libraries (ARL) academic libraries. This decision provided clarity in the type of institution in which the research is based and maximized the chances of securing significant, relevant documents. The letter did not query the human resources managers with survey-like questions on opinions or their perceptions, but rather only asked for relevant documents that fit into four possible categories that may yield these assessment documents:

1. Employee satisfaction surveys;
2. Employee self-assessment questionnaires, typically used as part of the performance review process;
3. Exit interview questionnaires ; and
4. Supervisor/Director/Dean evaluations distributed to employees.

The letter also asked the recipient to indicate if none of these documents were part of their assessment efforts and provided a check-off in the letter to respond in this manner. This was included to get a sense of how many institutions do not have a formal process of employee assessment. A total of ninety-six institutions were contacted. Human resources managers were identified by consulting the *American Library Directory,* a publication of the American Library Association.

It was theorized that these documents would contain specific measures of employee assessment from the perspective of the employee. These documents were known to be utilized by library organizations to gauge employees' assessment of stressors in the work place, job conditions, job satisfaction, and performance review data assessed by the employee, among other, similar types of data functions. With a plan to employ existing documents to gather data, the methods in the study were dictated by the nature of the specific measures contained within these documents. The language of each specific measure used was the point of analysis, in order to determine that measure's relationship to concepts and assessment of quality. The study wished to determine if there were any specific measures directly related to quality assessment of the process of production.

## Results of the Study

The response rate was 31.25% with a total of thirty institutions returning a self-addressed envelope with either the letter or relevant documents, within two months past the stated return date. Of those responses, there were:

1. One (1) employee satisfaction survey
2. Four (4) organizational climate surveys
3. Eight (8) Exit interview questionnaires
4. Eleven (11) employee self-assessment evaluations
5. Three (3) Supervisor/Director/Dean evaluations distributed to employees
6. Thirteen (13) Letters returned indicating that such assessment documents were not employed or not available

Ten institutions enclosed copies of their performance appraisal documents as additional documents that may have been relevant for this purpose.

## Analysis of the Document Contents

The analysis began by using two widely accepted Continuous Quality Improvement publications to inform the research and aid in identifying possible avenues and/or measures of quality as related to employee assessment instruments: (1) the Malcolm Baldrige National Quality Award for Education

(MBNQA) criteria and (2) *The Certified Quality Manager Handbook,* edited by Duke Okes and Russell T. Westcott. These publications address many of the principles and standards for measuring quality in organizations.

The Malcolm Baldrige (MBNQA) award criteria address an organization's focus on employees in "Criteria 5: Faculty and Staff Focus." There are three sub-criteria included: (1) Work Systems, (2) Faculty and Staff Education, Training, and Development, and (3) Faculty and Staff Well-Being and Satisfaction. The most obvious criteria appeared to be "Work Systems," which included (1) Work Design and (2) Compensation and Recognition divisions. The "Work Design" item was examined for this purpose. Okes and Westcott's work also includes information useful in identifying possible items or measures of quality perceived by employees. Central to what they consider important for employee assessment is also important to employee empowerment: "One of the core components of quality management is that of having everyone in the organization involved in managing and improving quality."[18] The emphasis in this work is organizing for improving work processes and organizational climate to reach the highest possible quality, so these questions must drive how the organization takes action to improve the organization.

After reviewing the publications on quality management, it was theorized possible avenues for items sought would include language, directly or indirectly, rating the quality of inputs, such as raw materials and resources needed to complete their responsibility within the production process, timeliness of suppliers of materials and resources, and adequacy of equipment needed for their specific responsibility. It was also theorized that questions dealt with the rating of quality in the production process, such as design of the job for maximum quality, of the production process from and to units within the process, obstacles and other issues of this flow, and materials, supplies, and equipment within the process. Additionally, since CQI principles stress the importance of using data to improve a given process, other specific concerns might include such questions as:

1. Are measures for improving inputs (and production processes) in place?
2. Are employees' judgment of inputs (and production processes) gathered effectively?
3. Are employees' judgment of inputs (and production processes) respected by superiors?

Lastly, measures that allowed employees to rate the quality of actual products and services completed and available were explored.

The current study only examined the four organizational climate surveys in order to provide a concentration in the analysis at this stage of the research. The four institutions were: (1) University of Arizona, (2) Florida State University, (3) University of Washington, and (4) SUNY (State University of New York) at Buffalo. A content analysis approach guided the review of the specific items within each instrument. Using the two quality publications mentioned earlier, and the theoretical concepts devised for this research, content addressing specific work roles or responsibilities, the process of producing goods or services, work flow descriptions, and provisions for gauging and/or improving work responsibilities, performance and/or procedures in work responsibilities were sought. More specifically, this content analysis searched for language in the items of these surveys that mirrored the production model, i.e. input, process, output. In addition to generalized terms in these areas, content that dealt with specific areas included:

1. Words or phrases describing suppliers and their role, resources and materials, process and flow of input, equipment and technology needed for this part of the model.
2. Words or phrases describing the specific role and its responsibilities including its design, flow between units in the process, cross-functional responsibilities or connections, resources, volume and complexity of the work load.
3. Words or phrases describing a specific service as well as any products offered by the organization. Items that asked employees to assess or rate the facilities, services, collections and other outputs of the library.

Additionally, quality words and concepts suggested by the research for this project were sought, including:

1. skills and skill sharing;
2. knowledge of work responsibilities;
3. flexibility;
4. rapid response;
5. complexity of learning work responsibilities;
6. authority to make decisions within their role;
7. alignment of duties with vision, mission, and strategies;
8. strategy implementation;

9. methods in place for improving work performed; and
10. respect for innovation and employee advice and suggestions.

In all of the above, the focus was on whether this content addressed specific work roles, from an employee's perspective. For example, alignment to vision, mission, and strategies had to be in the context of an employee's responsibilities.

## Results of the Content Analysis

Each item in relevant categories included in each of the surveys was individually examined and determined to contain relevant content or not, using the terms and concepts identified. Each item with relevant content was then written on an individual note card. Through three iterations, the cards were read to determine common themes that could be used to group the items. A total of seventy items were deemed appropriate content, thirty-two from the University of Arizona, twenty from the Florida State University, sixteen from SUNY Buffalo, and two from the University of Washington. Table 1 shows these themes, some with sub-themes, and the number of items:

**Table 1: Survey Items Relevant to Employee Quality Assessment**

| Theme or category | Number of Items |
|---|---|
| 1. Sharing skills or knowledge | 4 |
| 2.Knowledge, information, expectations needed for specific job | 4 |
| 3. Workload | 13 |
| a. appropriate and fair amount | |
| b. obstacles to workload | |
| c. Value of workload assigned | |
| 4. Support for performing specific job | 17 |
| a. adequate equipment | |
| b. Tech support | |
| c. resources needed to complete the job's duties | |
| d. Administrative support | |
| 5. Alignment of job to library's vision, mission, strategies | 3 |
| 6. Training for specific skills needed for the job | 7 |
| 7. Work with cross-functional, teams, departments, units | 8 |
| 8. Employee advice, input, suggestions, complaints respected | 9 |
| 9. Flow in a work process | 3 |
| 10. Striking a balance between job and personal life | 2 |

This analysis of the relevant items found that only the SUNY Buffalo survey considered the opinion of employees about the quality of results (output) of the library's services and collections to be valuable. Their survey contained twenty-one questions that sought quality ratings about the library's collections, such as "Access to online books meet library users' needs." Additionally, their survey included fifteen questions that sought quality ratings about the library's services, such as "Interlibrary loan services meet the needs of the user."

This content analysis shows that some of the items and wording of items that address quality concepts of work processes, as described from the research for this article, do exist in current organizational climate surveys, at least the four submitted for this project. It also shows the need to develop or determine other items that address the quality concepts not found in this content analysis. Many of the individual items examined contained at least some sense of measuring quality, effectiveness, or process improvement, such as (1) How often are needs in keeping with knowledge of

the work in the job, (2) Are resources shared, (3) The work load is doable, or (4) Workload is fairly distributed. Other items spoke to organizational climate and culture but with some relevance to quality, such as (1) There are opportunities to do the job, (2) Library is responsive to staff needs, (3) Work area has ergonomics, or (4) Library has enough work space for staff, among others.

## Conclusion

An argument has been made that employee assessment efforts should emphasize measuring quality in addition to factors of satisfaction and climate. This research is predicated on the belief that employees want to build quality into what they do and produce. On the one hand, an employees' perception of the quality of the work they do and the processes contributing to that quality is a component of employee satisfaction. Having a sense of pride in workmanship is not only a means to gauge quality efforts, but also contributes to the needs of people and their satisfaction, within the higher range of Maslow's Hierarchy of Needs. It is a form of self-recognition. Measuring the employees' rating of quality is also an assessment of their needs and expectations. On the other hand, assessing employee's perception of quality aids libraries and organizations in measuring effectiveness because an employee is a customer who has the ability to judge quality and effectiveness from a wholly unique perspective, specifically, the internal production process.

It has been argued that measuring job satisfaction and the conditions or climate that contribute to that are valuable to libraries and organizations because research has shown it contributes to productivity. However, this study argues that there is a need to measure quality as perceived by the employees because employees play a direct role in the process of production, in the efforts and methods of improving the process, and employees' perceptions of the completed results of the library's work, because they provide a unique perspective on improvement of goods and services. It is also argued libraries need to focus on process improvement and data gathering for process improvement is best done at the employee level due to their knowledge of the three stages of production. Methods for data gathering modeled on CQI process improvement are greatly enhanced by employee assessment. This research has just begun to explore these possibilities and has found that current organizational climate assessment also includes some of these measures of quality. There is a need for further research in this area. The plans for this research include a continued analysis of existing documents in our industry and the private sector, a Delphi process to assess identified metrics, and statistical analysis of those metrics. It has been argued that the ultimate goal of libraries is to provide the best library and its services possible, i.e. quality. Assessment efforts, including that of employees, should therefore emphasize how that assessment contributes directly to that ultimate goal.

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# Toward Transformation: Using Staff Reflections on Organizational Goals, Culture, and Leadership for Organizational Assessment and Development

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## Abstract

Staff in an organization have a wealth of experiences, observations, and ideas related to organizational goals, culture, and leadership but may not have the opportunity to contribute their perceptions and reflections or may not feel comfortable doing so. Using the Undergraduate Library at the University of Illinois at Urbana-Champaign as a case study, this paper presents a process for surfacing such ideas and thoughts and then aggregating them into an action process for defining the future of the organization, establishing strategic goals and priorities, and implementing action plans to create a vibrant future and staff buy-in to organizational success. Included is discussion of the role of the leader, team building, communication and trust, and the importance of the human dimension in assessing organizational culture and taking action on assessment findings.

## Introduction

A common approach to organizational improvement and service quality assessment is to examine library user needs, perceptions, and rankings of collections, services, and other aspects of libraries and library use. Surveys such as LibQUAL+® serve as useful mechanisms for gathering, analyzing and benchmarking this kind of data.[1] Similarly, surveys may also investigate staff perceptions and experiences. Such studies of library staff perceptions include approaches such as ClimateQUAL™, which investigates how well a library is achieving a climate of organizational health and diversity.[2]

These example surveys approach assessment by asking those who are experiencing the organization, whether as a customer or as a member of it, to provide data from their perspectives. This differs from a normative approach where an outside expert makes an external assessment of how well an organization fares relative to an established set of criteria or standards.

Though both approaches can provide useful information, this case study of the organizational transformation process for the Undergraduate Library at the University of Illinois at Urbana-Champaign is grounded in the perspective that staff in an organization have a wealth of experiences, observations, and ideas related to organizational goals, culture, and leadership due to their extensive exposure to and experience within the organization. Staff may not, however, have the opportunity to contribute their perceptions and reflections or may not feel comfortable doing so outside of a process designed to allay any concerns and create a safe environment for honest reflection.

In pursing its organizational improvement goals, the Undergraduate Library made use of an interview-based process for surfacing staff ideas, perceptions and thoughts. The information was then aggregated into an action process for defining the future of the organization, establishing strategic goals and priorities, and implementing action plans to create a vibrant future and staff buy-in to organizational success. Components of the success of this process included the role of the leader, team building, communication and trust, and the importance of carefully considering the human dimension in assessing organizational culture and taking action on assessment findings.

## Context for Action

Organizational change often brings with it opportunity for organizational growth and development as new leaders bring energy and enthusiasm. Though it is possible to revive an organization without a change in leadership, such change can serve as a catalyst for action and energize all members of an organization. The Undergraduate Library's transformation efforts took place in a context of such leadership change

and new planning processes. From 2005-2006, the Undergraduate Library's organization family tree featured a new University President, a new Chancellor and a new Provost for the Urbana-Champaign campus, and a new Head of the Undergraduate Library.

When Dr. Joseph B. White became president of the University of Illinois[3] in early 2005, he initiated a strategic planning process with an aggressive timeline. The strategic plan for the University as a whole, *Creating a Brilliant Future for the University of Illinois*[4] provided a framework for strategic plan development at each of the University of Illinois campuses by articulating a statement of the University's vision, mission and guiding values.

The University's Strategic Goal #2 provides the specific framework for the Undergraduate Library's organizational transformation efforts:
"The University of Illinois will be the recognized higher education leader in innovation, quality, and service. A key component of the University's future success is to maximize the use of its resources by creating and sustaining a culture of innovation, collaboration, quality, leadership, and service in all areas and at every level. To accomplish this goal, incentive structures must be aligned with the desired outcomes. As important is ensuring that the University is widely known and admired for these attributes. Examples of the thrusts that will enable achievement of this strategic goal are to:

- Appoint and develop extraordinary leaders at every level
- Foster a University-wide culture of innovation, quality, and service
- …"

The *University of Illinois at Urbana-Champaign Strategic Plan*[5] was developed under the leadership of Dr. Richard Herman, who had served as interim Chancellor of the Urbana-Champaign campus and was appointed to the permanent position in 2005. Mission, vision, guiding principles, and strategic themes and intent are identified in the campus plan. The Goal: Enhance the Campus Work Climate makes the challenge/opportunity statement that "Illinois is known for appreciating individual initiative, a place where outstanding faculty with great ideas can pursue them without stifling bureaucratic requirements, and where staff members are valued and supported." This statement and the Guiding Principle to "create a nimble and adaptive institution" provided the campus framework for the Undergraduate Library's organizational improvement efforts.

In addition to a framework for action, organizational transformation also requires resources. When Dr. Linda P.B. Katehi became the Provost at Illinois in 2006, she brought to the campus an organizational development and consulting firm that she had worked with in her previous position as the Dean of Engineering at Purdue University. The Renewal and Transformation Group (RTG) supports organizations in what RTG terms the "Journey to Transformation"—an organizational development model that emphasizes the human dimension of organizational change and the importance of local leadership and inclusion, rather than outside expertise, for ongoing development. This localized and individualized process fits well with the Illinois culture, which values decentralization and autonomous decision-making.

RTG was made available to all of the Deans on campus, including the Dean of the University Library who initiated a transformation process for the University Library as a whole. One of the RTG consultants presented the RTG philosophy and process at a Library Faculty Meeting and the results thus far at that point in time. As the new Head of the Undergraduate Library looking to energize and revitalize the unit and enhance its organizational culture, the RTG process was very attractive to me because it was inclusive, respectful of the history of an organization, enthusiastic about a positive future, action-oriented, and empowering. Though RTG had not been made available to departments or other smaller units on campus at that time, the Dean of the University Library request RTG services for the Undergraduate Library on behalf of me and the other Undergraduate Library faculty and the Provost granted this request.

## The Journey to Transformation

The Undergraduate Library adopted RTG's approach to considering organizational development and change.[6] The definitions used for the key terms "renewal" and "transformation" are the foundation for understanding the components of the RTG approach. "Renewal" is defined as re-focusing and re-energizing the organization on those things that made it great in the past. "Transformation" is focusing on the human dimension to create a new organizational culture to achieve high performance teamwork at all levels. For RTG, the most distinguishing characteristic of a

high performance team is that its members have, as their highest priority, the accomplishment of team goals.

RTG bases its mission for developing high performance teams in an analysis of higher education that concludes that effective universities are characterized by this kind of teamwork, e.g., the move to interdisciplinary research teams and grants, applied to solve current and future complex problems that do not have simple, discipline or profession bounded solutions.

In a high performance teamwork environment, information flows freely up in the organization and not just through formal reporting lines; relationships among team members are flexible, trusting, supportive, and respectful; and diversity is valued and appreciated. Conflict is regarded as natural and helpful in a participative atmosphere of high energy. Decisions are synergistic or minimally by consensus rather than by hierarchy. Teamwork is built through a compelling purpose that is based on agreement on approaches and goals, clear communication including intentional resolution of issues and openness to giving and taking constructive feedback, and a set of commonly held values. High performance teams require individuals to take on new roles and responsibilities in a context of different sets of organization rules and boundary definitions. Individual excellence is demanded of all members of the team and leadership skills are an absolute must for continued and intentional organizational transformation.

The RTG process begins with a focus on the organization's leadership—both the "Leader" (i.e., the person in the position that is at the top of the organization chart) and the Leadership Team, a group of people identified by the Leader as the group responsible for working with the Leader to bring about organizational transformation. In the case of the Undergraduate Library, this is the Head of the Undergraduate Library and the Undergraduate Librarians, respectively. RTG acts as a facilitator of process and mentor/educator to the Leader and Leadership Team.

RTG's only evaluative act, as conceived in a traditional external consultancy, is to determine the leadership readiness of the Leader. RTG's goal is to build renewal and transformation capacity within an organization and the Leader's capacity for and willingness to lead the process and undergo personal change and growth is a necessary component. The leadership for the RTG process must come from within the organization. If the Leader is not ready, RTG does not initiate the process. After an hour-long interview with me and a review of the current leadership and management practices in the Undergraduate Library, RTG determined that we were ready to pursue the RTG process.

The RTG process also quickly involves a broader range of staff in the organization beyond the Leader and Leadership Team in order to draw upon the vast knowledge and experiences of the people who work in the organization and thus continuously observe, analyze, and assess it. In the case of the Undergraduate Library, the staff was small enough to involve all members of the staff as compared with larger organizations where a smaller group is selected. Each librarian and staff member met with an RTG representative for a personal discussion about the organization and its future. All discussions were confidential and took place away from the daily work setting to further assure confidentiality.

Each person was asked a series of questions related to the challenges and opportunities facing the Undergraduate Library, changes he or she would make to the organization, and the strengths/weaknesses of me as the Leader. In addition to the standard questions RTG uses, I worked with the Leadership Team to identify two additional questions specific to the organizational development needs of the Undergraduate Library and reflective of the concerns staff expressed when I first came to the Undergraduate Library and held one-one conversations with each person. These were:

- What are three things that would help you be more successful in your work at the Undergraduate Library?
- Given your talents and skills, what roles would you like to have in improving the Undergraduate Library?

RTG anonymized all of the responses and also grouped them into themes and key factors. The depth of this qualitative data was remarkable as well as the insights articulated by the staff. The responses and analysis were provided to me for consideration in working with the Leadership Team to identify the topics we would address in our all-staff retreat. The staff responses related to my personal strengths and weakness were also the focus of a personal coaching session with RTG to assist me in reflecting on how I could maximize the

positive impact of my strengths and find ways to either overcome or minimize the impact of my weaknesses on the organization.

The staff responses revealed these issues as the primary ones facing the Undergraduate Library and the first four as the primary issues that the organization needed to address:

- Human Resources
- Culture and Environment
- Communication
- Leadership and Vision
- Facilities and Technology
- Budget
- Training

The Undergraduate Library staff were also very articulate about how they could contribute to creating a renewed future for the organization. These roles emerged as ways that the staff wanted to contribute to the organizational transformation:

- Problem-Solving
- Teamwork
- Service
- Culture
- Mentoring

It was heartening to observe the wide-spread agreement on the areas we would need to address as an organization and the staff enthusiasm for contributing to the process. Following the RTG interviews and based on the analysis and individual comments, the all-staff retreat was structured around two "Focus Group" sessions, as RTG terms them, and a goal of building community and trust within the organizational culture. The retreat itself was designed to begin to address the issues – not only explicitly but also implicitly through the experience of the event.

To underscore the importance of our shared participation in creating our organizational culture, all staff took part in the retreat, which was held in the campus faculty center. To make this possible, the retreat was scheduled when classes were not in session and arrangements made for graduate and undergraduate student assistants to staff the library's service points with the head of another unit in the University Library on-call for emergencies. Meals and snacks were provided to encourage informal interactions and socializing as well as to underscore that the University Library valued their contributions and was investing in them by providing for catering. Due to the hours that the Undergraduate Library is open (144 hours/week on a 24/5 schedule during the semester), some staff members had rarely seen each other before this retreat so spending time together was the beginning of building a shared culture.

The retreat began with a de-briefing of the individual interviews and analyzed responses. Through this process, it was demonstrated that people's comments had truly been made anonymous and that there was a consensus already within the group about our common concerns and goals. The de-briefing also offered an opportunity for me to share briefly my reflections on their assessments of my strengths and weaknesses and the actions I was taking because of the information they provided as well as to thank them for their honesty and willingness to contribute to my own growth as a leader. In the RTG process, this public sharing of strengths and weaknesses offers the Leader an opportunity to demonstrate and model respect for all viewpoints and how constructive criticism can be positively used in an organization and to set a foundation for an open and honest environment.

The remaining time in the retreat was spent working through two "Focus Group" processes and forming follow-up Action Teams, each of which was lead by a member of the Leadership Team, comprised of volunteers, and met one or more times after the retreat to accomplish a specific tasks. As the Leader, I was not on any of these teams and had only the role of serving as a resource if needed.

The first Focus Group was about articulating an image of the future of the Undergraduate Library. Working in small groups, the staff identified how various constituents, e.g., enrolled students, incoming students, alumni, faculty, the University Librarian, and the Provost, would imagine that future as well as how they themselves would. The follow-up Action Team used the documents created by small groups in the retreat to draft Vision and Mission statements for the Undergraduate Library.

The second Focus Group session was about communication, both within the Undergraduate Library and with external groups and individuals. Each small group identified approaches to achieving clear communication through a set of questions that probed current, preferred, and possible internal communication strategies as well as roles for individuals and ways to solicit ideas from and share information with those outside of the Undergraduate Library. The follow-up Action Team drafted a Communication Plan.

The second all-staff retreat continued the goal of building a teamwork culture and added the component of shared decision-making around the final products of the first retreat. Draft copies of both the Vision and Mission Statements and the Communication Plan were provided and processes for reviewing, revision, and extending each as well. The Vision and Mission Statements were approved by the group in final form but consensus was that the Communication Plan needed further work and so the Action Team was re-constituted with suggestions from each small group for ways to improve its clarity and specificity as well as suggested action plans for how to implement it. In addition, a Focus Group on organizational values using John Maxwell's "Maximum Impact Value Cards"[7] had each small group suggest a set of core values that reflect the Undergraduate Library, which were then passed to an Action Team for synthesis and elaboration.

While all-staff retreats are valuable and offer a unique setting in which to build relationships and contribute, developing a culture of teamwork requires that the process of gathering feedback, creating action teams, and then coming to consensus become a way of working on an everyday basis. The Core Values Statement became a mechanism for moving in this direction. Rather than waiting for the next retreat, when the Action Team completed its work the review and eventual adoption processes took place as part of the monthly staff meeting. The ownership the staff felt for these documents is evidenced in the number of them who posted the Undergraduate Library's Vision, Mission and Core Values Statements (see Figure 1) in their personal workspaces and in the request to have large posters made so they could be displayed in a prominent public location as well. The Communication Plan continues to develop through our staff meetings. Some momentum was lost when a key member of the Action Team left the Undergraduate Library for another job but process continues and bringing in a new employee will be an opportunity to discover how the RTG process can continue even if someone did not participate in earlier phases.

What is difficult to convey in print is the enthusiasm, engagement, and high levels of participation one saw during the Focus Groups, in the Action Teams, and reflected in the resulting products. RTG is now working with the Leadership Team to develop a reflective process that will more systematically capture staff perceptions of these experiences and how teamwork can be further improved. At the same time, the teamwork process of selecting new initiatives and moving forward on key issues will need to become an even more regularized approach to everyday work and not only saved for the retreat setting.

Next steps for the Undergraduate Library include continuing to use the RTG process of broad participation in identifying issues and possible solutions, small Action Teams to recommend specific approaches and accomplish tasks, validation by the Leadership Team, and facilitation and support by the Leader. Continued work on the Communication Plan will be one avenue for this. The Leadership Team will identify additional projects as well. Over time, the formality of the language should dissipate and the approach should become a natural way of working within the organization.

**Figure 1: Vision, Mission and Value Statements**

**Vision Statement**

Fostering and promoting an inviting, innovative and evolving educational environment for the inquiring minds of the University of Illinois through the expertise of our professional and knowledgeable staff who develop and maintain our preeminent collections, facilities and services.

**Mission Statement**

The Undergraduate Library will encourage engagement with information and technology in its various forms, reinforce the value of collaborative inquiry and work, create new opportunities for community interaction, and support first and foremost undergraduate students so they adjust to and succeed at the University of Illinois and beyond.

**Core Values**

Our core values are our guiding principles. They guide us to carry out our mission and envision our future. Embracing excellence, growth, and respect, we believe in:

***Integrity***. We value integrity, honesty, and truth in our work and actions. We support the principles of intellectual freedom.

***Service***. We value service at the highest level. We strive to provide quality, responsive service to all of our constituents. We take pride in the service level and productivity of our staff.

***Education and Learning***. We value education and learning and are partners in the educational lives of our students. We are committed to fostering life-long learners and providing the necessary physical, virtual and human resources to nurture inquiry and learning.

***Teamwork***. We value a work environment that supports teamwork, creativity, and cooperation. We believe communication is key to our teamwork. We are committed to the library's mission and value respect for social and cultural diversity.

***Innovation***. We value innovation. We are adventurous and original. We seek innovative practices and services that benefit our students and faculty and contribute to the larger library community.

## Lessons Learned

A number of principles can be drawn from this case study of how the Undergraduate Library used using staff reflections on organizational goals, culture, and leadership for beginning an organizational transformation. Ideas should be generated from all staff in the organization and shared with all staff. Role differentiation in teams is not about access to information. Communication flows also include many feedback loops from teams to leader and leader to teams to test ideas, receive support, etc. In the team environment, the leader needs to be open to everyone's input and value all contributions. By acting as a team sponsor, but not a member, the leader empowers the team to make decisions and share ideas without reference to the

leader's perceived role or influence. The leadership team works with the leader to validate and affirm the team recommendations and create action plans for implementation of recommendations.

What became very clear in the process was that the RTG approach is a good fit for the Illinois culture and the Undergraduate Library's leadership philosophy. What was not clear without further reflection and analysis, however, was whether the same achievements could have been gained without the facilitation of an external group—i.e., without RTG, without a circumstance of leadership change for the Undergraduate Library, or without embedding the Undergraduate Library efforts in the framework of the University Library's engagement in the RTG process.

Given the University Library's culture of autonomy for individual library units, the University Library's work did not factor into the Undergraduate Library's initiative beyond the initial access it provided to RTG. Though the leadership change created an environment in which the organization was already changing due to the appointment of a new Head, the experiences of units on campus that had continuous leadership and engaged the RTG process leads to the conclusion that this was not a necessary factor either though it was likely facilitative.

So, what about having consultants? Without any question, having the additional insights, resources, and experiences that RTG brought to the process catalyzed the Undergraduate Library's engagement and accomplishments. The confidential and anonymous nature of the individual staff interviews and analysis of the collective responses could not have been accomplished without an external group to draw upon. Being accountable to RTG for timelines, though they of course could be re-negotiated and were as they needed to be, helped keep the organizational development efforts at the top of the priority list even when people had many tasks to accomplish. The personal coaching I received helped me lead in circumstances of unusual complexity or difficulty.

As my final reflection, though I believe that an individual leader could pull together resources (e.g., to conduct confidential interviews) and coordinate the overall process, I also believe that having a dedicated group to work with that has facilitated this process hundreds of times led to a more steady and confident implementation of the process that made for an efficient as well as an effective transformation.

## Acknowledgements

This paper owes a debt of gratitude to everyone engaged in the Undergraduate Library organizational transformation. First, to the Undergraduate Library staff and faculty who engaged the process with grace, passion, and creativity and trusted my leadership. Second, to Paula Kaufman, Dean of the University Library, and Linda Katehi, Provost of the University of Illinois at Urbana-Champaign, for their support and the resources that they provided. Finally, to RTG for their knowledge, humor, and resources and for their permission to allow me to share their process in this case study.

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## Endnotes

1. http://www.libqual.org.

2. http://www.climatequal.org.

3. The University of Illinois has three campuses: Urbana-Champaign, Chicago, and Springfield. "The University" is used to refer to the University as a whole, i.e., the central administration and the three campuses as a collective. "Illinois" is used by the Urbana-Champaign campus.

4. http://www.uillinois.edu/president/strategicplan/pdfs/University_Strategic_Planning_Framework_2-16-06.pdf.

5. http://www.uillinois.edu/president/strategicplan/plans/UIUC%20STRATEGIC%20PLAN%20February%2013%202006.pdf.

6. The RTG process is based in the leadership approach of John Maxwell (see http://www.johnmaxwell.com/ and http://www.injoy.com/ for more detailed information).

7. https://www.johnmaxwell.com/store/products.php?product=Value-Cards-%252d--Value-Pak-(20).

# Keeping a Finger on the Organisational Pulse: Surveying Staff Perceptions in Times of Change

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## Abstract

While surveying clients has become a standard part of research libraries' qualitative assessment programmes, regularly surveying a library's own staff is less common. Client surveys at the University of Queensland Library consistently reveal that the Library staff are regarded as the Library's greatest asset. It is important to work at ensuring that these two hundred and fifty assets feel positive and motivated in their work, particularly in current times of rapid change in their workplace and sometimes the actual nature of their work. This paper examines the Library's experience of surveying the staff five times over eight years. It examines the survey instrument itself and the methods of analyses employed to interpret the data.

## Introduction

The last ten to fifteen years have seen extensive change in the information industry, and much attention is given to monitoring, analysing, and also anticipating the attitudes of clients to service delivery and information resource provision in libraries. Less frequent, however, is the practice of systematically surveying the Library's own staff, whose attitude to the workplace governs their willingness and ability to continue to deliver quality services to the high standards that clients expect.

The University of Queensland Library has conducted Staff Perception Surveys biennially since 2000, the first two being manual, and subsequent surveys being conducted online using software developed in the Library.

The survey invites respondents to indicate their perception of the importance of a number of statements and also how they think the Library is performing on the issues. The statements are categorised into: training and development; customer focus; recognition and development; goal setting and feedback; communication; employee involvement, well-being and morale; employee relations; senior management; local/branch leadership. An opportunity for free text comment is also included.

The bivariate methodology used in the survey allows for the identification of the gap between perceptions of importance and performance for each statement, and also an indication of priority for action to be assigned to issues. Time series analysis of results from successive surveys allows management to see shifts in the "pulse" in response to change implemented since, and possibly in response to, the previous survey. Free text comments are analysed using Leximancer™,[1] a University of Queensland-developed software tool which enables users to identify key themes, concepts, and ideas from unstructured text.

While the survey is anonymous, enough demographic data is collected to enable responses to be analysed by branch/section of the library and by level of the staff members. Thus, it is possible to see pockets of discontent or satisfaction amongst a particular staffing level in a particular unit of the organisation. Time series analysis shows whether such group pulses are moving in a positive or negative direction. Examination of the responses of different levels of staff to individual statements also shows where there is a mismatch of perceptions—senior management might think communication is very good for example, but junior staff responses might reveal that their experience is quite different.

The survey has proved itself as a valuable tool for management in the Library. Results are published on the staff intranet (including the full text comments), so all staff at all levels have full access to the results. Staff participate in subsequent focus groups and working parties which may be set up to address issues arising in a survey. The survey has also proved itself of particular value in a period of transition between Heads of the organisation.

## Culture of Assessment in Context

The UQ Library has a strong culture of assessment. A quality assurance framework includes both

quantitative and qualitative assessment, with continuous cycles of response and renewal. A wide range of statistics has been recorded and benchmarked nationally and internationally for a very long time. Statistics are recorded using the Library's LibStats[2] online software, and reported to the Council of Australian University Librarians for benchmarking through their statistics Web site. Client perception surveys have been conducted biennially since 1999, using the InSync Survey, (formerly Rodski). Outcomes from these surveys are benchmarked against other tertiary libraries in Australia and New Zealand. Over time, the database of results has built up to allow for time series analysis to reveal trends. Other assessment methods have been used as called for by specific circumstances – focus groups, space use surveys, design workshops all contribute to the effectiveness of the plan, do, report, review framework.

The culture of assessment extends seamlessly into the assessment of the organisational climate of the Library itself through the staff perception survey. Staff in this Library, as in all others, are asked to deal with constant change in many arenas of their work life. They are barely comfortable with one technological innovation or client expectation when another comes along to unseat it and require another exercise in skills acquisition or attitude adjustment. Being able to report regularly on how they are travelling through this, with confidence that current or emerging problems will receive attention, is generally accepted as a logical 'given'.

The period covering the last three surveys has featured some high profile changes in the local Library environment, apart from those arising from information industry drivers or political and economic factors. The previous University Librarian left to take up a new appointment at the beginning of 2005, and the Library was headed by an Acting UL for eighteen months. The new appointment to the position arrived in June 2006, and almost the first thing on his desk was the report of the 2006 Staff Survey. Two years later, the 2008 survey is almost a report card on his first years in office. During that time, there has been a restructure in the service delivery units of the Library, a number of changes in management level staff, and a number of new processes introduced, including an extensive project management framework.

## The Survey—Response and Analysis

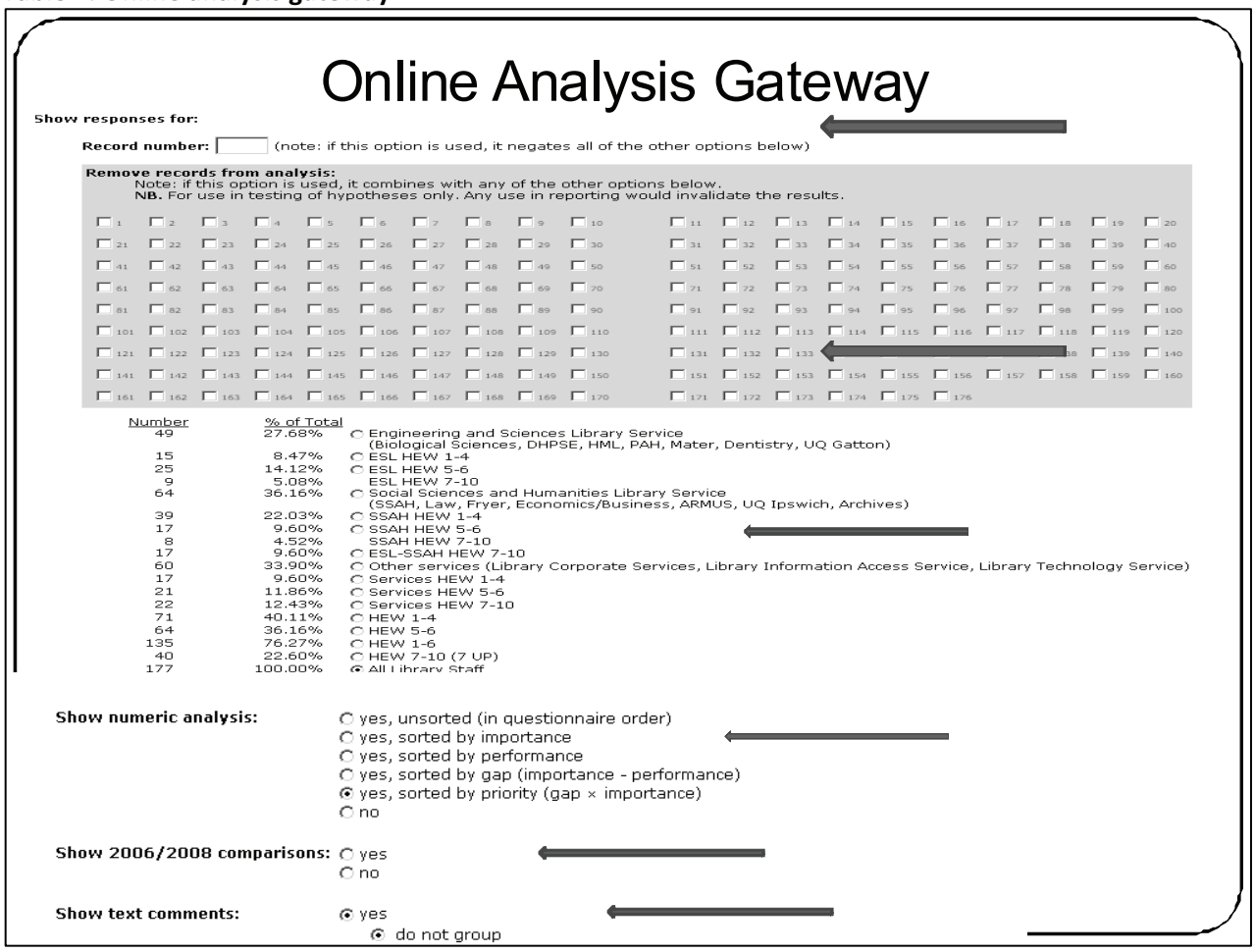
The response rate to the survey in the Library has been consistently around 70%. There has also been a consistent proportion of responses from each of the three major organisational units—two service delivery units, (Engineering and Sciences Library Service, and Social Sciences and Humanities Library Service) and a service support grouping of three smaller units (Library Corporate Services, Information Access Service, Library Technology Service). Also proportionately representative have been the responses from the various Higher Education Worker (HEW) levels in the Library. These have been grouped in both the demographic identifying information and in the analyses into three categories: HEW 1-4 (Service support assistants and library assistants); HEW 5 -4 (professional librarians); and HEW 7-10 (Librarian supervisors and managers). These factors support a high degree of confidence in the statistical reliability of the results.

Respondents to the survey rate sixty-five elements on a scale of one to six, for both importance of the element to them and how they perceive the element is being performed in the library. Analyses conducted include calculation of means for both importance and performance, which are then used to calculate gaps (difference between importance and performance, with a gap of 1.67 or higher being statistically 'significant.' The elements are also prioritised (importance multiplied by gap); and a scattergraph is produced plotting gaps against importance, which points to areas where attention needs to be focussed.

These analyses are conducted for a number of different cohorts—all returns; each of the two service delivery units of the organisation; the service support grouping; and the three HEW groupings, and also for cross combinations of the cohorts (for example, the HEW 1-4 respondents in the Social Sciences and Humanities Library Service).

Table 1 shows the online analysis gateway. Any individual response can be analysed, or any selection of responses (responses are assigned a sequential number as they are submitted). The various cohorts, individually or in combination, can be selected. Results can be presented in order of importance, performance, gap, or priority for the survey elements. Comparison with the results of the previous survey is an option, and inclusion of free text comments, either unsorted or sorted by cohort, can be selected.

**Table 1. Online analysis gateway**

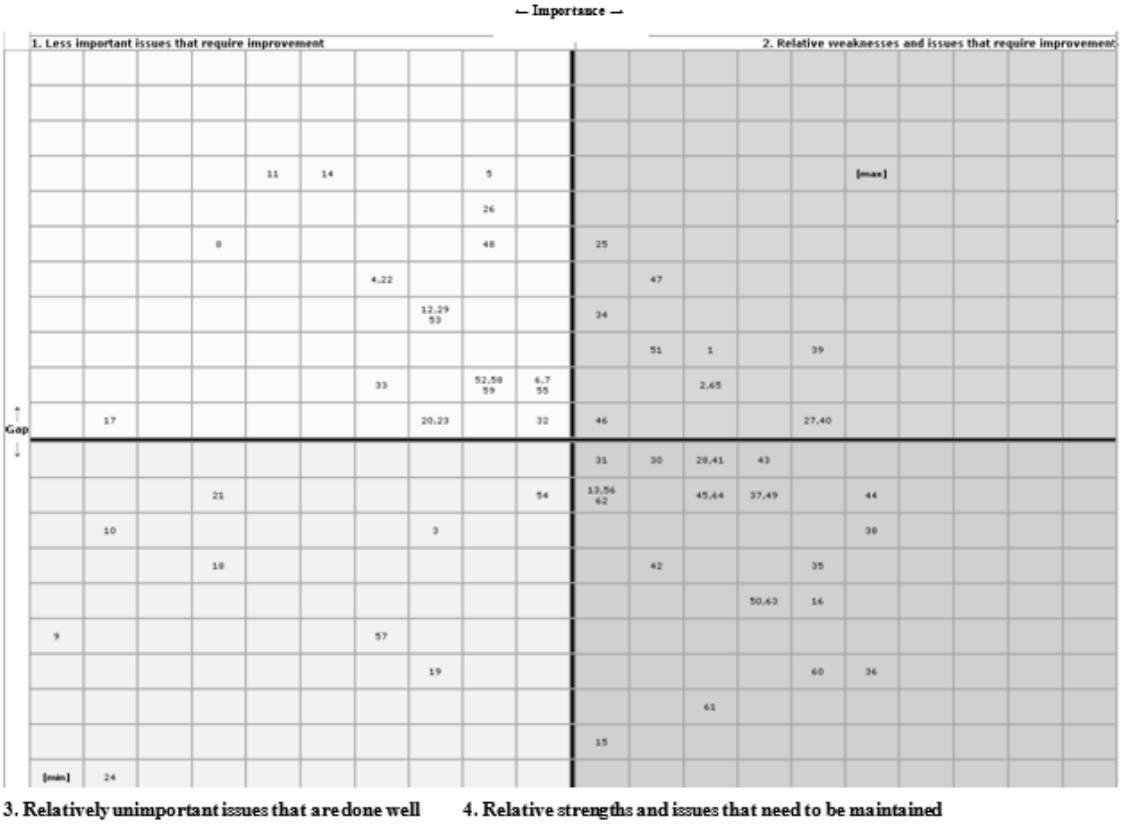



These various analyses give library managers a wealth of information about staff attitudes. They are studied closely with a range of questions in mind. What is most/least important to staff? How does the staff of a particular organisational unit differ in their assessments from the 'picture' of the library overall? Do the 'most important' issues focus on elements from one category of the survey, or are they distributed across the categories? Are there coincidences between what is seen as most important and what is seen as being performed well? What is the mean range for the top ten issues by importance/priority/gap? Has this range shifted since the previous survey? In the right direction? Are there any statistically significant gaps?

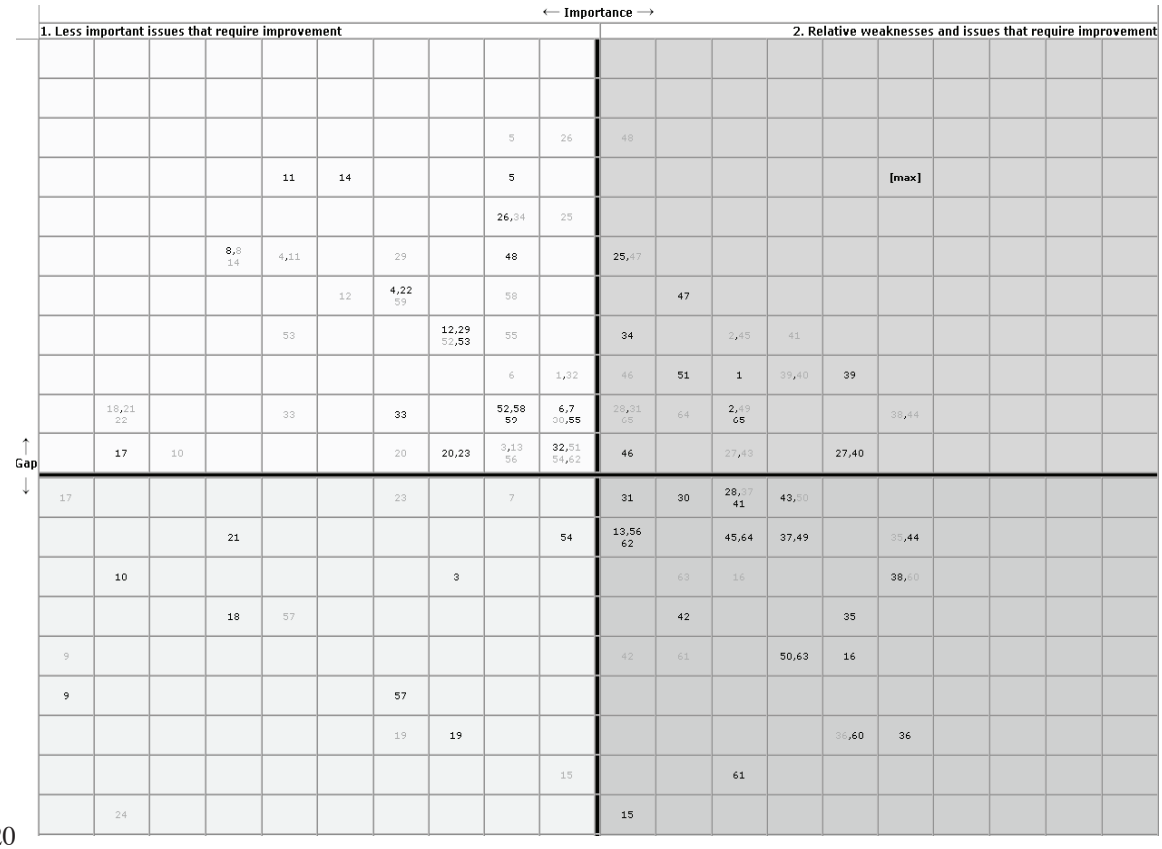
The scattergraph (Table 2) shows at a glance the relative positions of the various elements of the survey. The top right hand quadrant represents elements with high gap and high importance, highlighting areas in need of attention. The bottom right hand quadrant is the location for elements of least urgency.

When the option in the analysis gateway to show comparisons from the previous survey is taken, the scattergraph presents the previous survey results in grey and the current survey results in black. (Table 3)

## Table 2: Scattergraph




## Table 3: Scattergraph showing trends



The trend scattergraph reveals the following: there are fewer items in quadrant 2, the least desirable space, than there were in the previous survey two years before; there are more items in quadrant 4, the "best" place to be; eleven items have moved from quadrants 1 or 2 into quadrant 4, which is a positive trend; and there are four items which have moved from quadrant 1 into quadrant 2. This is not a move in a positive direction, so those items are claiming attention. Even though, in most cases, these items do not show a significant gap, managers regard them as "smoke signals" pointing to mild dissatisfaction which, left untended, could develop into more serious discontent.

## Happy or Unhappy?

The practice of studying gaps, priorities, and trends, and acting in response to them, has become well established in the history of the survey. In the current year's survey, a further analysis was undertaken, focussing more closely on a particular group of people: the unhappy ones.

Question 66 of the survey asks respondents if they want to be working in the Library in one year's time. The surveys with a 'No' answer to this question (11% of the total responses) were analysed as a cohort. The thinking was that if these people were indicating general dissatisfaction with their situation, it would be useful to see what things were of concern to them. What were their gaps and priorities? Addressing these could perhaps significantly improve organisational climate. However, what the analysis showed was that this group of respondents do not like anything. They returned forty-five 'significant' gaps. The scattergraph showed most items in quadrant two, and their trends were markedly negative. A visual check of these responses showed that often they had marked the top score (6) for the importance of all elements, and the bottom score (1) for the perceived performance of that element. These were not people who were expecting to be gone from the Library in a year's time because they had been promoted into another position, or retired from the workforce. They were people indicating that they just did not like anything. For a (very) short time the option of reconfiguring the Library to suit people who were perhaps born unhappy flashed into the consciousness of Library management, but was speedily rejected. Advice from organisational culture consultants was that organisations typically have a group of employees who are persistently discontented. In fact, this group usually accounts for from fifteen to twenty percent of employees, and that, although they are discontented and indicate that they would rather be elsewhere, they do not in fact leave the organisation.

Flipping the coin, an analysis was done of the responses with a 'Yes' to question 66. This group returned no significant gaps, only two items in quadrant two, and most items in quadrant 4. The two items in quadrant two become a focus for management attention. If these are things of concern to people who are in general content, they are deserving of prompt action.

The impact of the group of unhappy people on the organisation as a whole is important. When all responses are included in the analysis, there are eleven items in quadrant 2 of the scattergraph. When the 'unhappies' are excluded from the analysis, this reduces to 2 items. When the analyses are run for specific cohorts, the exclusion of the 'unhappies' reduced the quadrant 2 items from 24 to 7 for one Service Delivery unit. For one of the HEW cohorts, the four 'significant' gaps disappear and the 18 items in quadrant 2 reduce to 4 when the 'unhappies' are excluded.

For Management, the obvious question is how to respond to this. Given that the unhappies are never going to be happy, that they are not likely to go elsewhere, and that it is not possible to remediate their discontent, the only possible response is really no response. Individuals who know themselves to be part of this group will know that management is aware of their attitude but refuses to be side-tracked by it. Instead, management attention is seen to be focussed on those who are willing to be satisfied in their work environment. The desired outcome is that strengthening the culture and work experience of the 'happies' will reduce any vulnerability they may have to the influence of the 'unhappies.'

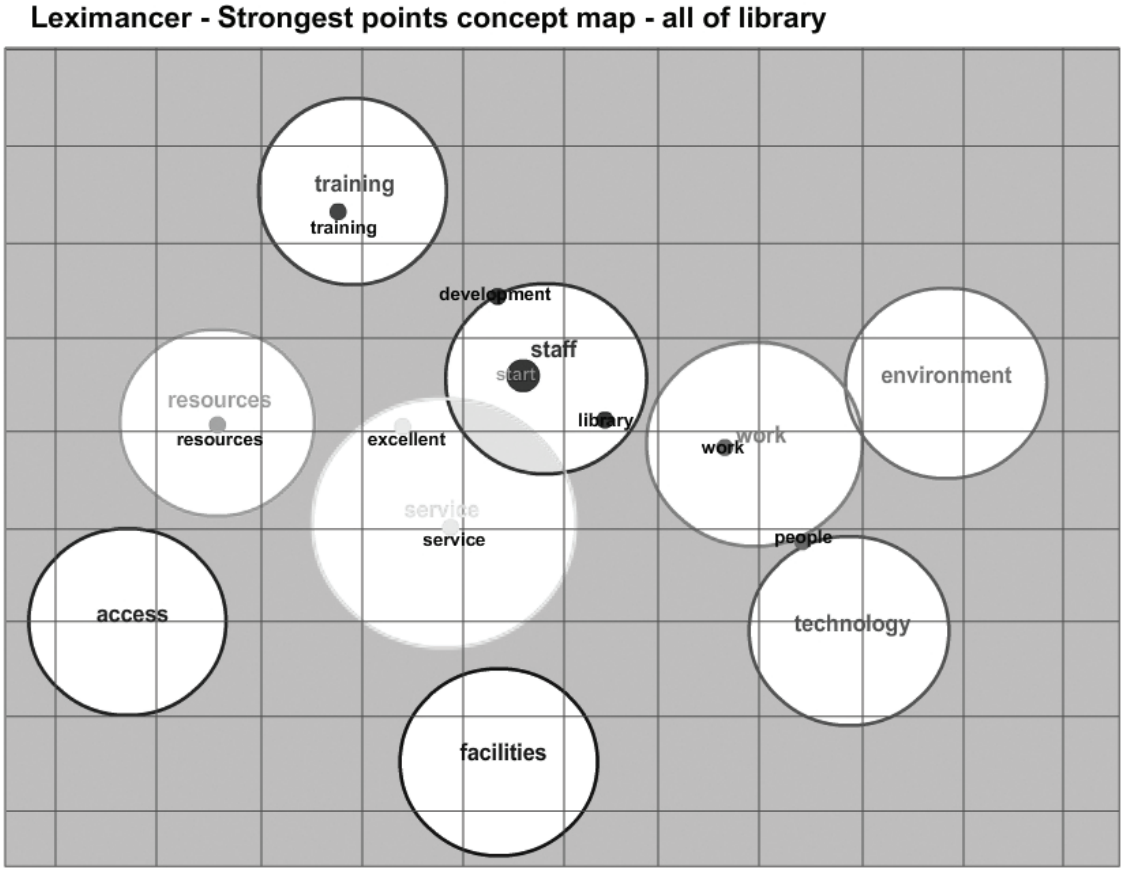
## Open Text Responses

Two questions in the survey invite open text responses: What do you think are the library's strongest points (the most favourable things about the library)? and What do you think are the library's weakest points (things or areas that need improving)? The two questions categorise the comments into two groups before any analysis—the positive and the negative!

The Library uses software called Leximancer ™ to analyse free text. Table 4 shows the concept map produced for the text in the "strongest points" category. The software also produces a ranked

listing of concepts, and enables the viewing of the sections of text where concepts are located, and also shows sections of text where concepts selected by the end-users are co-located. Logbooks of all instances of a particular concept can be produced.

**Table 4. Leximancer™ concept map**




## Deepening the Analysis

The Library used the concepts, or themes, identified by Leximancer ™ and the gaps and priorities from the survey hard data results to further mine the attitudes of a cohort of staff whose analysis had indicated negative trends. Post survey focus groups were held in which groups of five were given a theme and a related element from the survey question set, and asked to frame a number of questions of their own around the theme. These questions were then posed to the whole cohort, and individual responses were recorded using the *Keepad Interactive Audience Response System*.[3] The framing of their own questions gave these staff the opportunity to point to the specific aspects of the issue which concerned them. As an example, questions posed around the Training theme pointed to problems with filling service point rosters when staff were absent at training sessions, and a perception that staff at all campuses might not have equal opportunities to attend training events. The Keepad clicker technology allowed for anonymity in recording responses. The software produced a comprehensive analysis of the responses, so the exercise resulted in a deeper understanding of the nature of the issues which were causing concern for the cohort.

## After the Survey

Survey results are published to all staff via the staff intranet, and staff across the library are engaged in determining actions in response to what the survey results have revealed. Over the life of the survey, outcomes have included major reviews of communication practices, human resources procedures, and the role and duties of the Library's

Liaison Librarians. The effectiveness of changes is measured by the next survey. The Library has found the survey to be an indispensable tool in the management of its most important resource: its people during times of rapid development and extensive change.

## Addendum: A Note on the Software

The survey form comes from a PHP program that takes the question text data and writes the form programmatically. This is about 700 lines of code, including the questions themselves. The form writes out as ah HTML page, on a machine running Apache as its Web server and PHP5. The data is uploaded directly into a MySQL database. The analysis of the data has grown over the iterations of the survey. Again, it uses PHP and does a number of queries on the MySQL database. Even though the results of previous surveys have been stored in separate tables, and there are slight variations between them, queries have been designed that produce comparative data. The analytic instrument for the latest survey runs to almost 3000 lines of code. Interested parties may download the software from http://www.library.uq.edu.au/software/.

—Copyright 2008 Elizabeth Jordan

## Endnotes

1. Leximancer™, http://www.leximancer.com/.

2. Elizabeth Jordan, "LibStats: An Open Source Online Tool for Collecting and Reporting on Statistics in an Academic Library," *Performance Measurement and Metrics* 9 (2008): 18-25.

3. Keepad Interactive Audience Response System, http://www.keepad.com/home.php.

# Assessment for Impact: Turning Data into Tangible Results

**Paul Rittelmeyer, Laura Miller, and Tim Morton**
University of Virginia, USA

## Abstract

This panel highlighted examples of how the University of Virginia Library (UVa) has employed assessment tools to improve high profile library services, inform collections decisions, address concerns in the workplace, and support expanding budgets to meet user needs. By using assessment tools such as surveys, focus groups. and the Balanced Scorecard, the UVa Library has established and sustained an ongoing culture of assessment to monitor the health of the organization and effect practical change in library operations.

Specifically the presentation demonstrated how, with support from the Management Information Services department, the UVa Library has drawn on professional and classified library staff to engage in and utilize assessment to justify increasing expenditures for the Music Library, define the value of journal collections and explore ways to improve them, identify and correct a significant lapse in the popular monographic rush request service (aka Purchase Express), and acknowledge staff needs and make efforts to improve the workplace.

## Improve Library Services

The UVa Library values providing superb services and offering easy access to great collections. These priorities are included in our Guiding Principles and are assessed annually using the Balanced Scorecard. One User Perspective metric reports on the goal of satisfying a patron request for a book within seven days (i.e., a 'rush' request for a monograph, known at UVa as Purchase Express). The assessed requests are narrowed to books in print and published in North America. (These parameters were established following a pilot project completed in 1999 that showed shipping costs from Europe, Asia, and elsewhere were prohibitive, as well as documenting difficulties in purchasing materials outside the United States and Canada.) In the Balanced Scorecard, 'targets' are established to measure at what level the organization will consider itself successful if and when the target is met. For this metric, Target 1 (full success) would be met if 90% of patron requests for in-print monographs published in the United States were delivered within seven days from the initial request. Target 2 (partial success) would be met if the Purchase Express requests were processed and delivered 80% of the time.

Prior to implementing this metric into the Balanced Scorecard, the Purchase Express program was monitored using traditional means. The Acquisitions department tracked the time an order was sent from a subject selector, through the workflow of ordering the item, to the day it was received and forwarded on to Cataloging. The Cataloging department then tracked the time from receiving the item to the time the patron was notified of the item's availability. Throughout this process vendors were evaluated for timely delivery, workflows between departments were adjusted to give this service priority, and staff members embraced the challenge and took ownership for accomplishing the goals of the program. Acquisitions reported the time from ordering to receiving had been reduced to 2-4 days, while Cataloging processed materials within hours. By all measures the service was a terrific success.

Purchase Express had been in place for two or three years before being identified as a candidate for Balanced Scorecard to measure, with both library administration and staff confident the service would meet the ambitious targets set. So it was quite a shock when the Balanced Scorecard committee issued the first results for Purchase Express showing a success rate of less than 20%. This raised quite a few eyebrows, generated some raised voices, and bruised the pride of the many staff members who had always taken pride in successfully delivering on the promise of Purchase Express. Once everyone calmed down, objective assessments were made of the Purchase Express program and the Balanced Scorecard itself.

The Deputy University Librarian convened a small task force to investigate the findings and fix the Purchase Express program. The initial challenge

was to better articulate to all staff how the Balanced Scorecard works. The Balanced Scorecard looked at identified areas from a broad viewpoint, in this case from the user perspective **starting at the time of the patron request to the time of availability.** Up to this point different departments were measuring their performance in the process specific to their role. It took the Balanced Scorecard to measure the program in its entirety, and something was clearly not working.

The culprit was the lapse in time from the patron request to the time the order was approved and sent to Acquisitions for processing. UVa-affiliated patrons most commonly request books using an online form. Logs of the activity on the form are kept in a database and can be examined and the data mined. The time of a request can be combined with the date the order was sent to Acquisitions, the date the item was ordered, received, cataloged, and a notification sent to the patron. Purchase Express requests were not being filled within seven days more often than not because the request, it would seem, was not being moved through the initial phase of the process in an expedited fashion.

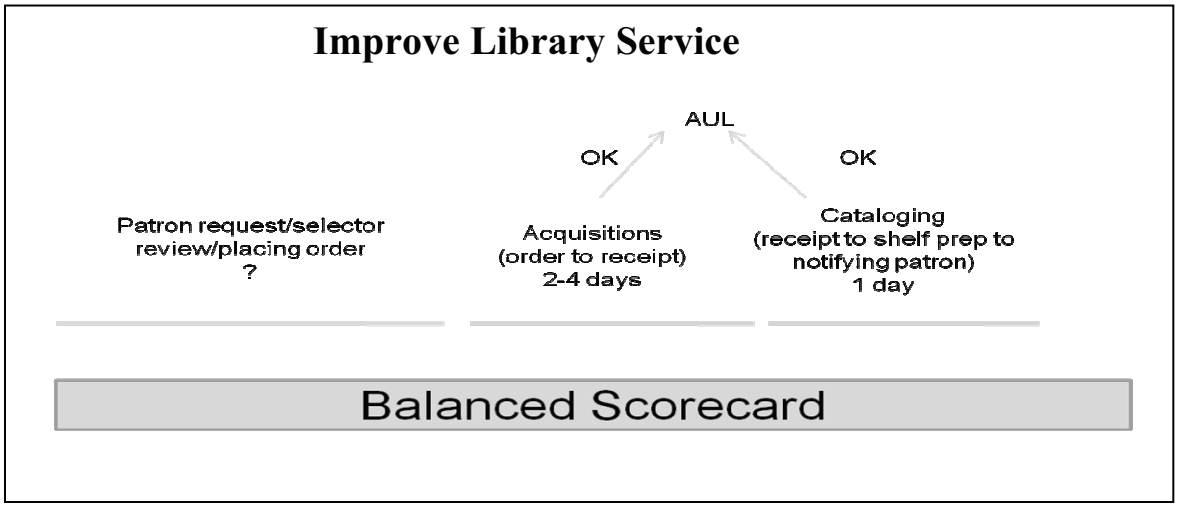
The task force identified reasons for this lapse in time, many of them completely legitimate. Sometimes the request did not contain the bibliographic information needed to evaluate the request or place an order. Many requests were for books not yet published. Cost was occasionally a concern, and sometimes the subject selector simply refused the request. Even when the subject selector was actively engaged with the user in evaluating the request, the clock was still clicking for the request to be filled within seven days. However, there were other obstacles identified—the online form is completely e-mail dependent. If a selector was out of the office for more than a day or two the request waited in an in-box. It was also determined that some selectors did not check their e-mail every day. Also, staff new to selector responsibilities had not been adequately trained in how to handle purchase requests and were not aware of the priority given to the program. In addition, spending money on expedited shipping from vendors would improve the performance and success of the program.

The task force considered what it had learned and made recommendations to the library administration. These included:

- Provide information sessions to all subject selectors on Purchase Express and the BSC results including the need to respond to requests in a timely fashion.
- Incorporate Purchase Express into training for new selectors.
- Establish a system of back-ups for all selectors so that if they are unable to respond to requests within a day the request will be forwarded to a colleague for action.
- Increase funding for overnight and 2nd-day shipping.
- Lower the goals for success in the targets to 75% and 50%.
- Change the language in the metric to read "Fill requests in 7 *working* days." This was meant to accommodate those requests that might come in on a Friday before a 3 day weekend or over a holiday season that includes several days off.

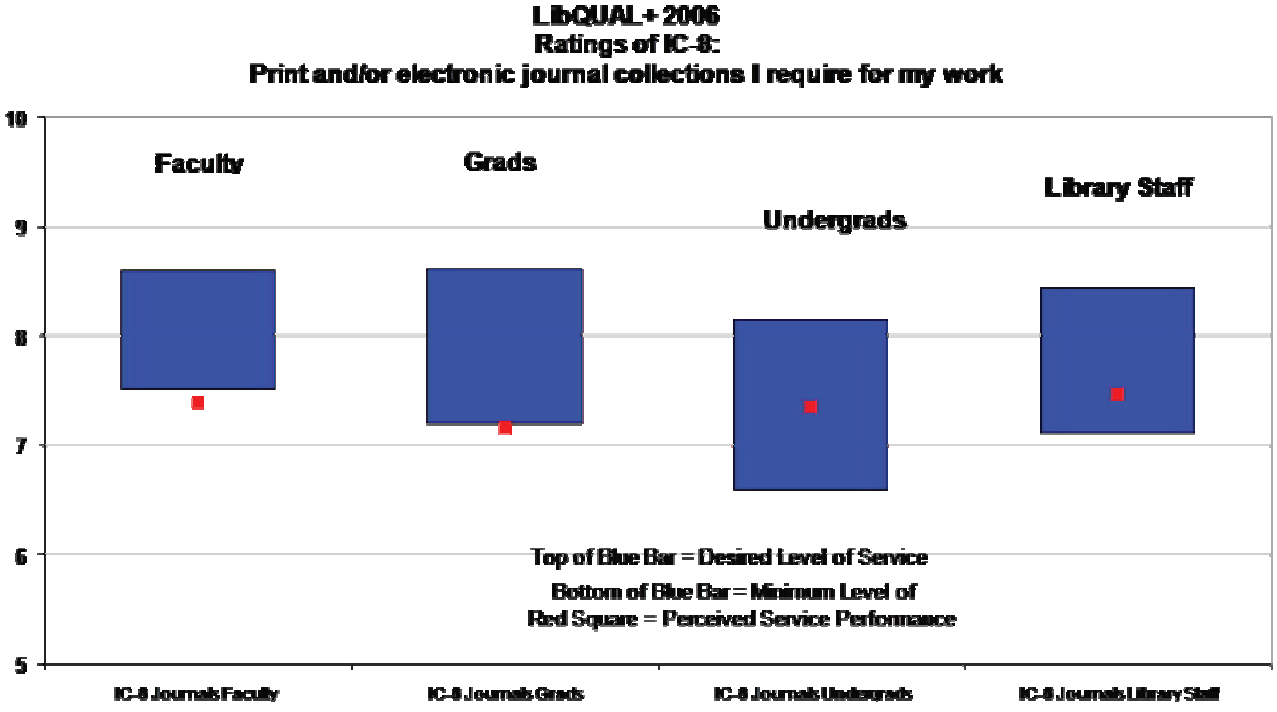
The library administration accepted all of these recommendations except for the last one—to change the metric to *working* days instead of calendar days. As a result for the cycle 2006-2007 the success rate for delivering requested books improved to 77%.

How the library responded to the lapse in service was not the purpose of the program presented at the 2008 Library Assessment Conference in Seattle, WA. What we meant to demonstrate was how the Balanced Scorecard can be used as a tool in monitoring the health of the organization and providing data that can be used to generate change. The changes made to the Purchase Express program might never have happened if not for the compelling story authored by the results for metric U.4.b in the UVa Library's Balanced Scorecard.

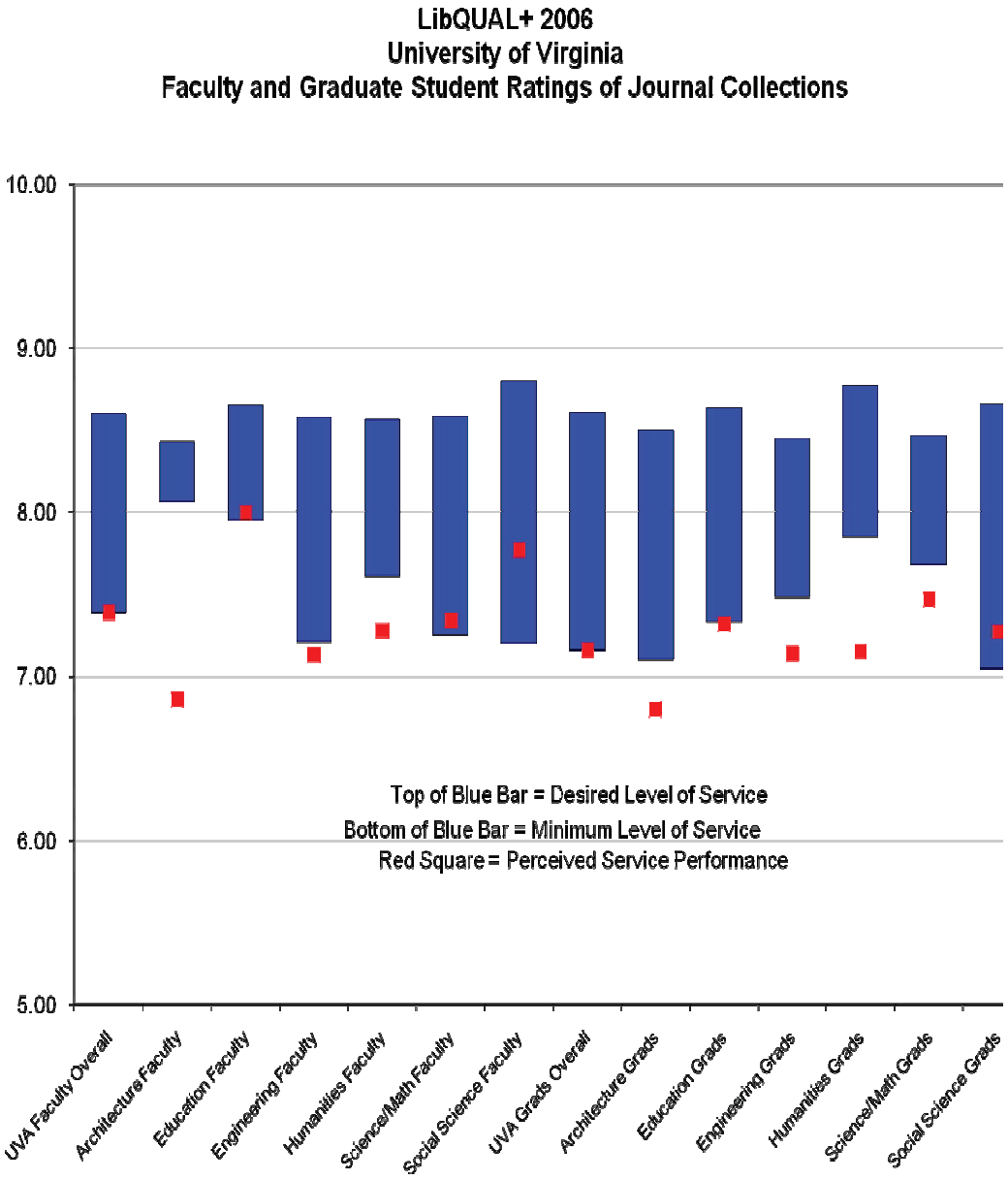



## Inform Collections Decisions

In the fall of 2006, the UVa Library, along with 36 other ARL libraries, administered the LibQUAL+® survey to library staff, university faculty, and students. While the results were largely predicted by prior surveys, one aspect of the LibQUAL+® data stood out as anomalous. Despite the high marks the faculty awarded for overall library satisfaction, they reported that our journal collections—one of their highest stated priorities—were not meeting their minimum level of service. In contrast, the library staff, often its own worst critic, perceived our periodical holdings to rank well above their minimum expectations.




In an effort to determine the sources of this dissatisfaction, the Management Information Services (MIS) staff drilled further into the question's results, identifying the departments with the greatest discrepancy between perceived and desired levels of journal satisfaction. The results are evident in the thermometer graph below.




In addition to examining the LibQUAL+® comments, MIS worked with subject selectors to follow up with approximately a third of the faculty respondents. They interviewed a diverse group but targeted the low-scoring areas of Architecture, Engineering, and Humanities. They kept the interviews brief, asking only four questions.

1. Is the library meaning your minimum level of service regarding journal collections?
   a. If not, what does the library need to do to meet your minimum needs? Be as specific as possible.
2. Is the library meeting your desired level of journal collections?
   a. If not, what does the library need to do to meet your desired level? Be as specific as possible.
3. Does it matter to you if journals are print or electronic?
   a. If yes, what is your preference?
4. Do you have any comments about the library? Any message to take to the library?

The results from these sessions were illuminating, but did not point to a single factor—no 'smoking gun' which led to the perceived dissatisfaction. Most participants felt that the library was meeting their minimum, but not their desired, level of service. Common shortcomings cited were:

- Locating journals is difficult (in several instances, we already subscribed to the faculty member's most important 'missing' titles);
- There is a lack of foreign titles;
- More backfiles are needed; and
- Remote access can be improved.

These findings have already had noticeable impact on subsequent collections decisions at the UVa Library. To address access, we invested in Serials Solutions 360°, an electronic resource management system, which has improved vendor tracking, link resolution, and bibliographic records in our online catalog, which provide direct links to journal titles. We also prioritized the purchase of science backfiles (e.g., Wiley, Elsevier) and new publisher packages (e.g., Sage). In the arts, we focused on fulfilling faculty requests for high-quality images by putting significant resources into the purchase or local digitization of art and architecture media.

## Support Budget Requests

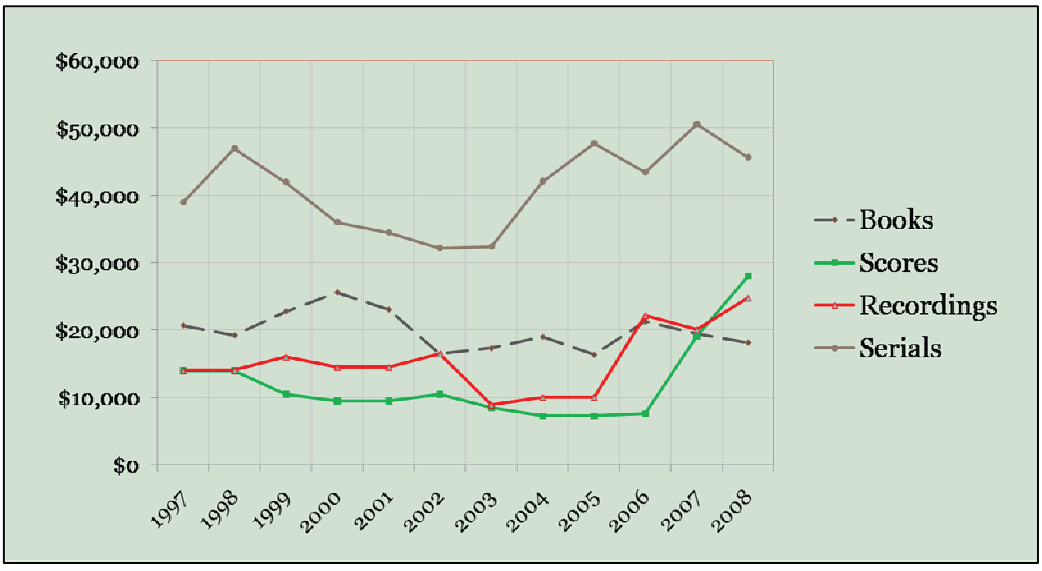
Several of UVa Library's departmental managers have had success translating assessment findings directly into dollars—either to augment their collections budgets or to increase employee compensation. Following a decrease in the Music Library's budget due to a round of state funding cuts, the acquisition of sound recordings slowed then stagnated for several years. Using a combination of circulation statistics, fiscal data, and faculty survey results, however, our music librarian was successfully able to advocate for her own collection and users.

On this occasion, all of the data—regardless of its source—clearly indicated that music faculty valued sound recordings above all else, and that the library was not addressing this need. For example, in 2005, recordings accounted for 68% of all Music Library circulation transactions, but only made up 17% of its collections budget. Additionally, in our 2004 survey, nearly 90% of Music faculty listed recordings as their highest spending priority, and yet they consistently ranked the quality of the audio collection quite low relative to other library attributes. The qualitative results told a similar story:

- "Recorded music has many gaps, filled normally only by special requests—wish there were more resources to build collection."
- "Raise money for collection development."

Working with our MIS team, the music librarian synthesized this data into a one-page proposal which illuminated the disparity between user needs and resource allocation. With that, she was able to convince Library administration to increase her annual collections budget, allowing her not only to fill in gaps but also to anticipate the requirements of a growing Music department.

Music Library Budget, 1997-2008



## Influence Staff Satisfaction

When we speak about library assessment, two issues immediately come to mind for most librarians. First, they may think about internal procedures and statistics, such as circulation counts, shelving accuracy and turnaround times, or server uptime. Secondly, they may think about assessing customers by listening to their comments and opinions about library services, as well as assessing their needs. We have already touched on UVa's use of these two common facets of library assessment with our Purchase Express system and the LibQUAL+® survey. However, there is another set of stakeholders who should not be neglected when assessing library performance. Library staff, as the people putting new programs, policies, or procedures into place, will have a large impact on the success or failure of the institution. Any new initiative, or even existing services, will be undercut by a demoralized or unsatisfied staff.

At the UVa Library, the primary tool for system-wide staff assessment is the Worklife Survey, conducted in even-numbered years by our MIS department. Based on surveys used at the University of Tennessee and Indiana University, the Worklife Survey consists of 69 questions graded on a 1 to 5 scale. The survey was made available online for several weeks, with several e-mails sent out to staff encouraging their participation. In 2004, we had a 60% response rate, which dropped to 52.2% in 2006. The Associate University Librarian for Organizational Development compiled a list of major problem areas identified by the 2004 survey.

Having identified apparent problems, many institutions could have stopped and called the assessment successful. However, realizing the limitations of a survey, we sought to take our assessment to a deeper level by following up the survey with a series of focus groups and one-on-one interviews. While a survey can identify that a problem exists, it cannot explain why the problem exists, why it is problematic, or what should be done to resolve it. The personal follow-up allowed us to more effectively address the problems identified by the survey. Furthermore, the personal interviews, coupled with the implementation of solutions arising from these interviews, allowed the staff to feel more involved in institutional assessment. That is, assessment is no longer the sole province of MIS or the AULs, but is something that involves each staff member and has a direct impact on everyday life in the library.

The issues uncovered by the 2004 survey largely fell into one of two categories: communications and resources. Armed with the survey results, and the results of the personal and group interviews, the Library set in motion several programs and initiatives tailored to these problems. However, even these actions were not enough to proclaim our assessment a success. The true measure of successful assessment would be the results of the 2006 survey, and whether our changes resulted in any appreciable impact on staff satisfaction.

## Communication

The 2004 Worklife Survey revealed that organizational communication was the largest obstacle to staff satisfaction, and the lowest scoring of any of the survey's categories. This lack of communication was particularly strong with regards to communications between library administration and library staff. Only 36.6% of the respondents thought that the library administration did a good job of communicating important information to their staff. Furthermore, only 37.3% of staff felt that the administration was willing to listen to their concerns, while 30.1% felt the concerns they were able to bring to the administration's attention had any impact on the decisions and policies of the library. Although a vertical lack of communication might have been expected as commonplace in any institution, the survey also found a horizontal breakdown in communication. Only 17.3% of respondents thought that other library staff understood what they did, and only 35.5% were aware of changes occurring in other departments, even when those changes would have an effect on their own jobs.

Interestingly, although staff were not always aware of what was going on in other areas of the library, they were willing to collaborate and work with other departments. 75.8% said that collaboration was actively encouraged and supported, while 74% agreed that outside staff were cooperative when they worked together.

Having identified the problems through the survey, and having interviewed staff to identify their sources and possible solutions, the library embarked on a campaign to improve all aspects of its internal communications. Given that this problem existed both vertically and horizontally, the remedy would be truly collaborative, with changes coming from both above and below. On the administrative end, the library took a page from its academic peers and began holding what are

essentially office hours. This Open Door policy allows any staff member to meet with the University Librarian or any of the AULs to discuss any topic of interest. Additionally, the administration will occasionally hold brown-bag lunches, where staff are invited to eat lunch and discuss a selected topic of concern to the library system. On the staff side, many departments have begun offering open houses, inviting staff from across the system to see new locations, preview new services, or even see existing services and programs for the first time. Additionally, a library-wide e-mail called "Did You Know?" was started to announce staff accomplishments, new library services, and departmental news.

What were the results of these efforts? Since we are discussing assessment for impact, it is important to revaluate our programs to ensure that we're not just enacting changes, but that our changes are actually having an effect. The 2006 survey showed a mixed bag as to the effectiveness of communications changes. Unfortunately, the percentage of respondents who thought that the administration effectively communicated with staff remained low (36.9% vs. 36.6%). However, the perception of the willingness of the administration to listen to suggestions and information coming up from the staff jumped 15% to 52.3%. On the horizontal axis, results were also mixed. 28.3% of staff felt that other departments were familiar with their own department and their own jobs, up from 17.3%. However, the willingness of staff to collaborate with one another dropped slightly, but still remained high at 71.2%. Since the 2006 survey, many of the programs implemented between 2004 and 2006 have been expanded, and we will continue to assess their effectiveness with the 2008 survey.

| Problems Identified | Solutions Implemented |
|---|---|
| • Staff don't know about other departments | • Open Houses for departments |
| • Staff don't know what's going on system-wide | • "Did You Know?", Job/Position Announcements |
| • Administration not available to hear concerns | • Brown Bag Lunches, Open Door Policies |

| Impacts Seen | 2006 | 2004 | Change |
|---|---|---|---|
| • Library staff in other departments are familiar with what I do. | 28.3% | 17.3% | 11.0% |
| • The Library administration is willing and available to listen to my concerns, comments, and recommendations. | 52.3% | 37.3% | 15.0% |
| • The Library administration effectively communicates to staff. | 36.9% | 36.6% | 0.3% |
| • Collaboration is encouraged and supported in my job. | 69.0% | 75.8% | -6.8% |
| • I get cooperation from other departments when we work together. | 71.2% | 74.0% | -2.8% |

## Resource Availability

The second area of concern arising from the 2004 survey was that of resource allocation. The shortcomings in resource allocation had secondary effects among the staff, as few felt that the library was helping them advance or achieve their career goals. In 2004, only 49.2% of staff felt that they had the resources to complete their assignments. The follow-up conversations revealed that this lack of resources encompassed manpower, monetary, technological, and facilities shortages. This shortfall was most acute, as one may imagine, in the area of compensation, where only 21.5% of staff thought they received adequate compensation for their work, and only 30.9% thought their salary was equitable with other similar positions within the system. The focus groups also revealed that staff felt overworked, with too few staff for the tasks assigned, and that their workplaces were not conducive to efficiency, as only 44.6% of staff had a physically comfortable work environment.

Unlike the difficulties in organizational communication, the problems stemming from a lack of resources could only be fixed from the top-down, as the top is responsible for resource allocation. Furthermore, the two apparent solutions of adding more staff and increasing existing salaries are at odds with one another in terms of the library's budget. However, using the results of the survey and focus groups, the UVa Library was able to get an increase in allocated funding, both for existing staff and for the creation of new positions. Between 2004 and 2006, 24 new positions were created, including new staff in both Facilities and Human Resources, two departments who could have a direct impact on the identified problems. Additionally, the library received $260,000 for salary adjustments for existing staff. In addition to a new staff member, facilities improvements were also addressed by the Balanced Scorecard Committee, which created a new metric for facilities improvements. Target 1 of this metric specifies a minimum investment of $100,000/year to renovate at least one public and one staff area. Finally, technology resource allocation was improved by adding the head of LITS (Library IT Systems) to the Library Allocation Committee, which is responsible for the allocation of all library funds.

Whereas the results of the communications improvements were mixed, the resource allocation improvements saw a nearly complete improvement in staff satisfaction. Staff satisfaction with regards to their salary more than doubled, from 21.5% to 43.9%. Similarly, perception of one's salary with regards to one's peers increased to 49%. The facilities improvements resulted in a double-digit improvement, with 56.4% of staff feeling physically comfortable in the workplace. Allocation of other resources also improved by 10.3%, with 59.5% of staff feeling they had the necessary resources to do their jobs. The improvements in resource allocation in the library also improved the career outlook for many of the library staff. Library staff felt that there were more opportunities to advance their careers (36.8% vs. 28.1%) and felt that the library provided adequate professional development (64.2% vs. 57.3%).

| Problems Identified | Solutions Implemented |
|---|---|
| • Need more staff and better distribution of work | • 24 new positions created |
| • Inadequate facilities, technology and support resources | • Library IT involved with allocations<br>• Facilities staff increased<br>• Balanced scorecard metric for facilities improvement |

| Impacts Seen | 2006 | 2004 | Change |
|---|---|---|---|
| • I have adequate resources and materials to complete assignments. | 59.5% | 49.2% | 10.3% |
| • I feel safe in my work environment. | 87.9% | 81.5% | 6.4% |
| • The Library is concerned about and addresses my ergonomic needs | 67.0% | 76.3% | -9.3% |
| • I am physically comfortable in my work environment (temperature, light, noise). | 56.4% | 44.6% | 11.8% |

| Problems Identified | Solutions Implemented |
|---|---|
| • Like Administration, HR not always available | • New HR staff hired<br>• HR moves from Admin area into library |
| • Salaries are inadequate | • Extra allocations towards salary adjustments |
| • No opportunity for growth | • Better advertising of existing policies<br>• Mentoring program |

| Impacts Seen | 2006 | 2004 | Change |
|---|---|---|---|
| • My salary and benefits are reasonable for the work I do. | 43.9% | 21.5% | 22.4% |
| • The salary I receive is equitable when compared to co-workers in similar grade levels or ranks. | 49.0% | 30.9% | 18.1% |
| • My work at the Library helps me achieve my career goals. | 55.4% | 35.9% | 19.5% |
| • There are opportunities for me to advance at the Library. | 36.8% | 28.1% | 8.7% |
| • There are adequate staff development opportunities provided by the Library. | 64.2% | 57.3% | 6.9% |

From the available data, it would appear that the UVa Library has been very successful in using a hybrid assessment of surveys and focus groups to improve staff satisfaction. Communication between different departments and different levels of the organizational hierarchy has been improved, and staff now have the physical, technological, and monetary resources they need to effectively do their jobs. Furthermore, the steps taken to realize these improvements were not always large and drastic. The simple effort of the administration to have open door policies and improve staff access reaped huge benefits at almost no cost. However, it is true that while increasing staff salaries and adding positions helped at the UVa Library, many institutions are under tremendous budgetary pressure, and may not be able to implement similar changes. The effectiveness of assessment to improve staff satisfaction at UVa can best be seen in the following questions from the 2006 Worklife Survey: My work at the Library helps me achieve my career goals (55.4% up from 35.9%); I am satisfied with my job (63.2% up from 58.5%); Overall Job Satisfaction Category from the 2006 Worklife Survey (65.5% up from 58%).

## Other Uses of Balanced Scorecard

Balanced Scorecard is acknowledged to be a useful tool for assessment and the results are given serious consideration by the administration. Department managers aware of the influence of BSC understand they can use BSC to justify the allocations of resources to their areas. Library departments at UVa such as Acquisitions and Interlibrary Services have pointed to BSC metrics measuring turn-around times for delivery of materials, and the processing of routine acquisitions and loan requests, in order to justify increased staffing and budget allocations. Also, meeting or exceeding target goals have occasioned bonuses for individuals within the framework of the local 'rewards and recognitions' program. Finally, managers have incorporated the supervision of operations measured by BSC into employee job descriptions and professional goals, thereby allowing for the possibility of a rating of high performance in the annual evaluation and/or justifying promotions in rank. These examples do not demonstrate 'turning data into tangible results' so much as illustrate how assessment can be introduced into the organizational culture. Staff members not directly involved in collecting or analyzing assessment data are still brought into the process by understanding how it can directly affect their work life in a positive way.

## Challenges Ahead

The University of Virginia Library has had good success in establishing and maintaining a culture of assessment. In order to continue to build on this success we need to maintain an ongoing effort to raise awareness of assessment as a fundamental activity of everyone in the organization. A wealth of data is typically gathered or available to

librarians that are either not recognized as an assessment activity or not fully integrated into organizational decisions. Tracking reference questions, gate counts, circulation data, and ILL statistics need to be better understood as assessment activities and should be better exploited to inform staffing decisions, collections activity, space planning, and patron services. Managers and administrators need to learn how to use all kinds of data to advocate for funding and other resource allocations.

Assessment itself needs to be assessed. Tools such as Balanced Scorecard need to be continually evaluated for effectiveness and relevance. Data that is easy to gather is not necessarily important. It is sometimes easy to collect and manipulate numbers, but they must tell you something in order to be considered informative.

Finally, library staff at all levels should be brought into the assessment process. At UVa a standing committee has been established to oversee the Balanced Scorecard and its associated assessment activities. The committee is co-chaired by a member of the classified staff and a professional librarian. Membership is shared and includes two other classified staff and two professional staff. The co-chairs change every year as committee members gain experience and assume more responsibility. MIS staff and the Deputy University Librarian are *ex officio* members of the committee and bring knowledge and experience to the proceedings, but the management of collecting and summarizing the data is in the charge of the committee members. Each year the co-chairs meet with all the Associate University Librarians to review the results of the Scorecard. The co-chairs also present the results to all staff during a regularly scheduled Town Meeting.

## Conclusion

The goal of the panel members in giving this presentation was to demonstrate how data collected from a variety of assessment tools can be used to generate activities that will have a positive effect on services and staff satisfaction. Assessment should not be an activity of the library in isolation from other functional areas. Turning data into tangible results requires the commitment of administrators, staff members at all levels, and the proper use of the tools available. The UVa Library has made progress in using assessment to effect positive change, as we hope we demonstrated in this presentation.

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# What if We Don't Provide the Computers?: Assessment for Reduction

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## Abstract
Clemons Library opened in 1983 as the University of Virginia's first undergraduate library. In 2008, the Library, which is open 24 hours 5 days a week, remains the primary study space for undergraduates in the College of Arts and Sciences. Currently, about 100 desktop computers are located in the facility, with fifteen additional laptops available for circulation. Both the Library and the IT department at the University, which supplies seventy of the 100 desktops, are interested in promoting more laptop use in libraries. This year, the Library was given funding to create a pilot computing space that would encourage and enhance laptop computing, where students would use their own equipment and institutionally-provided computers would be reduced. A small task force was formed to design and implement this new space within a fiscal year. The task force used student surveys, background research, and focus groups to direct the pilot design process. This paper will describe the assessment activities, share the findings, and discuss how assessment results affected the outcome of the pilot.

## Introduction
Recent surveys from the University of Virginia (U.Va.) Information, Technology, and Communication department (ITC) indicate that almost all first year students bring a laptop with them to college.[1] At the same time, the Library and ITC invest significant resources into banks of computers for students to use in the Libraries. Although internal statistics show that institutionally provided computers are heavily used, and a recent study of undergraduate behavior at the University of Rochester indicated that students prefer not to carry their laptops around with them,[2] both the Library and ITC were interested in exploring ways to encourage and enhance the laptop computing experience for students, and to reduce the number of computers provided by the institutions.

Reasons for this interest were many. First, the cost of leasing and maintaining computers has risen over time, not due to rising equipment costs, but rather to our response to the growing demand for computers in the libraries. Second, the number and size of software applications installed on the computers has risen exponentially: the basic application "build" in the U.Va. libraries contained 105 applications in the spring of 2007. Third, service desks were dealing with everything from waiting lines for the computers, to frustration over the increasingly long start-up time, to upset students who had lost hours of work because they forgot to save to their flash drive or home directory before logging off.

Given these issues, and the obvious success of wi-fi-enabled spaces in restaurants and airports, we felt it was time to put more energy into encouraging students to use their own computing equipment in our spaces. However, given the demand in the existing computer labs, we knew that we had to gain a better understanding of the students' computing and study needs so that the switch from our computers to theirs would be as successful as possible.

## The Process
The goal of the project was to design spaces in Clemons that would encourage and enhance mobile computing. The terms of the project were 1) to complete the refurbishment work within a fiscal year, 2) to significantly reduce the number of institutionally-provided computers, and 3) to stay within a budget of approximately $150,000.

In October 2007, we formed a small task force led by the Head of Clemons Library and comprised of public service librarians throughout the system, the Library IT service coordinator, and staff responsible for the ITC computing lab in Clemons. In order to stay on track to finish within a year, we decided to limit the research and assessment phase of the project to the fall, with the intent of designing

the space and choosing products in the spring, and completing the installation in the summer.

## Research

We began the research phase by analyzing available data about computing use in Clemons. Data from ITC showed that over the 2007 spring semester, the computers in Clemons were in use an average of 35% of the time, rising to 50% during the afternoon hours. These statistics seemed low, even given our 24/5 schedule which included weekends and overnight hours. While the data did not contradict our experiences of 100% usage during the most academically active days of the semester, it was helpful for us to realize that while we perceived the computers to be "constantly in use," this was not, in fact, even close to true.

Data on software usage were also revealing. Statistics on application launches in Clemons during the spring 2007 semester showed that of the 105 applications available on the Library computers, Internet Explorer and Firefox accounted for 68% of all software launches on our computers. Acrobat Reader, Word, and an e-mail application accounted for another 26%, leaving only 6% of computing activity in other applications. Since all of the software getting heavy use was freely available to students, we felt more comfortable with the premise that students could largely accomplish the same computing tasks on their laptops that they were doing on our computers.

Next we reviewed data on the equipment students were bringing with them. According to an annual technology survey at UVa, 97% of first year students arrived with a laptop in fall 2007.[3] As this percentage has been growing steadily since the beginning of the decade, we could reasonably assume that increasing numbers of upper-class and graduate students owned laptops as well. The same survey also provided data on the growing numbers of small mobile devices that students owned, such as PDAs, iPods, and iPhones.

The data were beginning to paint a picture of duplicated resources, but we were still concerned about the impact of reducing the computers. We were unable to find another institution that had recently pulled computers out of a library. In fact, most of our peer institutions provided significant numbers of computers or were hoping to add them.[4]

By this point we were at the end of the fall semester. We still wanted to know more about why students chose our computers over their own laptops, and what would encourage them to bring their laptops in greater numbers. But we were running out of time if we were going to stay on schedule.

## Assessment

### Part 1: Paper Survey

With help from the Library's User Requirements/Usability Committee, we quickly devised a short paper survey asking about computing activities while in the library. We handed the surveys out during finals, and each student who turned one in received a candy bar. In just two days we received 162 responses (Table 1). Respondents were overwhelmingly undergraduates, a fact which accurately reflects the usual population in Clemons Library.

**Table 1. Responses to Clemons Computing Survey**

| Respondent Status | Number |
|---|---|
| Undergrad | 153 |
| Grad | 5 |
| Faculty/Staff | 2 |
| Other | 2 |
| TOTAL | 162 |

As we suspected, most students used basic tools such as word-processing software, the Internet, and e-mail most frequently, regardless of whether they used their own laptops or library computers (Table 2). However, some students also used Library computers to print or access VIRGO, the library catalog.

**Table 2. Top 5 Uses of Laptops and Library Computers**

| **Did you bring your laptop to the library today? If yes, what will it be used for?** | | | | **Will you use a library computer today? If yes, what functions or software will you use?** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Yes** | 82 | **No** | 80 | **Yes** | 96 | **No** | 60 | **Maybe** | 6 |
| Paper | 27 | 21% | | Web | 40 | 27% | | | |
| E-mail | 14 | 11% | | Word | 31 | 21% | | | |
| Study | 13 | 10% | | E-mail | 24 | 16% | | | |
| Notes | 12 | 9% | | Print | 23 | 15% | | | |
| Web | 11 | 8% | | VIRGO | 7 | 5% | | | |

The survey also revealed that many students used their laptops to work and then switched to a Library computer to print. Although printing from personal laptops is possible in the library, the process of setting up a laptop for network printing is confusing and cumbersome, and we knew that Library staff often told students that it was easier just to print from a Library computer.

Students had several suggestions for what would encourage them to use their laptops in the library, but accessible power was the overwhelming need (Table 3). Laptop locks and lockers were mentioned by only two respondents.

**Table 3. Enhancements for Laptop Use**

| **What could the library do to encourage you to use your laptop in the library?** | | |
|---|---|---|
| More outlets | 68 | 47% |
| Power strips | 17 | 12% |
| Printing | 14 | 10% |
| Betterw ireless | 13 | 9% |

### Part 2: Focus Group Brainstorming

The survey provided useful information about student computing behavior and laptop needs, but gave us little feedback about what they would really like to see in a space designed for laptop use. Just as we were struggling with this dilemma, we attended a presentation by Crit Stuart on his work at Georgia Tech. After hearing about the student assessment techniques he used to develop their new library space, we decided to run similar focus groups with our students. Again drawing on the Library User Requirements/ Usability Committee, we spent the winter break preparing for the focus groups. One thing we did before the students left was to put out sign-up sheets asking for volunteers to spend 2 hours helping us to improve the library. We offered a pizza dinner and a $20 copy card to participants, and had 40 students volunteer.

During three rounds of focus groups (twelve-fifteen students each), participants were given yellow Post-it notes and asked to write down things that they would like to see in a Library space that was being designed for mobile computing. The students were asked to think outside the box and come up with any ideas that would make such a space more inviting and productive for using any kind of mobile computing device, especially laptops. Students spent ten-fifteen minutes on this part of the process, writing one idea per Post-it note, and working independently. Once they were finished, they stuck their notes on the wall, grouping items together that seemed related (see Figure 1).

**Figure 1. Focus group note clusters**



Once all the notes were on the wall, the facilitator (a member of the User Requirements/Usability Committee) read all the suggestions out loud so the students would have a good sense of the overall picture. Although the goal of the focus groups was to gain student input on specific needs for mobile computing, the students made many suggestions that focused on improving the general environment and atmosphere of the Library. When asked why they thought these things were important to a space for laptops, they said that Clemons was a place where they came to spend many hours working, and the overall environment was crucial to their ability to stay focused and get their work done.

After the initial read-through, the students were asked to go through the process again, this time with pink Post-it notes, and respond to what was already on the wall (Figure 2). They could add new ideas that a posted idea brought to mind, build on a posted idea, or simply support a posted idea. They could also indicate if they thought a posted idea would actually be a determent to using the space. For example, one student suggested adding beds to the Library, an idea that many other students responded to in the negative (though there was also some support). Comfortable furniture and a calming environment were two ideas that rose to the top, as well as aesthetic elements such as plants, aquariums, natural light, and better food and drink options.

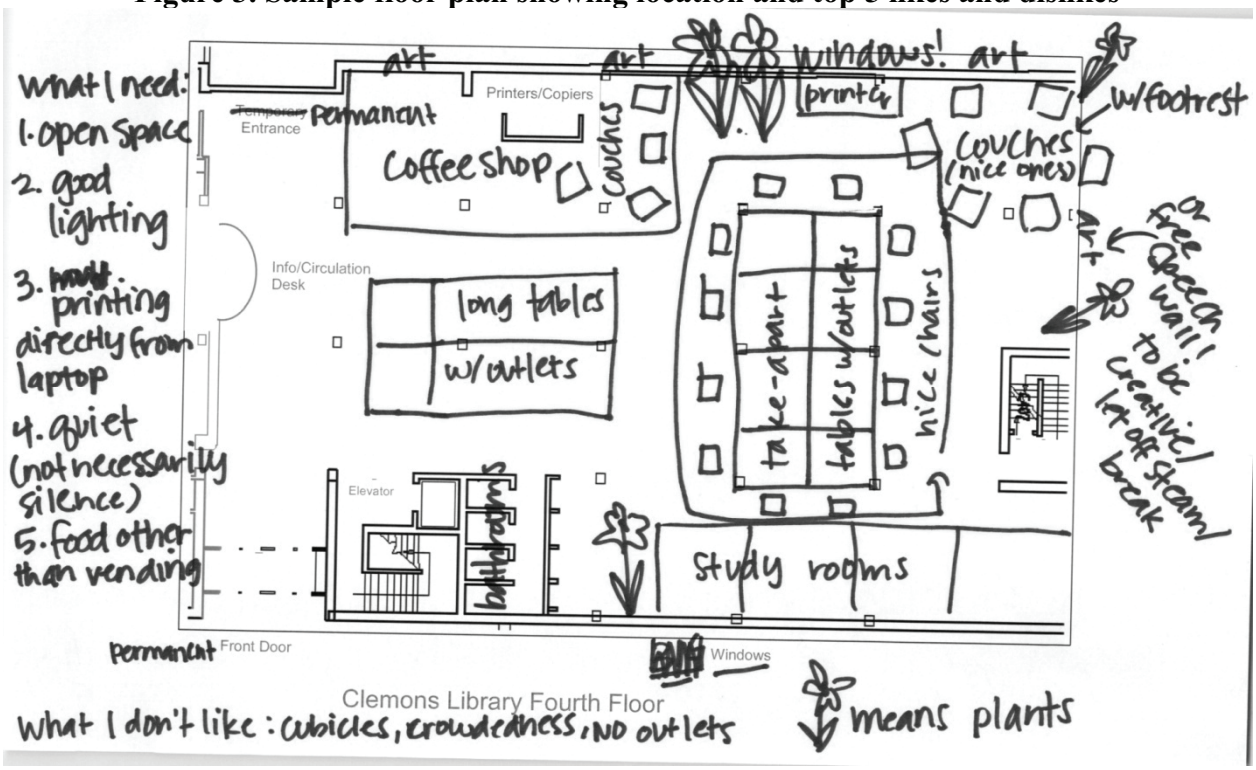
**Figure 2. Focus group note responses**



### Part 3: Visualization

After completing the brainstorming part of the focus groups, students were given blank floor-plans of the area to be redesigned, and asked to draw the ideas that had surfaced during the earlier exercises. We also asked each student to list the five ideas they would most like to see implemented, and the five ideas that they would least like to see implemented (Figure 3). These floorplans gave us a sense of the activity zones they wanted, as well as a chance to capture and quantify the students' specific likes and dislikes.

**Figure 3. Sample floor plan showing location and top 5 likes and dislikes**




### Interpreting the Results

The User Requirements/Usability Committee analyzed the results of the surveys and focus groups, and distilled the information into several major categories that we could address:

- Furnishings – the students wanted furniture that was contemporary, comfortable, and offered flexibility in arrangement. They wanted enough surface space that would allow them to use their laptops and also spread out their books and papers.
- Power and connectivity – overwhelmingly, the students wanted more and better access to power. Wherever they could sit, they wanted a power outlet nearby.
- Peripherals – students asked for peripherals to enhance their laptops, such as large monitors and external keyboards. They also indicated their frustration with printing—something that most students did not know could be done from their laptops, and a frequent source of frustration when the computers were all taken.
- Layout – students wanted spaces that were appropriate for group work and spaces that were designed for individual study. They wanted to be able to create some furniture groupings as needed. They liked the sense of openness that already existed in the library, and wanted to continue to be able to spot friends, see what others were doing, and see the windows from as many positions as possible.
- Lighting – Clemons is currently lit only by overhead fluorescent lights, which students do not like. They asked for more natural light, although they conceded that most hours they spend in the library are after dark. Task lighting was also considered desirable.
- Environment – students in each of the three focus groups emphasized the long hours they spent in the 24/5 library, and asked for things

that helped them stay productive through extended study sessions. These included healthier food options, improvements to the overall aesthetic environment, and areas for "taking a break." Although artwork and a fresh coat of paint were mentioned, students also asked for natural features such as plants, water walls, or aquariums. Somewhat to our surprise, they specifically did not want TVs, video displays, or other electronic items in the space where they went to study and work.

## Implementation

By early February, we had completed the research and assessment phases of the project and began working toward implementation.

### Reducing Computers and Adding Peripherals

After consultation with ITC and Library administration, and based on the data collected on computer usage, the decision was made to reduce the number of desktops in Clemons from 100 to thirty-eight. Some argued for a "cold turkey" approach of removing all institutionally-provided computers, but the majority of the task force felt that the transition would be more successful if the changes occurred more gradually. Although statistics showed that the majority of students used our computers only for internet access and word processing, over 100 other applications were used at least occasionally, and many of them were licensed only for university-owned equipment. Until virtual software downloads to student laptops become a reality for more specialized applications, removing all desktops would remove access to MatLab, SPSS, and other applications used by undergraduates. This seemed like an unwise choice for the only 24-hour library in the system.

We decided to leave thirty computers in the "computer lab" area of the floor. Four guest computers open to non-U.Va. patrons would be installed near the library information desk where staff could keep an eye on users and assist them quickly. To respond to the students' need for quick access to check an e-mail or print a paper, we wanted to experiment with "express" computers: workstations with minimal application builds and 10-minute session limits. We decided to install four of these to increase access to printing and keep users circulating.

In response to the students' requests for peripherals, we distributed large LCD monitors around the new work areas. We also began circulating peripherals such as keyboards, mice, laptop locks, lapdesks, etc. While we expect most students to use laptops, we are beginning to see smaller mobile computing devices such as PDAs and smart phones, and we wanted to experiment with providing the tools to bring computing back up to the human scale. We considered purchasing chargers, but because U.Va. does not mandate the purchase of particular platforms, the variety of device-specific chargers that could be needed made this service untenable. Additionally, there was some concern about potential liability issues if the Library checked out the wrong charger to a user who then experienced damage to her laptop.

### Refurbishment

Once the computer distribution was determined, we could turn to redesigning the floor. For the next two months, we held meetings with facilities contractors and interior designers, working toward the right combination of changes to infrastructure and new furnishings that would stay within budget. Because a clear priority was to greatly expand the number of power outlets located conveniently for laptop use, we began by approaching the University's facility department to get estimates. However, the electrical contractors required design layouts to generate cost estimates, so developing the design along with the improvements to infrastructure became essential. By late April, we had settled on a design that created three new zones for mobile computing and offered several infrastructure improvements to the floor.

**Figure 4. Computer lab area**

Before



After



The picture on the left of Figure 4 shows the computer lab before refurbishment. The public main floor of Clemons Library is a large rectangle measuring approximately 80- by 120-feet. The space is punctuated by large square structural columns every 20-feet. The lab extended from the back corner of the room to the front, and unsightly power poles had been dropped to provide enough power to run the 100 computers on the floor. After the refurbishment, only the back corner of the room contains workstations. Individual mobile tables were placed in the front half of the old computer lab area, offering the opportunity for individual study space or an impromptu group area. The power poles were removed, and outlets were added to bands on every column—the easiest way to distribute outlets in our open floor plan. In total, almost 200 power outlets were added to those on the walls.

**Figure 5. Group study areas**

Before



After



Before the refurbishment, group areas were created by several students sitting at a large wooden table (Figure 5). The new group areas provide privacy but don't block the view of patrons passing through the space. Marker-board panels and large LCD monitors offer some collaborative tools, and power outlets are either embedded into the tables, or located on a panel nearby. The interior spaces hold four-six comfortably, and larger tables at the end of the group spaces hold groups up to nine.

**Figure 6. Window area**





The only part of the original space which received high marks for laptop use was a bank of booths by the windows (Figure 6). They offer attractive places to sit near natural light, and power was added when the booths were installed a few years ago. We left these in place, and added a mobile computing area close to the booths that can be used either by individuals or by small groups. Low panels offer a sense of privacy without creating a visual barrier—the window view is visible from these seats. The "robot arms" attached to the wall are designed to hold LCD monitors that students can plug their laptops into, an added-value concept designed to bring mobile computing up to a larger scale. Each area has power outlets and Ethernet ports.

### Environment

Although the majority of the funding and effort was aimed at improving the electrical and network infrastructure, new furnishings, and adjusting computing equipment, feedback gained during the focus groups made it clear that students noticed and cared about the overall environment. We painted the entire floor, choosing restful colors. We investigated new lighting, but the cost to change the overhead fluorescent lighting would have consumed most of the budget. We negotiated with campus vending services to install a machine with healthier items such as yogurt and fruit. After some debate, we elected to put in two large aquariums in the middle of the floor, each containing about a dozen tropical fish.

### Services

The final stage of implementation involved adjustments to our services. We targeted two areas: printing from laptops, and increased technical support for laptop computing within the library.

Printing equipment throughout the campus is managed by UVa Printing and Copying Services, a cost-recovery service. While institutional computers are set up to print to the nearest printer, printing from personal computing devices is a complex process involving the installation of printer drivers for every printer a user may want to use. In order to encourage and enhance laptop use in the library, we worked with Printing and Copying Services and ITC to streamline direct printing from laptops. They eventually developed a server-based solution that allows students to go to a web page and click on a printer icon, which automatically installs the correct printer driver on the user's laptop. The service is imperfect—it only works for PC operating systems, and depends on the server to be up in order to print—but it was a step in the right direction.

We also adjusted technical support. For the past two years, students consultants trained and employed by ITC had provided computing support at a remote desk in the library for several hours a week. The consultants assisted students in registering for wireless access, downloading digital certificates, and other computer problems. Working with ITC, we moved the student consultants to the main library desk, and expanded their hours to cover evenings and weekends.

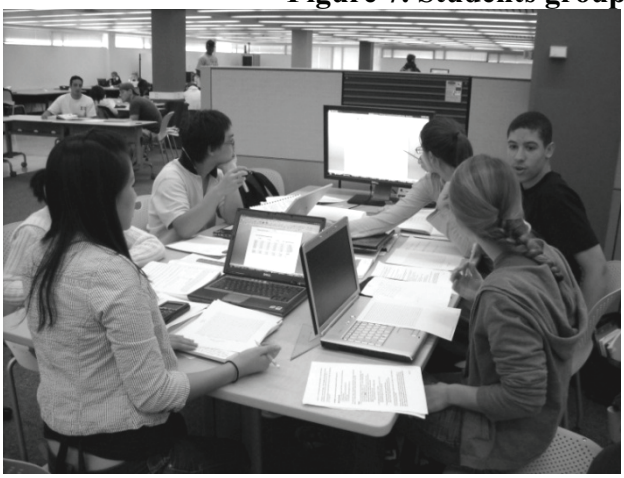
## Results

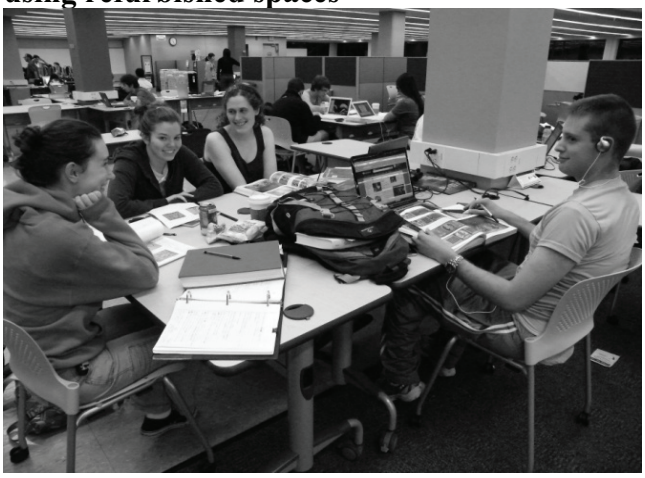
When classes began in late August, the main floor of Clemons Library looked like a different place. First year students seemed to respond positively to the space. Returning students noticed the changes immediately, and reactions ranged from very positive to negative. The fish were a particular focus point, appearing on the front page of the paper within the first week of school, and drawing in several students to see what else had changed. One editorial in the school paper, written by a

fourth-year student who questioned why so many computers had been removed, conceded that the Library had made the changes based on input from students.

Once the novelty of the changes wore off, we began to see how students would use the space. With few exceptions, the spaces are functioning successfully, and are very popular with students. The furnishings and layout allow groups to form spontaneously, work collaboratively, and to organize the space to suit their needs.

**Figure 7. Students groups using refurbished spaces**

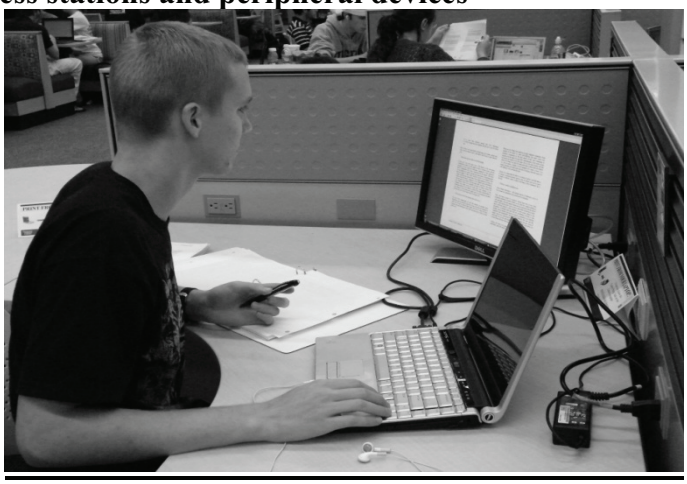




The express stations are used almost constantly, and we have not yet received any complaints about being logged off too quickly. Students frequently come in to the library, check something online or print something from a thumb drive, and leave within 10 minutes. While the keyboards and mice have been largely ignored, students really like the additional monitors. Whether to display information to a group, or just to provide more screen real estate, they add value to the computing environment at a very modest cost.

**Figure 8. New services: express stations and peripheral devices**





## Conclusion

Student-based assessment was critical in accomplishing our goal of creating a space that would encourage and enhance the use of laptops and other mobile devices. By reviewing existing data on computer usage, we could make appropriate decisions about how much reduction in institutionally-provided equipment could be tolerated, and directly address some of the needs—

like printing—for which students relied on our computers. Through the focus groups, we gained valuable insight into the environmental factors that our students valued most in a computing and study space, and the importance of the aesthetic environment to their interest in using the space. By actively seeking student feedback and acting on their recommendations, we mitigated negative reaction to the reduction in computers and changes to the layout. Most importantly, we learned that even on a tight timeline, assessment can be accomplished without much cost or trouble, and the results are invaluable in making changes that are effective and well-received.




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## Endnotes

1. http://www.itc.virginia.edu/stuserv/ca/cainventory/2007.

2. Nancy Fried Foster and Susan Gibbons, eds., Studying Students: the Undergraduate Research Project at the University of Rochester (Chicago: American Library Association, 2007), http://staging.ala.org/ala/mgrps/divs/acrl/acrlpubs/downloadables/Foster-Gibbons_cmpd.pdf.

3. http://www.itc.virginia.edu/stuserv/ca/cainventory/2007.

4. Michael Cook and Mark Shelton, Managing Public Computing, SPEC Kit 302 (Washington, DC: Association of Research Libraries, 2007).

# Turning Results into Action: Using Assessment Information to Improve Library Performance

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## Abstract
The growth in the use of assessment methods within academic research libraries and in assessment-related contributions at conferences and in publications reflects the increasing use and importance of assessment data for improving customer services. This paper will examine how assessment information has been used to make changes in North American academic research libraries, using information from two recent Association of Research Libraries (ARL)related services: Making Library Assessment Work/Effective Sustainable and Practical Assessment (MLAW/ESP) and the SPEC Kit on Library Assessment.

## Introduction
The past ten years have seen substantial growth in the use of assessment methods within academic research libraries. Encouraged by the highly successful implementation of LibQUAL+®, many libraries have expanded beyond the traditional user survey to incorporate a diverse toolkit of assessment methods. The growth in assessment-related contributions at conferences and in publications reflects the increasing use and importance of assessment data for improving customer services. However, many of these contributions have focused on a specific library or methodology and relatively few studies have looked more broadly at how libraries are using assessment data to improve services. This paper examines how assessment information has been used to make changes in North American academic research libraries using information from two recent Association of Research Libraries (ARL) related services: Making Library Assessment Work/Effective Sustainable and Practical Assessment (MLAW/ESP) and the SPEC Kit on Library Assessment.[1] A total of eighty-three individual libraries are covered by this SPEC Kit and MLAW/ESP.

These efforts have provided a rich mine of information about how individual libraries have used assessment data to make changes in services and programs. The authors review the assessment methods used to acquire data and the changes or improvements that were made by libraries as a result of assessment information. The identification of outcomes from a large number of institutions produces a useful picture of the changes emerging from investment in library assessment and also highlights trends taking place across institutions.

## Project Methodology and Initial Findings
### Making Library Assessment Work/Effective Sustainable and Practical Library Assessment
"Making Library Assessment Work" began in 2005 as a two year ARL program to assist libraries in moving assessment forward. Led by Steve Hiller (University of Washington Libraries) and Jim Self (University of Virginia Library) and under the general aegis of Martha Kyrillidou (ARL), the project goals were to evaluate assessment efforts in individual research libraries, identify assessment barriers and facilitators, and recommend pragmatic approaches to assessment that would work within a specific library's organizational environment, culture and structure. During the first two years, twenty-four libraries participated in the program which involved a 1.5 day site visit to each. In 2007, this program became an ongoing service, available to non-ARL libraries and renamed "Effective, Sustainable and Practical Library Assessment." Six libraries participated in 2007 (one outside of North America) with another eight scheduled for 2008. Reports on the MLAW project were presented at the 6th Northumbria International Conference on Performance Measurement in Libraries,[2] the 2006 Library Assessment Conference in Charlottesville, Virginia[3] and at the 2007 Evidence Based Library and Information Practice Conference in Durham, North Carolina.[4] A list of the libraries visited can be found at http://www.arl.org/stats/initiatives/esp/esp_libraries.shtml.

MLAW and ESP have generated much useful

information that can be drawn upon to review organizational factors and effective assessment. Project information came from a variety of sources, including: a self-evaluation of assessment activities and needs done by each of the participating libraries; extensive discussion with a designated contact at each library; a review of library and institutional sources such as annual reports, strategic plans, accreditation self-studies, ARL and IPEDS statistics; and the observations and discussion that occurred during a 1.5 day site visit. This study reports on the results at thirty North American libraries that participated in MLAW/ESP from 2005 through mid-2008.

Libraries that participated in the project were asked to provide the following information related to assessment in a survey done prior to the visit:

- summary of recent assessment activity;
- inventory of statistics;
- important motivators for assessment;
- organizational structure for assessment;
- what has worked well;
- problems or sticking points;
- specific assessment areas to address; and
- expectations for this effort.

Follow-up discussions with the contact and a review of other sources provided additional context for the survey responses. These often revealed a number of assessment efforts that were not reported by the designated contact. The 1.5 day site visit provided the opportunity to corroborate this information on the "ground" as well as enhance the quality of information through observation and interaction.

### SPEC Kits

The Association of Research Libraries (ARL) publishes a series of publications called SPEC (Systems and Procedures Exchange Center) Kits which cover current topics of high interest to academic research libraries. One of the components of these kits is a survey which is sent to liaisons at each of the ARL institutions. The Library Assessment SPEC Kit (#303) was published in 2007 and includes the results of a survey administered in spring 2007 to ARL libraries about their assessment activities and organization, representative documents related to the topic supplied by responding ARL libraries, and a short list of selected resources. The executive summary and table of contents can be found at http://www.arl.org/bm~doc/spec303web.pdf. A report on major findings was presented at the 7th Northumbria International Conference on Performance Measurement in Libraries.[5]

The SPEC data presented here are from a 24-question online survey that was sent out to the 123 ARL member libraries in May 2007. Questions covered topics such as methods of assessment used, organizational structure for assessment, impetus for assessment and the distribution and use of assessment information. The survey ran for four weeks and seventy-three responses were submitted for a 60% nominal response rate. The respondent population closely reflected the membership of ARL across size, geographic location, and institution type.

## Data Caveats

There are significant differences in how the data was collected for these two projects. The data from the SPEC survey was self-reported through an online survey, whereas the data from MLAW/ESP came through several different sources: response to a survey on assessment activities and needs, follow-up discovery prior to the site visit, and observed and confirmed information that occurred as part of the visit. The SPEC survey included data from a larger number of libraries though twenty-one of those also participated in MLAW/ESP. Survey respondents were limited to identifying a maximum of three outcomes and details on those outcomes is limited to what was provided in the response. SPEC survey data was collected for one month in spring 2007, while MLAW/ESP was collected from February 2005 through May 2008. Keep in mind that all of these libraries elected to participate in these activities and therefore are more likely to have done assessment activities than those who did not elect to participate.

## Assessment Motivators

The primary motivators for engaging in assessment were the external ones of accountability and accreditation, and the internal ones of measuring achievement and improving library resources and services. Assessment has also grown in importance as libraries have become more customer-focused and outcomes oriented. The advent of "new measures" initiatives, especially by the Association of Research Libraries (ARL), helped refocus libraries on customer outcomes and to collect and use data that could assist libraries in improving services and adding value to the work of their communities.

The SPEC survey asked respondents to choose from a list as many activities that served as an impetus for beginning assessment activities.

**Table 1. Impetus for Assessment (SPEC Survey)**

| Impetus | |
|---|---|
| Desire to know more about your customers | 91% |
| Investigation of possible new library services/resources | 71% |
| Desire to know more about your processes | 65% |
| Desire to identify library performance objectives | 62% |
| Need to reallocate library resources | 55% |
| Accountability requirements from parent institution | 37% |
| Institutional or programmatic accreditation process | 29% |

Libraries participating in the MLAW/ESP program were asked to list assessment motivators and needs in the pre-visit survey. Organizational issues were seen as most critical. Problems, issues, and specific areas identified were mainly focused on data, especially quantitative data, organizational responsibility and sustainability of assessment.

**Table 2. Common Assessment Motivators (MLAW/ESP)**

| Motivator | |
|---|---|
| Using data effectively | 100% |
| Organizational culture/culture of assessment | 87% |
| Data analysis | 67% |
| University needs | 60% |
| Data collection | 60% |
| Staff assessment expertise | 53% |
| Accreditation | 50% |
| Performance measures/benchmarking | 50% |
| Planning (library) | 40% |
| Student learning outcomes (instruction) | 30% |

## Assessment Methods Used by Libraries

North American academic research libraries have made great strides recently in acquiring information in three key areas related to assessment motivators: customer satisfaction, measuring use of electronic resources and Web usability. For example, the implementation of LibQUAL+® as a customer satisfaction survey tool has grown from a pilot group of twelve academic research libraries in 2000 to more than one thousand libraries of all types and across the world.[6]

Complementing these customer satisfaction surveys are more sophisticated and accurate ways of counting use of electronic resources. The development of standardized electronic usage definitions by Project Counter was a substantial step in the providing accurate and comparable use data by publishers and vendors to libraries. Libraries could now either get the data directly from producers or use a third party vendor to aggregate and organize this information. By combining accurate use data with cost information, libraries could now develop powerful cost-per-use data in managing collections and information resources.

Many academic libraries have employed a qualitative method—usability—to improve access to and organization of their virtual space so customers can more easily navigate and find information they need. These methods were borrowed directly from the findings' decade-long research in human-computer interaction and were instrumental in furthering user-centered design.

Despite the differences in methodology, there was reasonable agreement in the methods most commonly used between MLAW/ESP and SPEC: data collections and analysis, Web usability testing, interviews and focus groups, and implementation of the LibQUAL+® survey. All libraries that engaged in assessment activities for both SPEC and

MLAW/ESP indicated the use of data collection and analysis as an assessment method, especially for analyzing collections use. It is likely that the higher rates given for some methods used by the MLAW/ESP libraries were based on differences in methodology.

**Table 3. Commonly used assessment methods**

| Method | SPEC | MLAW/ESP |
|---|---|---|
| Data collection | 100% | 100% |
| Usability testing | 85% | 80% |
| LibQUAL+® survey | 75% | 100% |
| Focus groups/Interviews | 75% | 80% |
| Benchmarking and process improvement | 60% | 50% |
| Observation | 50% | 40% |
| Other locally developed surveys | 50% | 75% |

The most common uses were for collections-related activities, Web site evaluation, student instruction evaluation and facilities use studies.

**Table 4. Common applications of assessment methods**

| | SPEC | MLAW/ESP |
|---|---|---|
| Collections related projects | 85% | 100% |
| Website evaluation | 90% | 70% |
| Student instruction evaluations | 80% | 75% |
| Facilities use studies | 75% | 65% |

## Using Assessment Information for Improvement

While MLAW/ESP and SPEC used different methods, there was general agreement on the areas where assessment information was used for improvement. The limitation of a maximum of three responses to the SPEC survey open-ended question on use of results reduced the number of possible choices. Results show that assessment information has been used most frequently to improve Web-based services, make collections-based decisions, improve facilities, and adjust hours of opening. Approximately half of libraries have also made changes in their access services and information services as a result of assessment data. The fewest changes were made in improvements to library instruction and organizational culture/structure.

**Table 5. Areas where assessment has been used for improvement**

| | SPEC | MLAW/ESP |
|---|---|---|
| Collections decisions (especially journals) | 30% | 100% |
| Web site/services | 49% | 80% |
| Facilities | 49% | 67% |
| Hours of opening | 22% | 53% |
| Access services (circulation, stacks, ILL) | 22% | 47% |
| Information services | 27% | 37% |
| Organizational effectiveness | 16% | 27% |
| Library instruction | 6% | 20% |

While there appears to be lots of data collected, the use has generally been limited to one-time changes or ones that can be made relatively simply using information that is easy to analyze and understand. For example, all of the MLAW/ESP libraries used cost and usage data to make decisions on subscriptions to journals and bibliographic databases. Although there was some

skepticism expressed about the validity of qualitative data, it was used more often in decision making and for improvement. Such qualitative methods as suggestion boxes, survey comments, observations, usability, interviews, and focus groups tended to provide information that was easier to grasp, identified problem areas, and provided the context to understand issues. These led to changes in such areas as facilities improvements, specific services and Web site redesign. Those areas where assessment information was used most frequently for improvement are reviewed below.

### Collections

> "The library periodically does a serial review using a variety of factors including price, inflation rates, local use, availability at other local libraries or electronically through consortia agreements, ISI impact factors and ranking in relevant disciplines. Faculty input is an important facet of this process." (SPEC Survey)

Collection development and management has a long history of data use. In addition to management of serial resources, cost/usage data were also employed in budget allocations for monographs, discard, relocation and storage decisions, and less so for scholarly communication. The growing availability of reliable statistics on electronic use (Project Counter compliant) has facilitated data-based decision-making. The use of third party statistics "packagers" such as Scholarly Stats, have also made it easier to use this information. Process improvement for acquisition functions such as vendor approval plans was also an area that made use of assessment data.

### Web site/services

> "Web site usability studies have resulted in a simplified Web site design to reflect patron usage patterns, improved access to databases and other electronic resources, and the creation of a usability center to coordinate and conduct usability studies for the library and the University." (SPEC Survey)

Usability has become a standard assessment tool at most libraries. The two main areas of activity are Web site design and content (including the catalog), and use with digital initiative efforts. The latter activity has sometimes brought in people with different skill sets than traditionally found in libraries. IMLS funded projects also have an outcomes assessment component. Libraries are also interested in Web usage counts for content areas but find that data more difficult to understand. In addition to usability testing, libraries also received feedback through survey comments, focus groups, and other qualitative methods.

### Facilities

> "Learning Commons Development largely informed by multiple assessment activities. Choices about furniture, technology and hours were all shaped by iterative assessment efforts." (SPEC Survey)

A variety of assessment methods are used for making facilities improvements, especially qualitative methods of interviews, focus groups, observation studies, charets, and usability. These methods were often brought in by outside architects and space planners as part of a user-centered design process. Surveys and survey comments also provided substantial input on facilities-related issues. Common improvements included more diversified user spaces, comfortable and mobile furniture, electrical outlets, additional computers, cafes, better signage, development of learning commons, and more effective environmental controls.

### Hours of opening

> "LibQUAL+® results showed low student satisfaction with library hours. Student comments and a review of our peer institutions informed decision-making on library hours resulting in changes and increases to hours of opening." (MLAW/ESP)

Adjustments to hours of opening were often based on qualitative feedback (focus groups, comments), counts (observation and gates) and survey information. Many of these changes were related to expanded hours for finals and creation of areas within libraries (or the entire library) for 24-hour access. Assessment information was used less often to reduce hours of opening, notably in branch libraries or service units within a main library.

### Access services

> "Process improvement in circulation and shelving based on survey results

changes procedures for checking in materials." (SPEC Survey)

Data was used to identify items for storage or relocation, as part of process improvement efforts for reshelving and stack maintenance, staffing at service points, document delivery, and changes in loan policies.

### Information services

"Analyzed 5 years worth of chat and email reference transactions and made the following changes: Switched contract from one commercial provided to another; chat reference services staffing was adjusted slightly, based on the distribution of subject areas of the questions asked; staffing of online suggestion box was rotated to another division." (SPEC Survey)

The majority of changes dealt with staffing at service points. These included both the hours of staffing as well as the composition of staff providing the service. Service statistics were the method most commonly employed as they provided both the temporal distribution of activity as well as the type of question or transaction. We found little evidence of assessment information used to evaluate and improve the quality of service. There were some attempts to analyze transaction logs for virtual reference and to use those results for evaluating staffing, subject expertise, and service providers (commercial or consortial).

### Organizational change

"Our Organizational Climate survey produced a staff development needs assessment; weekly reports from the library administration published in the staff bulletin; department heads attending a 'Strategies for Change' workshop; and a re-structuring of the student employment budget." (SPEC Survey)

Libraries that had run organizational climate surveys used results to improve communication, develop diversity plans, and implement staff development activities. While developing assessment plans were seen as a need for many libraries, relatively few had done so. Creating a "culture of assessment" was also seen as desirable, however there was little evidence of a sustainable assessment program although a number of libraries had recently established positions and/or committees with responsibility for assessment.

### Library instructional services

"To assess student satisfaction with a library session, several librarians hand out paper surveys or give a URL to an online questionnaire at the end of library instruction sessions. The results may or may not be shared with the librarian's colleagues or supervisors." (MLAW/ESP)

While most libraries do some form of evaluation for individual instruction sessions and some have also participated in standardized surveys such as SAILS, remarkably little has been done to improve instructional services using assessment methods. The most common outcome seems to be some revisions to the content or presentation of instruction sessions but there is a lack of work done to assess learning outcomes.

### Organizational Barriers to Turning Data into Action

A study published in 2004[7] reviewed the use of statistical data in library management. The authors found that few libraries were able to use data effectively and consistently in planning and decision-making. While the availability of library-related data, especially use statistics, had grown substantially with online systems, most libraries were not organized in a manner to facilitate use of data. The organizational cultures were not accepting of data, and library staff did not possess the skills and abilities to utilize different research methodologies, analyze their data and present results in a way they could be used.

While the situation has clearly improved, most of the libraries represented in this study continue to see organizational issues and the limited availability of research savvy staff as important barriers to using assessment information. Most of these libraries are not organized in a manner that could easily identify research topics, prioritize them, develop and apply an appropriate research methodology, analyze and present results, and act upon the results on a *sustainable, ongoing* basis. There is little evidence of a "research culture" or institutional research infrastructure that encouraged and supported data based decision making. One participant in MLAW/ESP succinctly listed the reasons why it was difficult to use assessment data for improvement at his library:

- data is not used (or not taken seriously);
- data is overused (or taken too seriously);
- data is counted inaccurately;

- data is not reported consistently;
- data is not shared across the organization;
- data is not stored centrally;
- managers are untrained to interpret data;
- processes are not documented;
- self reporting is used where automation is possible; and
- paper-based submission are used where electronic filing is possible.

While the lack of staff competencies in research methodology and data analysis contributed to this skeptical outlook, the problem runs deeper. Assessment has led to improvements in libraries but often resulting from projects or one time initiatives. Libraries, in general, have not been able to successfully integrate assessment into strategic planning and ongoing operations. The responses below from participants in MLAW/ESP provide an excellent summary of the difficulties facing libraries.

> "We have not been strategic in identifying priorities for assessment. Our approach has been opportunistic and has depended on the enthusiasm of individuals and units to pursue specific projects. We haven't developed a systematic process for supporting assessment in such areas of technical support (e.g., Web-survey tools), IRB submission practices, and documentation. We also need a better structure for managing our assessment data. Storing and maintaining data is mostly up to the individual, without viable mechanisms for supporting secondary use of the data or for analysis across data sets to support management decisions."

> "Data is being gathered in silos. We haven't had the big picture. We've had no firm strategy, what is the information we need, what to learn, what to do with it?"

> "The lack of a well defined, evidence-based decision making process is the major sticking point. Often our decision making is not well qualified, but rather impressionistic. Presently, we collect lots of data but lack the tools, infrastructure, and in-house statistical and technical expertise to scientifically analyze and use this information. We are also lacking a systematic means of storing organizational data and communicating along broader, multi-directional channels."

> "We want to address defining assessment as a core function and learning to use our data wisely. We need to explore ways to increase our expertise in statistical methodology and evaluate software tools for analysis and reporting. We'd like to ensure that the data we spend time collecting actually have metrics applied and can be tied to measurable outcomes."

Changing the organizational culture to value assessment an integral part of library planning and operations won't be easy as one SPEC Survey respondent noted:

> "One of the primary challenges related to assessment is educating staff about its value and the need for it in the current climate. Many staff view it as an intrusion and a threat. Changing the culture is very challenging."

## Conclusion

Libraries have made some progress incorporating data in decision making and services improvement, but there is much work to be done. Leadership direction and support combined with a customer-centered organizational culture are the foundations for effective assessment and informed decision-making. Practical steps for making better use of assessment to improve libraries include:

- establishing a formal assessment program;
- linking assessment to strategic planning and ongoing operations;
- developing and defining an institutional research agenda;
- providing training in research methodology and assessment techniques;
- recognizing and promoting the value of using data in decision-making;
- partnering with others knowledgeable about the research process;
- achieving a balance between the research process and timeliness of management decisions; and
- presenting and acting upon assessment results.

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# Adding Context to Academic Library Assessment: Using the Integrated Postsecondary Education Data System (IPEDS) for Institutional and Comparative Statistics

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## Abstract

The Integrated Postsecondary Education Data System (IPEDS) is the "core postsecondary education data collection program" for the National Center for Education Statistics (NCES). It contains a wealth of data useful to academic libraries. Unfortunately, this data is underutilized because IPEDS data is hidden from Google and cloaked behind a not-so-user-friendly interface. This paper discusses the data available in IPEDS and illustrates the "tricks" for using the IPEDS database.

As assessment grows in importance to academic libraries, librarians are looking for information that will complement their user surveys and place the library within the larger context of the people and institutions they support. IPEDS not only provides consistent data over time for the college or university that a library directly supports, it also provides consistent data for peer institutions as well. Used in conjunction with Association of Research Library (ARL) statistics and NCES library statistics, the IPEDS data is a powerful resource for analyzing an academic library's position in relation to similar libraries. Some of the IPEDS variables discussed are:

- institution expenditures (used for library/institution expenditure ratios);
- number of faculty (and breakdowns by type of faculty);
- enrollment;
- awards/degrees conferred by program; and
- institution revenues (including breakdowns by type of revenue such as grants).

The history of IPEDS is discussed, including the Higher Education Act of 1992 that mandated the completion of IPEDS surveys by institutions participating in federal student financial aid programs. The heart of the paper concerns using the database and includes sections on selecting institutions for comparison and selecting variables for download. The paper also discusses what statistical software can be used to manipulate the data for use with ARL and NCES statistics. Finally, the paper describes how the data has been used at Dartmouth College Library and explores the possibilities for further research using IPEDS data.

## Introduction

Libraries are an integral part of the institutions they serve. Knowledge about the institution as a whole is critical if librarians are to understand their constituents and improve services. As they look to libraries at other institutions for benchmarking and other purposes, they need to become familiar with those institutions as well. One often overlooked source for institutional data is the Integrated Postsecondary Education Data System (IPEDS) database maintained by the Department of Education's National Center for Education Statistics (NCES).[1]

Last year, an External Review of Dartmouth College Library was orchestrated by Dartmouth's Provost. The Self-Study Committee, formed as part of the Review process, generated a list of questions about the library, the College, and similar academic libraries. Some of these questions could be answered with Association of Research Library (ARL) statistics but others, such as detailed institution finance statistics, student composition at various institutions, and detailed faculty statistics, could not. For answers to these questions, the library turned to IPEDS.

IPEDS developed directly from the Higher Education Amendments of 1992. Among other things, this law stipulated that institutions participating in any federal student financial assistance program authorized by Title IV of the Higher Education Act of 1965 provide assorted data about their institution to the Federal Government.[2] An IPEDS survey is conducted each year and the data from this survey is disseminated through the IPEDS database.

Other sources of institutional data are available.

For example the Common Data Set is a collaboration of higher education institutions and publishers representing the College Board, Peterson's, and *U.S. News and World Report*.[3] However, this data is not readily available outside these publications to the public. Small sets of institutions often belong to groups such as the Consortium on Financing Higher Education (COFHE), to which Dartmouth belongs.[4] Unfortunately, this data is usually only available to a select group of university or college officials. In addition, each institution of higher education generally has an office of institutional research ranging in size from a fully staffed office to one person in the college administration.[5] This office is in charge of providing data to IPEDS and the Common Data Set and often provides some of the institution's data online. This data comes with its own drawbacks, too; using it involves looking at each university's Internet site and the data is not consistently presented from institution to institution.

Thus the importance of using IPEDS for institutional research. It is standardized and checked for accuracy by the National Center for Education Statistics with the assistance of the Census Bureau. It provides time-series data and provides data for most institutions of higher education in a single unified source.

## Using IPEDS

IPEDS data is housed in a database that is hidden from Internet search engine crawlers. A search for data on a specific institution using Google will not retrieve IPEDS data. One has to go to the IPEDS Internet site.

There are five data tools available:

- Executive Peer Tool = Provides simplified access to IPEDS data.
- Peer Analysis System (PAS) = The primary method of disseminating IPEDS data. All IPEDS data are released through the PAS.
- Dataset Cutting Tool = Replaced the feature known as "dump a data set." It allows the data to be "cut" based on user described parameters and then downloaded with the files necessary to read the data in SPSS, SAS, or STATA.
- Data Analysis System = Generates summary tables that provide sums, counts, and percentage estimates for 1 year of IPEDS data.

When first working with IPEDS, I recommend using the Peer Analysis System (PAS). This has a user interface which allows you to select the variables and years of data you would like to see. It also allows you to either view that data on the computer screen or to download the data into comma delimited files for use with Microsoft Excel, SPSS, or other statistical software. Using PAS allows the first-time user to become familiar with the data, how it is presented, and what is available.

Once in PAS, I recommend using the Institution Level which includes access to guest level files plus early release data. As it states, "The early release files are provided for peer analysis only, and should not be used to provide aggregate estimates." Early release files contain the most recent data available. Note that the accuracy checking for them has not been completed. When reporting the data to your audience, you need to make them aware that the early release data may change.

The User ID and password for IPEDS are simply:

- User ID = Your institution's IPEDS number.
- Password = Your institution's IPEDS number.

You can obtain your institution's IPEDS number from your Office of Institutional Research or by searching for it on the Internet.

Use your institution as the "Focus Institution." You will be asked to add the names of the institutions you would like to use as your comparison group. This is not necessary—you can generate reports for your institution alone. However, you can create a comparison group by typing the names of the institutions into the text boxes as indicated. As reports are generated you will begin to see these other institutions' IPEDS numbers. Write these down. The next time you use IPEDS you can simply list the institutions by IPEDS number, separated by commas, in the bottom text box of the "Comparison Group Institution Selection" page.

There is a long list of IPEDS variables available and they fall into the following categories:

- Institutional Characteristics/Admissions/Student Charges;
- Enrollments;
- Completions;
- Graduation Rates;
- Student Financial Aid;
- Finance; and
- Human Resources.

One thing to keep in mind is that there is some subjectivity to the way in which data can be

reported for specific variables. For example, based on the way the surveys are worded, the same institution may report different numbers to the Common Data Set, ARL, and to IPEDS. This is most clearly seen in financial data which can also change over time depending on the way the accounting rules are interpreted or on reporting decisions of departments within institutions.

In general, there is not a large amount of research available discussing the use of IPEDS data. More than likely, this is due to the fact that IPEDS data is most frequently used internally by institutions and not as a research tool for exploring issues in higher education. However, some relevant research by Denise S. Gater and John Lombardi discussing the comparability of IPEDS data is available from the Center for Measuring University Performance.[6] Their articles are a good way to become versed in some of the issues surrounding IPEDS and the way the data is collected.

At Dartmouth, the library works with the Financial Planning and Budget Office and with the Office of Institutional Research for help in interpreting the data. The library also carefully investigates any exceptional variance found in the data from other institutions. There are a few important points to remember here:

1. As one Office of Institutional Research official has said, there is a "kernel of truth" in all IPEDS data. Even when there is an exceptional variance, there is an underlying reason for it. Your job then is to find that reason.
2. It is much easier to use IPEDS to gather the data initially and then investigate the few outliers than it is to try to find the data institution by institution without IPEDS.
3. IPEDS data is passed through a rigorous accuracy checking system. This is why the IPEDS data is used and trusted in the higher education community.
4. When reporting your data, also report the decisions you made along the way. Use the most consistent data available, keep track of the decisions you make along the way, and then clearly articulate those decisions in your final reports.

When one considers the wealth of data available in the finance variables alone, it is easy to understand why it is worth using the data even though some care and attention is required. As an example, here are the financial subcategories available for private not-for-profit institutions (such as Dartmouth) or public institutions using the FASB accounting standard:

- Assets and liabilities;
- Plant, property, and equipment;
- Student grants;
- Revenues and investment return;
- Expenses by functional and natural classification;
- Total expenses and salaries wages expenses by function and total expenses by natural classification; and
- Endowment assets.

## Example—Completions

The Completions variable provides a good example of how to work with IPEDS data. The Self-Study Committee wanted to analyze undergraduates in various ways including how many graduates there were by major. IPEDS provides this statistic. To figure the percentage by major the Common Data Set definition of degrees conferred was used: "Calculate the percentage from your institution's IPEDS Completions by using the sum of 1st and 2nd majors for each CIP code as the numerator and the sum of the Grand Total by 1st Majors and the Grand total by 2nd major as the denominator. If you prefer, you can compute the percentages using the 1st majors only."[7]

Both 1st and 2nd majors were taken into account, so the library used the following formula which is another way of stating the definition above:

(1st CIP = 2nd CIP/ (GT 1st + GT 2nd)

CIP is an acronym for Classification of Instructional Programs. It is the classification system used by IPEDS to assign number codes to majors (for example CIP 54 is the code for the major History).

Using the formula above does double count people. For example, a person with a 1st and 2nd major is counted twice. However, the library wanted an accurate percentage of majors which the formula provides.

When selecting the Completions variable choices have to be made. The library chose the following qualifying variables:

- First or Second Major = First and Second;
- CIP Code = Grand Total and Select All 2 Digits; and
- Award Level Code = Bachelor's Degree.

Note that the blue "(info)" links provide important information about the variables. If you have any questions, click these. I opened a Microsoft Word document and then copied and pasted the variables descriptions so I would have all this information available to me later without re-entering the IPEDS database.
IPEDS' definition for Completions—Grand Total is: "Awards/Degrees conferred between July 1 and June 30 to all recipients, across all race/ethnicities and both genders."

Once you have your variables selected it is time to generate the report. There are two types of reports available:

1. Institutions Data = Creates a report of rile that includes the values of multiple selected variables for the focus institution and each of the comparison group institution. This option is available whether you have selected a comparison group or not.
2. Statistical Summary Report = Creates a report that calculates summary statistics from your comparison group using variables of your choice, and compares these statistics to the variable values of the focus institution. You can select this option only after you have selected a comparison group of at least three institutions.

The Statistical Summary Report requires a comparison group of at least three institutions. Institutions Data does not.

It is a good idea to view the report on the screen before downloading. This is a quick way to insure everything is the way you intend. If not, it is a simple procedure to go back to the reports page and click on the variables link on the left to try again.

As stated before, you can download your data in comma delimited (.cvs) format. Once you are more familiar with the database you can select the Dateset Cutting Tool up front which allows the data to be downloaded with the files necessary to read the data in SPSS, SAS, or STATA.

Below is an example of the spreadsheet we were able to create for the Self-Study committee using the IPEDS data. School X is entirely fictional but gives you an idea of how this data can be used for comparison. School X has a large number of undergraduate engineering students—Dartmouth does not. One lesson learned is that the CIP 2 digit codes include only one for the Social Sciences but several for each of the humanities majors (English, Philosophy, etc.) While this data was still useful for Dartmouth as the two largest majors dominate the Social Sciences (Economics and Government), in future we will choose the Social Sciences subcategories to better represent all the majors in the Social Sciences.

| % Bachelor's Degrees Conferred by Major FY 2005 | | |
|---|---|---|
| | Dartmouth % | School X % |
| Social sciences | **29.27** | **26.04** |
| History | 9.83 | 6.29 |
| Psychology | 8.00 | 6.49 |
| English language and literature/letters | 7.16 | 5.92 |
| Visual and performing arts | 6.86 | 5.20 |
| Biological and biomedical sciences | 6.33 | 8.49 |
| Foreign languages, literatures, and linguistics | 5.11 | 4.64 |
| Engineering | 4.57 | **13.58** |
| Physical sciences | 4.57 | 3.59 |
| Area, ethnic, cultural, and gender studies | 4.04 | 3.72 |
| Philosophy and religious studies | 4.04 | 2.95 |
| Computer and information sciences and support services | 2.90 | 3.30 |
| Natural resources and conservation | 2.74 | 0.96 |
| Multi/interdisciplinary studies | 2.36 | 3.15 |
| Mathematics and statistics | 2.06 | 2.84 |
| Liberal arts and sciences, general studies and humanities | 0.15 | 0.36 |
| Architecture and related services | 0.00 | 0.44 |
| Business, management, marketing, and related support services. | 0.00 | 1.79 |
| Education | 0.00 | 0.26 |
| NOTE: Numbers in **bold** > 10%. | | |

## Conclusion

There is a learning curve to using IPEDS data but Dartmouth College Library found it well worth the time investment. In practical terms, it takes much less time to learn the IPEDS database than it does to recreate the data from individual sources. In theoretical terms, IPEDS is one tool with which all academic libraries should have some familiarity. Not only is it important in regard to consistent data reporting across the institution (Is the library reporting data to ARL in the same way the Office of Institutional Research is reporting to IPEDS? If not, why not?), but it also can provide the necessary context for other library assessment activities which sometimes view library activities isolated from the work of the rest of the college or university.

Further research should be done in the ways IPEDS data can be used to indicate the impact libraries have on the educational outcomes of the institution. While IPEDS data are not in and of themselves outcomes data, they can be used to provide an indication of or as proxy variables for outcomes. Two recent articles illustrate the possibilities. While she did not use IPEDS institutional data described here, Yvone Jones did use national library statistics from NCES and national college rankings in her article "How Much Do the 'Best' Colleges Spend on Libraries? Using College Rankings to Provide Library Financial Benchmarks."[8] As to outcomes, Elizabeth Mezick, an accountant and librarian, used IPEDS data in her article "Return on Investment: Libraries and Student Retention."[9] While her correlations need further investigation in my view, her concepts and methodology should be applauded and illustrate the sophisticated way in which IPEDS data can provide context to academic library assessment.

—Copyright 2008 John Cocklin

## Endnotes

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# Online Statistics for Asian Academic Libraries: a Pilot Project

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## Abstract

This paper describes a pilot project for the benchmarking of library statistics for Asian Academic libraries. This is being facilitated through the development, setup, and management of an online statistics service for a range of major key Asian academic libraries. CAVAL, an Australian library consortium, is managing the project with sponsorship being provided by the iGroup, Asia. CAVAL has managed the collection of the Australian Academic and Research Library Statistics for CAUL (Council of Australian Academic Libraries) statistics since 1992, and in 2004 developed an online statistics website for the CAUL Statistics.

Phase 1 of the pilot, during which 2 years worth of data is being collected, loaded, and made available for benchmarking from the online website, is almost complete. There are twenty-two libraries participating from four countries in the region—Malaysia, Singapore, Thailand, and Hong Kong. Phase 2 will allow for the collection of an additional years data from the libraries participating in the pilot project. The online Web site and the service will then be evaluated by the participating libraries, the iGroup and CAVAL. The objectives of the Asian Statistics pilot project are to provide the same functionality as provided to CAUL to Asian libraries, to improve the collection processes for the individual libraries and to develop a sustainable service for statistical benchmarking. The design and implementation of the pilot project is described and some of the challenges are outlined.

## Introduction

Modern libraries need reliable and accessible data in order to be able to measure and assess the quality of their services and the satisfaction of their users. Efficient and effective tools are essential in order to make better business and service decisions, and to make the library more visible. These tools may include applications such as decision support systems, online analytical processing and statistical analysis, forecasting, and data mining. An important component is the gathering, storing, analysis and the provision of access to data about aspects of the library such as library users, operations, personnel, services and collections. CAVAL has developed an online statistical benchmarking service which provides for the collection and storage of library statistical data, and the capability for individuals to manipulate data in a sophisticated fashion with results being displayed in real-time on the desktop.

CAVAL is a public not-for-profit company owned by twelve universities across the Australian states of Victoria, New South Wales, and Tasmania. Established in 1978 as a cooperative venture by the Victorian academic libraries, CAVAL provides a variety of services to libraries on a collaborative and commercial basis including shared catalogue systems and services, consultancy services, training and staff development, interlibrary loan and document delivery services and systems, and storage for library materials. These services include the collection and publication of library statistics for several library sectors which is enhanced through the provision of consultancy services and professional development and training in Statistics and Library Assessment.

The Australian and New Zealand Academic and Research Library Statistics have been managed by CAVAL for CAUL (Council of Australian University Librarians) since 1992. More recently CAVAL has been working with a number of Asian Academic libraries on a pilot project for the benchmarking of library statistics in the Asian region with sponsorship being provided by the iGroup, Asia.

## CAUL Statistics

Statistics have been collected annually for the Australian University Library community since 1953. New Zealand University library data has been included with the CAUL Statistics since 1974, this is coordinated through CONZUL (Council of New Zealand University Librarians). The development of the CAUL online statistics Web site followed a pilot facilitated through CAVAL's partnership with

the ARL (Association of Research Libraries) and modelled on the well-known ARL online statistics site, managed and hosted by the University of Virginia. CAUL engaged CAVAL to develop and implement the site as an ongoing service and the site, at http://statistics.caul.edu.au, went live in early 2005. Data back to 1995 has since been loaded into the online database. The online statistics site includes a data entry module which has been used for collection of the data since 2004. The Web site was further developed and a number of enhancements incorporated into the site in 2006 and 2007.

CAVAL works closely with the CAUL Statistics Focus Group, a sub-committee of CAUL charged with monitoring the statistics. This includes the determination of variables for which data is to be collected and the development and maintenance of definitions and instructions.

## Asia Academic Libraries Online Statistics: Pilot Project

In 2006 several libraries in the Asian region expressed interest in the development of a benchmarking tool for library statistical data, along the lines of the ARL and CAUL Statistics online sites. The iGroup (Asia) agreed to provide sponsorship for CAVAL to develop and provide the means for libraries to benchmark regionally across Asia, and eventually internationally. This is being facilitated through the development and implementation of an interactive statistical website for the collection and presentation of statistics for a pilot group of twenty-two Asian academic libraries.

The participating libraries are:

- Hong Kong - Chinese University of Hong Kong, City University of Hong Kong, Hong Kong Baptist University, Hong Kong Institution of Education, Hong Kong Polytechnic University, Hong Kong University of Science and Technology, Lingnan University, The University of Hong Kong;
- Malaysia - International Islamic University Malaysia, Universiti Kebangsaan Malaysia, University of Malaya, Universiti Teknologi Malaysia;
- Singapore - Nanyang Technological University, National University of Singapore; and
- Thailand - Chiangmai University, Khon Kaen University, MAEJO University, Mahasarakham University, Silpakorn University, Suan Dusit Rajabhat University, Suranaree University of Technology, Walailak University.

The objectives of the pilot project are to:

- develop and provide an online statistical website for Asian academic libraries;
- implement sophisticated functionality for online benchmarking;
- improve the data collection processes for the individual libraries; and
- provide an sustainable online statistical service for Asian academic libraries.

Phase 1, during which data for the years 2005 and 2006, has been collected, loaded and made available for benchmarking from the online website is almost complete. Phase 2, the collection of an additional years data (2007), is now underway. The 3rd phase of the pilot project will be the evaluation of the online website and the service by the participating libraries, the iGroup and CAVAL.

The benefits to the participating libraries are envisaged to include:

- local benefits - tracking each individual library over time, developing staff expertise;
- institutional benefits - showing the contributions of the library;
- national benefits - comparing with other institutions, gaining a national overview of library services;
- regional benefits - comparing with similar libraries in other countries, learning from the differences; and
- global benefits - greater understanding of the role of libraries, opportunities to be involved and contribute to this regional development.

The project began in 2006 with introductory workshops in Singapore, Malaysia, Thailand, and Hong Kong. These workshops were generously sponsored by the iGroup (Asia) and explored the use of both qualitative and quantitative tools to describe, measure, evaluate, and benchmark the performance of libraries and their contributions to teaching, learning, research, and community service.

Following positive feedback to the proposal to setup an Asian Online statistics site based on the CAUL Online Statistics and agreement by the iGroup (Asia) to sponsor the pilot project, initial site development and setup was undertaken.

In 2007, a second set of workshops was run which focussed on the details of participation, including the functionality to be available from the online statistics site and detailed definitions of the data elements for which data is to be collected.

Libraries from Thailand and Malaysia began entering data into the Web site in August 2007, with Singapore and Hong Kong libraries commencing their data entry in 2008. CAVAL is providing help-desk services for participating libraries (e-mail and telephone). Validated data is now available from the site and planning of the evaluation process, along with consideration of future directions, has begun.

There are some challenges in developing a statistics service for groups of libraries with cultural and language differences, and physically located across a wide geographic area. Some of the practical issues encountered have been allowing for different currencies and different academic and financial years, and providing appropriate assistance and information for participants with varying technical backgrounds and local infrastructure support. Although the libraries are all keen to be involved and wish to benchmark with CAUL and ARL libraries, there is not a tradition of sharing data and hence less familiarity with the practicalities.

## Functionality of the CAUL and Asian Online Statistics Sites

The CAVAL online statistics sites for CAUL and for the Asian Academic Libraries consist of Open Source products (MySQL and Linux). The benefits include no license costs and low hardware specification requirements. However, the cost of developing the "front end" has been higher, as more development time has been required. CAVAL hosts and manages all aspects of the services—system operation and maintenance including, hardware, operating system, database, web server and network components. CAVAL also provides project management for the development and implementation processes and supplies regular progress reports to participating libraries.

The software developed by CAVAL can be easily adapted to create benchmarking services for any set of statistical data. In particular statistics collected by other cultural institutions such as museums and art galleries and local government agencies.

Both sites provide functionality to:

- compare institutional data – up to fifteen institutions can be compared using an unlimited number of variables;
- calculate ratios and other statistical measures, displaying results online for all the institutions in the dataset in ranked order;
- display summary statistics – online display of descriptive statistics for all of the institutions in the data set;
- produce graphs – allows the production of an online graph for one institution and up to fifteen variables, or up to fifteen institutions and one variable;
- download data - extract and download a subset of the data by selecting the required institutions, regions (Countries or States), variables, and range of year(s); and
- input data - online input of data by staff from contributing institutions, incorporates data validation and online help.

The data for each site is divided into six sections. The thirty-five variables selected for the Asian Statistics pilot are a subset of the eighty-five variables currently used for the CAUL Statistics. The sections are

- Library Organisation - general information about the library, including the number of libraries, opening hours, seating facilities, staffing details, shelving and archive capacities.
- Library Staff - data about the staff of the library, broken down by both type of staff and position classifications.
- Library Services - data about services provided by the library, includes Information Literacy and instruction, Loans, Document Delivery Services, Inter-campus and inter-branch lending and turnstile counts.
- Information Resources - data about the library's Information Resources broken down by bibliographic level i.e. serial or non-serial. Non-serial includes monographs and other non-serial works in any medium or format. A pilot set of 4 data elements relating to e-books are included in the collection of the CAUL 2007 data collection.
- Library Expenditure – data about the library's expenditure, broken down into acquisitions, salary and operational expenses.

- Institutional Population - includes all staff and students belonging to the institution, including non-academic staff.

The evaluation process will incorporate feedback from all participating libraries and also from non-participating libraries. Initial indications are that technical issues can be resolved, however the biggest challenge is to ensure that data definitions, and local interpretation of these definitions, are aligned otherwise it is impossible to benchmark.

## Conclusion

The CAUL Online Statistics Web site is a well used tool for identifying and benchmarking data about Australian and New Zealand academic libraries. It is hoped that the Asian Online Statistics site will, over time, expand and develop to provide a similar useful service to libraries across the region. The technical design and setup of both sites has been designed to enable future benchmarking between Australian, New Zealand and Asian libraries, and beyond.

CAVAL's long history of cooperation and collaboration with libraries, combined with more recently developed technical and statistical expertise, provides a solid platform from which to further develop international statistical and online benchmarking services.

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CONZUL (Council of New Zealand University Librarians) http://www.conzul.ac.nz

iGroup – http://www.igroupnet.com

# Making Incremental Improvements to Public Library Comparative Statistical Practices

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## Abstract

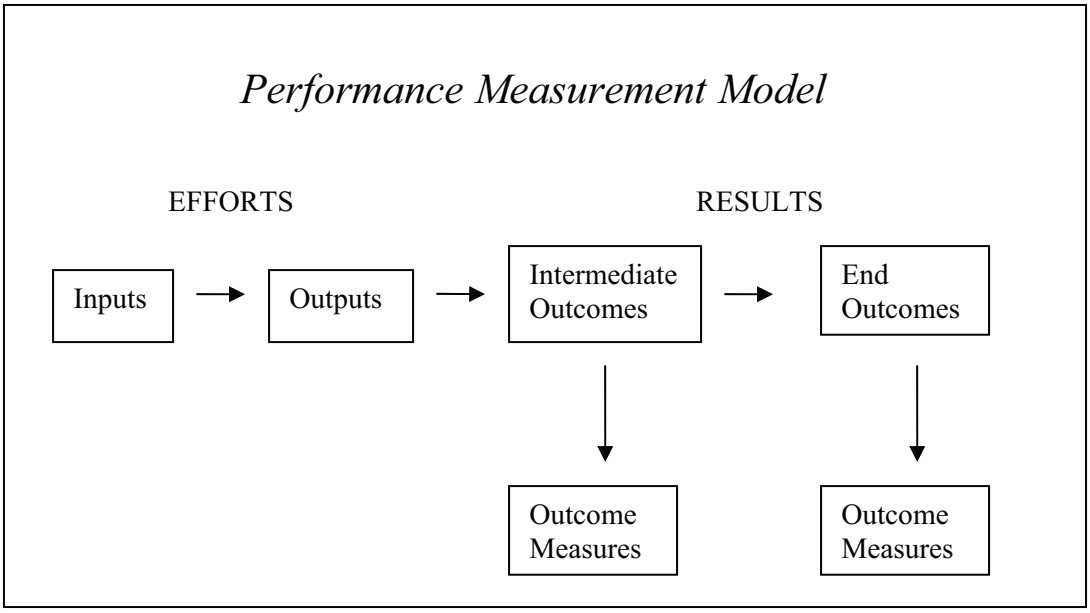
The majority of US public libraries have yet to immerse themselves in the "culture of assessment" that library researchers have promoted in recent years. For the most part, these libraries dutifully collect and report traditional library input/output measures to state and funding authorities. Some libraries might devote time to comparing their statistics to "peer" libraries. They might use composite measures, such as national public library ratings, or review comparative data from state libraries or from the Public Library Association, or utilize tools developed by the US National Center for Educational Statistics.

These types of statistical comparisons—composite national ranks and selected local comparisons—suffer from methodological weaknesses that have not been completely explored by the library profession. This paper examines the shortcomings of comparative approaches: the non-equivalence of activities that traditional "counts" represent, the imperfect selection of peer libraries, the lack of criteria for judging adequate performance levels, the psychological attraction of the *More-Is-Better-Myth*, and certain misconceptions concerning justifiable interpretations of library statistics. The paper suggests a few modest improvements to mitigate the deficiencies of these comparative methods. In addition, it advocates for re-thinking the basic premises of evaluating library statistical and comparative data.

## Introduction

The purpose of this paper is to consider modest solutions to problems encountered when making comparisons of public library performance using statistical data. Before describing these problems and solutions, it will be useful, first, to consider the context within which the practice of comparative library statistics operates, and, second, to describe how public libraries currently perceive these practices.

Organizations use statistical indicators as part of a rational planning and management process referred to alternatively as *performance measurement, performance assessment,* and *performance monitoring.* A basic performance measurement model is depicted in Figure 1. Ideally, a main objective of the approach is to use information about organizational performance to inform management decision-making and improve organizational performance and effectiveness. For public and not-for-profit organizations, performance measurement is also intended to generate information for accountability purposes, i.e., for reporting program results to funding sources and to the public-at-large.




Based on a general systems theory model, performance measurement envisions organizations as production systems where *inputs* are transformed into *outputs* that interact with the organization's environment to produce *outcomes* in both the short-term (*intermediate*) and long-term (*end*). *Outcome measures* are indicators collected in order to determine the degree to which an organization's intended outcomes (and, in some cases, unintended outcomes) have been achieved.

Over the past thirty years this performance measurement model has become the mainstay of collecting public library statistics in the United States. The prime impetus for the establishment of this approach has been the promotion of *results-oriented planning and management* by the Public Library Association (PLA).[1] Statistical data collection for local assessment of library performance was most notably promoted in the PLA instruction manual by Van House et al.[2] Following PLA's lead, Van House and her colleagues downplayed pre-established library standards in favor of standardized data collection coupled with customized local data interpretation. They encouraged libraries to collect statistics for "assessing current levels of performance, diagnosing problem areas, comparing past, current, and desired levels of performance [and] monitoring progress toward the library's mission, goals, and objectives."[3]

To reiterate, local libraries alone would be responsible for determining standards against which performance statistics would be evaluated. The libraries were also obliged to utilize the statistical data as material for the process of organizational self-evaluation. In addition, the PLA espoused routine comparison of each library's statistical data with other similar ("peer") public libraries. Theoretically, comparisons would provide a library with further indications of the acceptability of its own performance.

## Public Library Perceptions and Utilization of Statistical Measures

As an indication of how public libraries currently perceive and utilize comparative library statistics, a study of Ohio libraries recently conducted by the primary author (Lyons) is briefly reviewed here.[4] This exploratory study surveyed 90 public libraries selected via a stratified random sample of all public libraries in Ohio. Forty-two libraries (47%) responded, most via the study's online questionnaire. Seven libraries participated in brief telephone interviews conducted by the primary author. Further details of the study methodology are available in the full study report.

One questionnaire item in the survey concerned how often library management teams review standard library statistics, regardless of whether they make comparisons with other libraries. Table 1 indicates the frequency with which responding libraries examine their own input statistics. Nearly two-thirds of reporting libraries review both operating and print materials expenditures monthly. Other categories like print material

counts, subscriptions, and so forth are reviewed annually.

Output statistics that Ohio public libraries say they review periodically are shown in Table 2. Eighty three percent of the libraries report reviewing circulation data monthly, while two-thirds review interlibrary loan, Internet terminal use, and library Web site usage measures on a monthly basis. Reference transactions are reviewed either quarterly or monthly by 58% of the libraries. In-house use of library materials is reviewed annually or more often by more than 60% of reporting libraries.

The survey also asked respondents whether, in the past two years, they had made comparisons of their own statistics with those of other libraries. About 6% of the libraries had not made these comparisons. Figure 1 presents the frequency with which the 32 libraries that do make comparisons at least biennially compare their statistics with those of other libraries. Seventy-eight percent of these libraries say that they compare their statistical data semi-annually or annually, and 19% report doing so quarterly or monthly.

Table 1. Frequency of Managerial Review of Selected Input Measures

| *Statistical Indicator* | *Annually* | *Quarterly* | *Monthly* | *Weekly* | *Rarely* | *Not Sure* |
|---|---|---|---|---|---|---|
| Operating expenditures | 12% | 9% | 65% | 15% | 0% | 0% |
| Print Mat. Expenditures | 12% | 18% | 62% | 9% | 0% | 0% |
| Electronic Mat. Expenditures | 39% | 21% | 36% | 3% | 0% | 0% |
| Print Materials | 56% | 9% | 29% | 3% | 3% | 0% |
| Print Subscriptions | 74% | 12% | 15% | 0% | 0% | 0% |
| Audio/Video Materials | 58% | 9% | 30% | 0% | 3% | 0% |
| Databases | 63% | 14% | 6% | 6% | 6% | 6% |
| Internet terminals | 51% | 11% | 14% | 9% | 6% | 9% |
| FTE Staff | 79% | 6% | 12% | 0% | 3% | 0% |

Source: Lyons (2008)

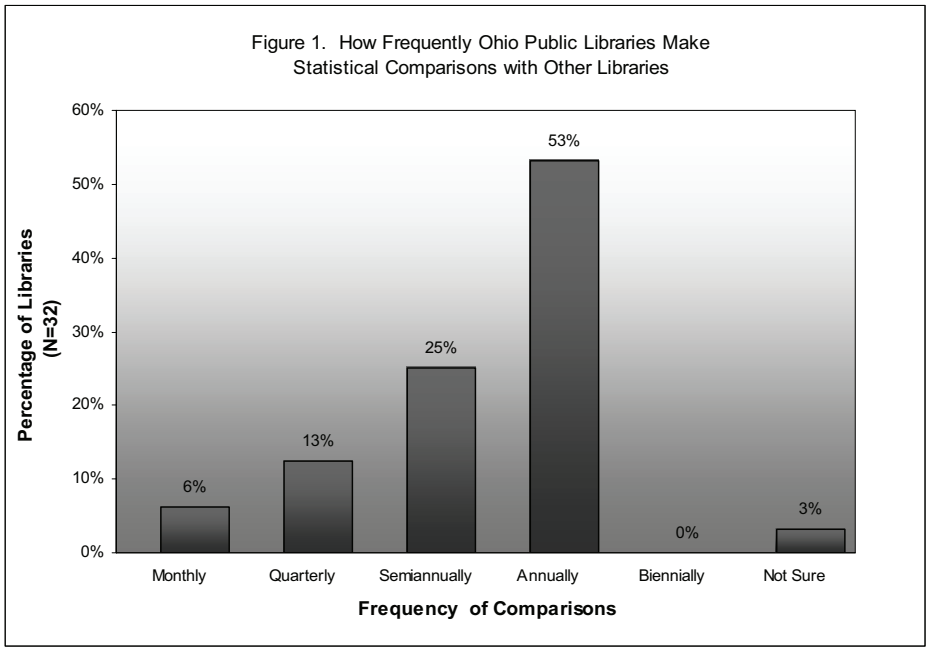
Another survey question polled libraries about their identification of peer libraries when making comparisons. Their responses appear in Figure 2. The table indicates that nearly 75% of the libraries made selections based on population or demographic variables. Seventy-seven percent of the libraries select libraries having statistical indicators that are similar to the library's own data. Six percent of the libraries say that they select peer libraries based on programming and service offerings.

Table 2. Frequency of Managerial Review of Selected Output Measures

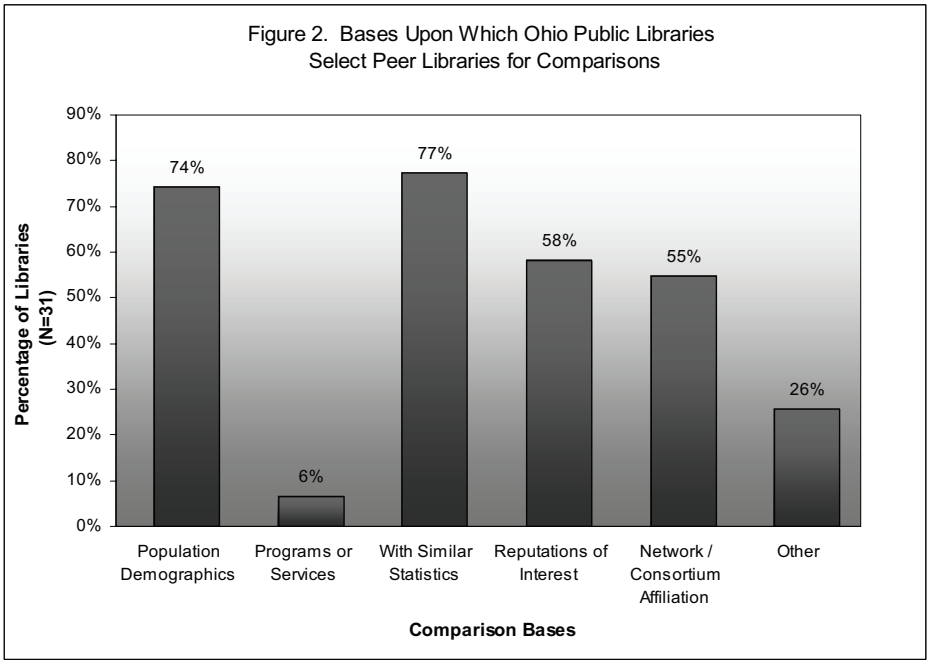
| *Statistical Measure* | *Annually* | *Quarterly* | *Monthly* | *Weekly* | *Rarely* | *Not Sure* |
|---|---|---|---|---|---|---|
| Circulation | 9% | 0% | 83% | 9% | 0% | 0% |
| In-house Mat. Use | 21% | 12% | 26% | 3% | 34% | 0% |
| Interlibrary loan | 23% | 6% | 66% | 6% | 0% | 0% |
| Visits | 21% | 15% | 54% | 6% | 3% | 0% |
| Reference Transactions | 32% | 24% | 34% | 0% | 9% | 0% |
| Program attendance | 32% | 9% | 51% | 6% | 0% | 0% |
| Electronic Mat. Use | 19% | 6% | 60% | 0% | 9% | 0% |
| Internet Terminal Use | 15% | 6% | 66% | 3% | 3% | 3% |
| Website Use | 12% | 9% | 63% | 0% | 9% | 3% |

Source: Lyons (2008)

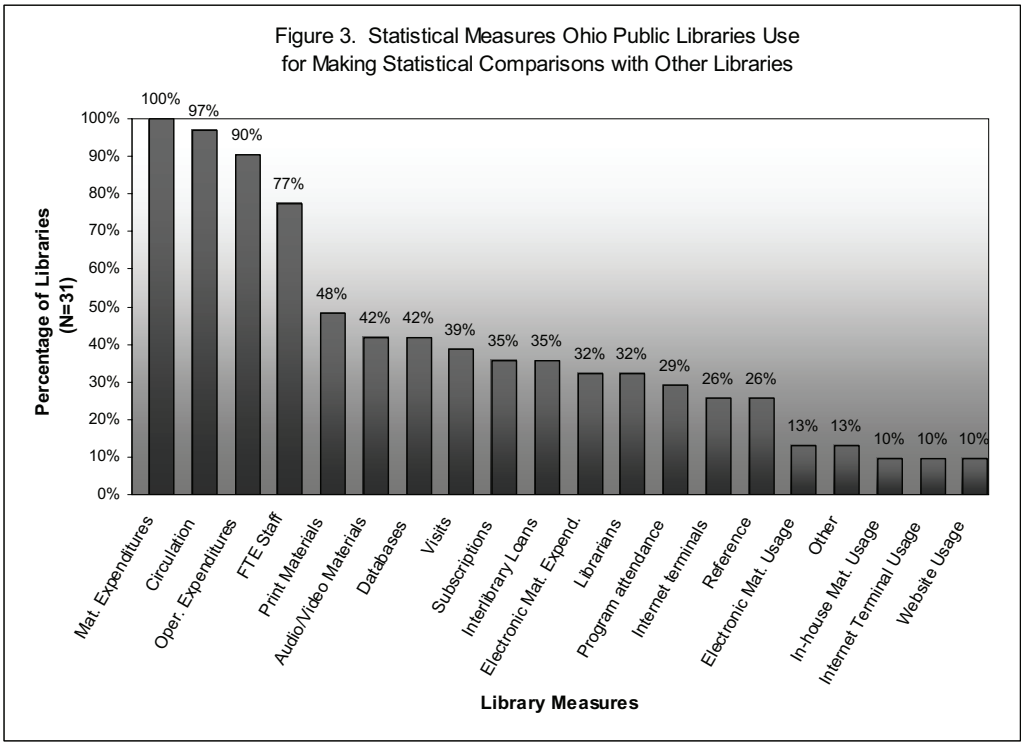
For libraries that reported making comparisons at least biennially, Figure 3 indicates which statistical indicators the libraries review in these comparisons. Ninety percent or more of the libraries use three main statistical indicators to make comparisons with other libraries—material expenditures, total operating expenditures, and circulation. All of the libraries make comparisons using material expenditures. Ninety-seven percent say they make comparisons using circulation, and 90% use total expenditures. Staffing statistics are used for comparisons by nearly 80% of the libraries. (Open-ended questionnaire comments and interview responses suggest that these comparisons may be for salary studies rather than for performance assessment.)




Source: Lyons (2008)




Source: Lyons (2008)




Source: Lyons (2008)

## Key Problems with Library Statistics

The exploratory survey just described did not delve into how libraries interpret their operational statistics, either alone or in comparison with other libraries' statistical data. As already mentioned, PLA has recommended that local libraries determine the meaning of each library's statistical indicators in the context of the library's mission, objectives, community characteristics, chosen service responses, and so on. Van House, Weill, and McClure also note that: "There are no "right" or "wrong" scores on an output measure; "high" and "low" values are relative. The scores must be interpreted in terms of library goals, scores on other measures, and a broad range of other factors."[5]

We can presume that Van House et al. would have also applied this admonition to input measures had PLA not omitted these from its measurement model.

Fourteen years prior to the publication of PLA's *Output Measures* manual, library researchers had already expressed doubts about the utility of comparative library statistics. Reflecting on her participation in a classic public library performance research study,[6] Altman writes:

> The project team was philosophically opposed to the practice of standard comparisons [of libraries using input/output measures] because of the arbitrary way in which they were set and the general lack of care used in making the comparisons. Had we taken it upon ourselves to pronounce that certain numbers were "good" or "bad," we, too, would have been rightly accused of being arbitrary . . . The study team felt strongly . . . that each library staff should decide for themselves whether the findings for that library were acceptable in terms of performance expectations.[7]

Here Altman is calling attention to the first, and perhaps most important, of several problems with using library statistics: There are no established standards for evaluating the data. Specifically, there is no objective way to determine whether the magnitude of an input statistic represents high, medium, or low levels of resources, or whether the magnitude of a library output statistic represents excellent, satisfactory, or poor performance. Yet, as Rossi and others in the field of program evaluation advise, standards of some sort are necessary to draw evaluative conclusions about program and organizational performance.[8]

Nevertheless, thanks to the efforts of the US National Commission on Libraries and Information Science, the National Center for Educational Statistics, state library authorities, the PLA, and

others, libraries in the US can take advantage of rather sophisticated systems for gathering standardized library statistics. The ready availability of these standardized statistics now makes the mechanics of library comparisons practical and convenient.[9]

Standard definitions used by these collection systems, however, introduce another key problem with these statistics. The act of standardizing library attributes and activities—creating what statisticians call *classes of equivalence*—limits the meaningfulness of library statistics. Establishing these standard classifications requires that numerous objects, events, and other library attributes be viewed as equivalent. All books, periodicals, staff, visits, circulation transactions, reference questions, programs, and so forth are assumed to be exactly alike for purposes of statistical counting. This assumption ignores essential differences among these entities, including differences in complexity, sophistication, relevance, quality, worth, effectiveness, efficiency, and significance.

Put another way, standardization *homogenizes* the information content of the statistics, *reducing* the underlying phenomena to an arbitrarily small collection of facts. The resulting data provide only the most broad-brush indications of library performance. General uses for data with such abridged content may well be appropriate for regional, national, and international planning and evaluation. On the other hand, the data are not informative enough to provide complete or accurate descriptions of individual library performance.

Prior to the appearance of total quality management and benchmarking in the private sector in the US, PLA had encouraged library comparisons as an important use for standardized statistics. Regrettably, PLA was as vague about the methods by which libraries could identify peer libraries as they were about techniques for drawing conclusions from the statistics. In the meantime, tenets of the quality movement drew the attention of local and state government administrators. Eventually, *comparative performance measurement* appeared in the form of *municipal benchmarking* public administration as a tool to "place local performance in context and, where major performance gaps are detected . . . suggest the need for additional analysis."[10] Even though municipal benchmarking relies heavily on cross-jurisdictional performance standards, as an accepted management practice it serves to reinforce PLA's emphasis on library comparisons. Presently, benchmarking is considered a respectable management practice by libraries in the US and internationally.[11]

Despite its popularity, library benchmarking efforts are hardly straightforward and sometimes frustratingly inconclusive. International library statisticians Poll and te Boekhorst offer numerous caveats to libraries planning to make statistical comparisons.[12] They advise libraries to carefully examine all possible explanations for measurement variances. Other proponents of comparative performance measurement acknowledge that the practice can produce misleading results. Ammons notes that localities having high performance statistics can still be neglecting particular constituent populations, and that local statistics are self-reported, unaudited, and often inaccurate.[13]

Beyond these interpretational difficulties, benchmarking has a major shortcoming reluctantly acknowledged by its proponents. This is the lack of effective methods for identifying suitable peer organizations. Morely, Bryant, and Hatry conceded that: "no two . . . jurisdictions or organizations are completely comparable. Each has unique characteristics. As a result, it is impossible to find organizations that are exactly comparable."[14]

The romantic image of chemists centuries ago weighing substances on a balance comes to mind. Only after confirming the parity of chemical samples could the scientists proceed to conduct their experiments. Today we have no analogous measurement tools to establish parity between organizations being compared. Yet, without equivalent peer organizations, benchmark comparisons will be gross estimates at best. At worst, the comparisons can be inaccurate and invalid.

Another problem with standardized library statistics is imprecision in collected data. This imprecision is due to inconsistent collection methods, clerical mistakes, sampling error, "gaming" (the intentional production of data to produce desirable results), statistical imputation (statistical estimation of missing data), and other factors. In individual library comparisons, libraries may be able to investigate irregularities in the data, if they are fortunate enough to recognize them. However, aggregate comparisons such as state or national rankings on specific library indicators are often published without adjustments or corrections for imprecision in the data, nor with clear

disclosures concerning these sources of inaccuracy.

Related to data imprecision is the lack of audit mechanisms for verifying library self-reported operational statistics. Library accounting records are subject to professional audits to confirm that financial statements represent true financial standing of the library. However, there are no analogous audits of library operational data. So, it is impossible to determine whether or not the statistics accurately represent a library's true performance.

Perhaps the most intriguing aspect of library statistics is the psychological tendency to view higher numbers as favorable and lower numbers as unfavorable. As already noted, performance statistics are not automatically indicative of performance successes or failures. Ideally, they need to be evaluated according to well-thought out standards. As also noted, the library profession lacks these standards. Consequently, libraries tend to rely on *magnitude* itself as in indication of success. One might call this the *More-Is-Better Myth*. Even so, as Van House et al. note, "More activity does not necessarily mean better activity."[15] More importantly, mere quantities tell nothing about the extent to which community needs have been met (an issue we address in more depth below). And it is quite feasible that efforts to increase the quantity of library services can result in a lowering of service quality.

While standardized statistics are fairly simple to conceptualize and collect, their interpretation is surprisingly complex. Van House, Weill, and McClure suggested that library measures:

> . . . reflect the interaction of users and library resources, *constrained by the environment in which they operate*. The meaning of a specific score on any measure depends on a broad range of factors including the library's goals, the current circumstances of the library and its environment, the users, the manner in which the measure was constructed, and how the data were collected.[16] (italics added)

In many cases a library's performance reflects its environment as much as its operational effectiveness. Some public libraries enjoy especially fertile economic, demographic, or political settings that serve as catalysts to library performance, while others do not. Yet, this important aspect of organizational effectiveness is not captured in library statistics.

By recounting this litany of problems and challenges with library statistics, we do not mean to imply that the PLA and other leaders in library statistical policy have failed to appreciate the complexities of library performance measurement. Nevertheless, it is fair to conclude that current library statistical policies have been ineffective, for the most part. It was unrealistic to expect that public libraries would be able to interpret and utilize statistics productively. Other than making comparisons with their own historical data, most libraries publish operational statistics without any interpretation of their adequacy or appropriateness. Neither do libraries seem to have a good understanding of conclusions that can justifiably be drawn from these data.

General misconceptions about formulating meaningful interpretations from library statistics are epitomized by recent advocacy campaigns of the American Library Association (ALA) and other library organizations. The ALA, for example, has endorsed a curious array of statistical comparisons as collections of "quotable facts." Consider facts such as these:

> *There are more public libraries in the US than there are McDonalds*.[17]
>
> *In the state of West Virginia public libraries are more numerous than Wal-Marts by a factor of more than 5 to 1*.[18]
>
> *If the number of reference question asked weekly in US public and academic libraries were represented by an end-to-end line of questioners, the line would stretch from New York City to Juneau, Alaska.*[19]

These comparisons become nonsensical when incompatible units of measure are mixed, as when circulation counts (items) are compared to fans (people) watching the 2006 Super Bowl game, and reference counts (queries) exceed the population (people) of Galveston, Texas.[20]

It is obvious from statistical comparisons like these that our profession is at a loss for meaningful ways in which to evaluate library statistics. Probably, the professionals who compiled these brochures do not realize where this type of thinking ultimately leads. These portrayals idolize quantification over meaning, adopting by default the *More-Is-Better* stance mentioned earlier. This strategy, though, quickly evolves into grasping for sensational straws in order to give meaning to measures that might otherwise be indecipherable to

the general public.

The basic principles of performance measurement can assist us in critiquing these kinds of "facts." These principles lead us to ask questions like: Does the American public want or need more libraries than it wants or needs MacDonalds? Than it wants or needs Wal-Marts? Does providing reference answers to a chain of humans stretching from New York to Juneau tell us how excellently, satisfactorily, or poorly libraries have performed? What if libraries actually spend too much time on reference questions, time that could be better spent addressing a wider array of information needs in our communities? If library advocates considered questions like these, their campaigns would become more credible and relevant.

## Incremental Improvements for Library Comparative Statistics

At least informally, public libraries already recognize many of the inadequacies of standardized library statistics that we have outlined. However, it would be beneficial for libraries to acknowledge these challenges more publicly, for instance, in reports to boards of trustees, funding authorities, and to the public at large. Continual reminders that these data are limited and incomplete reflections of library performance might prompt the development of better measurement tools. When libraries do publish standard library statistics, or make comparisons using these, they should also be obliged to include other types of performance data to complement the statistics. This too will serve as a reminder that standardized statistics alone are insufficient.

When public libraries intend to make statistical comparisons with other public libraries, these peer libraries need to be selected based on a variety of relevant library attributes. At a minimum, only peer libraries that can be shown to be equivalent in population size, community demographics, service response choices, and budget should be included in any comparisons. If a library is unable to identify peers based on these four attributes, *then no comparisons should be made*. Alternatively, libraries may select one or two of their own services responses—or services or programs—and search for potential peer libraries based on these only. For example, consider two suburban libraries whose demographics are alike, but whose population counts differ significantly, and that also both offer career services to their communities. The libraries could make comparisons of indicators relevant to these programs only. In this case, it would also be important for libraries to collect demographic data about program participants in order to assure that the same general clientele were being serviced in both libraries.

Another area ripe for improvement is libraries' understanding of relationships between statistical indicators, and of managerial decisions that can affect one statistical indicator or another. Many libraries understand the relationship between circulation policies and circulation counts, since circulation has traditionally been such a highly visible indicator. Along these same lines, libraries should explore relationships between other measures, for instance, of changes in registered patrons and circulation, or increases or decreases in website usage and circulation or renewal rates.

Using a one-size-fits-all list of statistical indicators is counterproductive to performance measurement in public libraries. Smaller public libraries need a different set of core measures than larger libraries, as do rural libraries as opposed to urban or suburban libraries. The same is true for inner city libraries where, for instance, circulation counts are hardly as important as visits or programming. Similarly, with additional requirements for libraries to report electronic resource usage, difference between libraries need to be noted. Again, inner city and rural libraries will not be able to report usage comparable to suburban libraries.

Even though interpretation is essential to making productive use of library statistics, this task is often glossed over in discussions of performance assessment. Here interpretation refers to conclusions about library performance drawn from standardized statistics. Library data reflect quite concrete events and resources, such as patron behavior (visits, circulation), materials available, money expended, and so forth. Consider a library statistic utilized internationally—how many *seats* a library has. Literally, this statistic represents the number of chairs in a library. We might assign a slightly more abstract meaning to the statistic by saying it also indicates the extent to which a library encourages in-house use of materials, browsing, and so forth. We could also interpret the number of seats as a reflection of a library's interest in accommodating persons with disabilities. Or we might say the statistic reveals the extent to which the library might be perceived as a comfortable and welcoming place.

This example illustrates that statistical data can

(and will) be translated into more abstract concepts, beyond the literal meaning of the data. It is in this area that libraries must be particularly careful to avoid drawing unreasonable conclusions. For example, some library advocates promote using visit counts as reflections of library *value*, even though the statistic indicates merely how many people enter library buildings. A more reasonable interpretation is the ability of the library to attract in-person attendance. At the same time, it is incumbent upon libraries to provide some type of interpretation of their statistical data while avoiding making exaggerated claims that the data cannot support.

Beyond these modest suggestions, there is one rather monumental improvement that the library profession will ultimately need to contemplate. The current paradigm of comparative performance measurement needs to be changed. Rather than evaluating performance based on comparisons with peer libraries (or even a library's historical statistics), libraries should be judging their types and levels of service delivery based on verified levels of community needs. Thus, the most fruitful performance measurement efforts that public libraries can undertake are *determining ways to assess levels and constellations of community needs and assuring that amounts and types of library services correspond closely with these needs.* This is the only way to satisfactorily answer the question of whether a given level of service is excellent, good, or poor.

As an inspiration to take up this challenging paradigm shift, we close with this quotation by leading program evaluation theorist, Michael Scriven:

> [Performance] monitoring and . . . goal achievement evaluation tell the program manager what he or she needs to know about the progress of the program toward its goals, but they do a severely limited job for the recipient, the taxpayer, the citizen, and those concerned with the welfare of program impactees [sic]. Most consumer or taxpayer groups have little interest in whether a program meets its goals as such, *only in whether it does something that needs doing, whether the cost is reasonable, and whether it does it better than alternative ways of doing it.* And, from their point of view, the standards for judging whether it does the job well or better must include standards of equity . . . not just short-term economy. None of these issues is addressed by goal achievement evaluation, and only their surface is scratched by compliance monitoring.[21] (italics added)

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## Endnotes

1. See for instance: Sandra S. Nelson, *The New Planning for Results: A Streamlined Approach* (Chicago: American Library Association, 2001).

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# A Meta-assessment of Statewide Program Evaluations: Matching Evaluation Methods to Program Goals

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## Abstract

The Library Services and Technology Act (LSTA), administered by the Institute of Museum and Library Services (IMLS), supports a greater number of libraries within the United States and a wider range of library activities than any other single federal grant program.

The authors therefore decided to perform a meta-analysis of states' LSTA evaluations as a means to inform future LSTA evaluations. The research questions for this study are as follows:

1. What methodologies are used in LSTA evaluations?
2. How do states' goals map to LSTA goals?
3. What, if any, correlations are there between methodologies used and states' and LSTA goals?
4. How successful are different methodologies in providing useful evaluation data about library programs?

Ultimately, the purpose of this effort is to assist state library agencies and the IMLS to increase the usefulness and impact of LSTA-funded programs. The findings from this research suggests that the quality of these evaluation reports varies widely, that there is minimal innovation in the evaluation methods employed, and only 39% of the goals were assessed as completely accomplished.

## Introduction

One of the most important federal funding streams for public libraries in the United States is the Library Services and Technology Act (LSTA), administered by the Institute of Museum and Library Services (IMLS). Under the LSTA, the IMLS provides funds to state library agencies based on the populations of states, and state library agencies then distribute these funds to libraries within the states (Museum and Library Services Act, 2002). Consequently, LSTA funds support a greater number of libraries within the US and a wider range of library activities than any other single federal grant program.

Evaluation is an important, and at times required, part of any program, to assess the extent to which the program is achieving its goals. Evaluation is especially important for funding agencies to assess how this funding is being used to support the program funders' goals. Given the ubiquity of LSTA funds in public libraries across the country and the diversity of projects supported by these funds, evaluation is especially important to the IMLS, as well as to the funding recipients, to ensure that those project goals are being accomplished. The IMLS, consequently, requires grantees to conduct evaluation of funded projects, and provides considerable guidance to grantees on how to conduct outcome based evaluation.[1]

The authors recently completed an evaluation of the programs funded by LSTA monies allocated to the state of North Carolina for the years 2003-2007.[2] This paper extends that work by investigating the evaluations of LSTA-funded programs in other states. There is a sizeable body of library literature on evaluation of various functions and services of libraries. This literature is, however, essentially a series of case studies: reports of single evaluation efforts on single library functions or services. In planning our evaluation of LSTA-funded programs in North Carolina, we found that there is little literature that provides models for evaluating large-scale library initiatives involving

multiple functions and services across multiple libraries. The IMLS has made states' 2003-2007 evaluation reports publicly available on their Web site (and before that, made the 1998-2002 evaluation reports available: www.imls.gov/programs/5yearevals.shtm). For the most part, these reports include basic descriptions of the methodologies used in these evaluations. Neither the IMLS nor the individual states nor the evaluators who produced these reports, however, provide any detailed information on why specific methodologies were used, why data were collected from some stakeholder groups and not others, how decisions were made regarding how to frame discussion of states' outcomes in the reports, and other issues involved in the planning for these evaluations.

When the authors planned the evaluation of LSTA-funded programs in North Carolina, they reviewed other states' evaluation reports as models and as a source for ideas. Based on our informal conversations with other evaluators, it seems that this approach is quite common. It is clear that other evaluators, and librarians in state library agencies, have a need for information about the evaluations of LSTA-funded programs that have been conducted in other states, beyond that which is included in the evaluation reports themselves or from informal, anecdotal information gathering. Indeed, since all 50 states (and territories) must perform such an evaluation every five years, there is potentially a great demand for this information. The authors therefore decided to perform a meta-analysis of states' LSTA evaluations as a means to inform future LSTA evaluations. The research questions for this study are as follows:

1. What methodologies are used in LSTA evaluations?
2. How do states' goals map to LSTA goals?
3. What, if any, correlations are there between methodologies used and states' and LSTA goals?
4. How successful are different methodologies in providing useful evaluation data about library programs?

Ultimately, the purpose of this effort is to assist state library agencies and the IMLS to increase the usefulness and impact of LSTA-funded programs. The findings from this research suggests that the quality of these evaluation reports varies widely, that there is minimal innovation in the evaluation methods employed, and only 39% of the goals were assessed as completely accomplished.

## Background on the IMLS and LSTA

The IMLS' Grants to States program (www.imls.gov/programs/programs.shtm) provides funds to state library agencies proportional to the populations of states. These funds are provided to all 50 states as well as to the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau. In 2008 the IMLS awarded nearly $161 million in LSTA funds to state library agencies (down from nearly $164 million in 2006 and 2007). As of the fiscal year 2008 allotments, California receives the largest sum of any state from the IMLS, and Wyoming the smallest. Given their population sizes, Washington, DC, Puerto Rico, and Guam receive larger sums than several states.[3] Each state library agency then distributes these funds to libraries within its state. The mechanisms for accomplishing this distribution vary across states. Often this allocation is accomplished by awarding sub-grants to individual libraries or consortia. Sometimes sums are earmarked for specific collaborative projects within a state. There is considerable variance in how state library agencies allocate LSTA funds within their states.

Consequently, LSTA funds support a significant number of libraries within the US and its territories, and a wide range of library activities as well. While LSTA funds comprise less than 15% of total state library funding,[4] LSTA funds comprise 97% of all federal funding to state library agencies.[5] In total, "state library agency expenditures for financial support to libraries were $754.1 million"[6]—even 15% of this sum is considerable. The LSTA is therefore arguably the single most important funding stream for US libraries because of the sums awarded, its key role in supporting state library agencies, and its reach into libraries of all types.

Of particular relevance to this paper are two requirements of the Museum and Library Services Act of 1996, enacted as part of the Omnibus Consolidated Appropriations Act of 1997 (Public Law (P.L.) 104-208), for state library agencies to submit documentation to the IMLS. First, state library agencies must submit a State Plan. This document "identifies a State's library needs, and sets forth the activities to be taken toward meeting the identified needs supported with the assistance

of" LSTA funds.[7] Second, state library agencies that receive LSTA funds (that is, all of them) must conduct an independent evaluation and submit a report on the activities funded using LSTA funds, "prior to the end of the 5-year plan."[8]

The IMLS has produced a number of documents for grant applicants and recipients, on project planning and evaluation (www.imls.gov/applicants/obe.shtm). These materials make it clear that IMLS wishes to convey—and wishes their grantees to convey—the effects and impacts made by their programs. As such, the IMLS has created several documents on outcomes-based planning and evaluation, and asks their grantees to write their grant proposals and evaluations to emphasize the program outcomes.

## Methodology

The authors collected 5-year plans and evaluation reports for both the 1998-2002 and 2003-2007 LSTA funding cycles. The authors were able to collect both of these documents for both 5-year time periods for a total of 28 states. The analyses presented below are from those 28 states' documents.

At the time this collection was done, mid-2007, it was not possible to collect documents for all 50 states and all territories. The IMLS makes states' 5-year plans and evaluation reports available on their Web site (www.imls.gov/programs/programs.shtm), and many state library agencies make these documents available on their own Web sites. In mid-2007, however, many states were concluding evaluations of their LSTA-funded programs, and were submitting the reports from these evaluations to the IMLS. In mid-2007, 1998-2002 evaluation reports were being replaced by 2003-2007 reports both on the IMLS Web site and on state library agencies' sites. Consequently, in many cases the 1998-2002 reports were no longer available, while in other cases the 2003-2007 reports were not yet available. The authors only used states' 5-year plans and evaluation reports in our analyses when we could collect both documents for both date ranges.

The authors conducted a content analysis on the 5-year plans and evaluation reports to identify the following data: the states' 5-year goals, and the articulation of the connection between the state's goals and the LSTA goals. From the evaluation reports, this content analysis identified the following:

- The research methodologies and data collection instruments used in these evaluations;
- The stakeholder groups that provided data;
- Whether and the extent to which the states' and the LSTA's goals were accomplished; and
- Recommendations made by the evaluators.

The authors developed a coding scheme to identify these data in the 5-year plans and evaluation reports. Some of these data were easy to identify: for example, many evaluation reports stated clearly if goals were fully, partly, or not accomplished. Some of these data required more interpretation: for example, many reports did not explicitly draw a connection between the state's goals and the LSTA's goals, so the researchers had to determine how to map one to the other. In order to achieve reliable coding, our coding scheme was piloted by all of the authors, and revised, before using it for our analysis. Further, each state's report was coded by two of the authors, and points of disagreement were discussed until consensus was achieved. The authors coded data in the 5-year plans and evaluation reports in a shared Excel file, which was then used for analysis.

## Results

This section of the paper offers a number of findings from this study. These findings should be considered as preliminary as additional analysis is still in progress. Nevertheless, these findings suggest a number of interesting results that can be used to inform state library staff and IMLS officials about how these evaluations are done.

### Methods

All of the 28 states' evaluation reports from the 1998-2002 period reported using multiple methods, while all but 4 (14%) from the 2002-2007 reported using multiple methods. Most evaluations (across both periods) used a combination of 3 methods (42%), while many used 2 or 4 (23% each), and a few used 1 or 5 (6% each). The methods used in the evaluations, taken across both 5-year periods, are as follows:

- Surveys of stakeholder groups (80%);
- Document analysis (57%);
- Interviews of stakeholder groups (55%);
- Focus groups (50%);
- Site visits (23%); and
- Town hall-style meetings (2%).

Surveys, interviews, and focus groups were

commonly used together in evaluations: 67% of all evaluations that used surveys also used interviews, and 69% also used focus groups. Of evaluations that used interviews, 74% also used focus groups. Of evaluations that used site visits, 69% also used interviews. Surprisingly, focus groups were not commonly used with site visits.

When methodologies were used that required data to be collected from individuals (that is, all except document analysis), these data were collected from the library's staff (95% of evaluations), administrators (87%), the user community (59%), and affiliates such as boards of directors and trustees (39%).

### Evaluation in Various Goal Categories

Previous research by the Rendon Group operationalizes the six goal categories articulated by the Library Services and Technology Act of 1996, by describing key phrases, sub-goals, and outcomes under each goal.[9] States' goals as articulated in their 5-year plans were found to correspond closely to the Rendon Group's categories of the LSTA goals. This correspondence was assessed using a simple scale: very well (27%), well (38%), poorly (27%), and not at all (8%). The authors assessed the degree of correspondence according to how closely the language of states' goals aligned with the Rendon Group's articulation of the LSTA goals.

There is a slight, though not statistically significant, difference in correspondence between the LSTA goals and states' goals from the 1998-2002 and 2003-2007 time periods: more states' goals from the 1998-2002 5-year plans corresponded well or very well to the LSTA goals than from 2003-2007 plans, and fewer failed to correspond. This is a somewhat counterintuitive finding. Remember that for this analysis the LSTA goals were operationalized using the Rendon Group's articulation of those goals. The Rendon Group report was submitted to the IMLS in 2003, presumably after states' 1998-2002 evaluation reports had already been submitted to the IMLS. When Congress reauthorized the LSTA in 2002, the IMLS modified the LSTA goals slightly, no doubt influenced in part by the findings of the Rendon report. It therefore might be expected that states' goals from their 2003-2007 5-year plans would correspond more closely to the LSTA goals. Again, there was not a statistically significant difference between the two time periods, but it might nevertheless be in the IMLS' interest to determine why there was a difference at all. Table 1 presents the correspondence between states' goals and the LSTA goals, in finer detail. Because there was not a statistically significant difference between the two 5-year periods, Table 1 presents them both together.

**Table 1: Correspondence of states' goals to the Rendon Group's articulation of the LSTA goals, for both 1998-2002 and 2003-2007**

| Rendon Group Goals | Not well | Somewhat well | Well | Very well |
|---|---|---|---|---|
| **A: Establish or enhance electronic linkages among or between libraries** | 0% | 8% | 29% | 4% |
| **B: Electronically linking libraries with educational, social, or information services** | 6% | 12% | 33% | 20% |
| **C: Assisting libraries in accessing information through electronic networks** | 2% | 18% | 37% | 20% |
| **D: Encouraging libraries in different areas, & encouraging different types of libraries to establish consortia & share resources** | 2% | 12% | 24% | 14% |
| **E: Paying costs for libraries to acquire or share computer systems and telecommunications technologies** | 2% | 4% | 10% | 12% |
| **F: Targeting library & information services to persons having difficulty using a library & to underserved urban & rural communities, including children from families with incomes below the poverty line** | 2% | 14% | 37% | 35% |

The most common goals that states articulated in their 5-year plans involved expanding service to underserved populations, in particular disabled and rural users. Table 2 presents the percentages of goals from states' 5-year plans, across both 5-year periods, when mapped to the Rendon Group's articulation of the LSTA goals. Note that these do not sum to 100%, since some states' goals were broader than the LSTA goals, and encompassed all or parts of multiple LSTA goals. Most states had more or fewer than six goals, so there was rarely a perfect mapping between states' goals and LSTA goals.

**Table 2: Areas of states' goals from states' 5-year plans, for both 1998-2002 and 2003-2007**

| Rendon Group Goals | Percentage of states' goals |
|---|---|
| **A: Establish or enhance electronic linkages among or between libraries** | 12% |
| **B: Electronically linking libraries with educational, social, or information services** | 20% |
| **C: Assisting libraries in accessing information through electronic networks** | 22% |
| **D: Encouraging libraries in different areas, & encouraging different types of libraries to establish consortia & share resources** | 14% |
| **E: Paying costs for libraries to acquire or share computer systems and telecommunications technologies** | 7% |
| **F: Targeting library & information services to persons having difficulty using a library & to underserved urban & rural communities, including children from families with incomes below the poverty line** | 25% |

### Goal Accomplishment

Most states' evaluation reports included each goal articulated in the state's 5-year plan, and an indication of whether or not the goal was accomplished. If the goal was not accomplished, a statement was usually made about progress toward the accomplishment of the goal. Only 39% of goals (across all goals articulated in all 5-year plans for both time periods) were accomplished completely, though progress had been made towards the accomplishment of the goal for an additional 13%. A surprisingly high 27% of goals were reported as having not been accomplished. This last figure needs to be understood, however, in the following light: even for the goals that were not accomplished, evaluation reports discussed some progress towards the accomplishment of the goal. This is only natural: evaluators, particularly those from within state library agencies (as opposed to external consultants), may be disinclined to suggest that any goals had gone completely ignored over a 5-year period, especially since future LSTA funding in part depends on states' fulfilling their stated goals.

Interestingly, the reviewers could not determine if fully 21% of goals had been accomplished or not, or what progress had been made towards their accomplishment. This was a result of poor reporting of findings and organization of the evaluation reports, perhaps more than poor methodology on the part of the evaluators. The need for better reporting in states' evaluation reports, and the IMLS' progress towards that goal, will be discussed below.

The percentages of goals reported as being completely or partly accomplished are remarkably similar to the percentages of goals overall in states' 5-year plans. Table 3 presents these figures for both 5-year periods. This table indicates the amount of effort that states put into accomplishing goals: the most effort has been expended by states towards expanding service to underserved populations, followed by connecting libraries to the Internet and providing access to networked information resources. Interestingly, the least effort has been expended by states toward leveraging economies of scale in technology purchases and support.

**Table 3: Percentages of goals reported as completely or partly accomplished, for both 1998-2002 and 2003-2007**

| Rendon Group Goals | Percentage of goals completely or partly accomplished |
|---|---|
| **A: Establish or enhance electronic linkages among or between libraries** | 9% |
| **B: Electronically linking libraries with educational, social, or information services** | 21% |
| **C: Assisting libraries in accessing information through electronic networks** | 20% |
| **D: Encouraging libraries in different areas, & encouraging different types of libraries to establish consortia & share resources** | 16% |
| **E: Paying costs for libraries to acquire or share computer systems and telecommunications technologies** | 8% |
| **F: Targeting library & information services to persons having difficulty using a library & to underserved urban & rural communities, including children from families with incomes below the poverty line** | 26% |

It is not obvious why the percentages of goals reported as being completely or partly accomplished are so similar to the percentages of states' goals overall. This may simply be an indication that when they create their 5-year plans, state library agencies are accurately predicting which goals will remain important and will command resources over that 5-year period. If this is the case, that indicates that the planning processes that states employ for developing their 5-year plans are sound, and indeed may be looked to by other economic sectors as models of long-range planning. On the other hand, it may be that once goals are articulated in states' 5-year plans, this locks the state into a specific allocation of resources. More research would be required to determine what factors allow states' long-range planning to apparently be so accurate. Some factors cannot be predicted, however, as is clearly shown in Louisiana's evaluation report for 2003-2007: Hurricanes Katrina and Rita in 2005 significantly affected the goals that could be accomplished, and even what goals were important.

## Correlating Goals to Methods

Table 4 presents the frequencies with which different methodologies were used to investigate the accomplishment of LSTA goals. The distribution of methods within each goal closely resembles the distribution of methods employed in states' evaluations overall: the correlation between goals and methodologies is not significant. This may be an indication that the choice of a methodology for evaluating the accomplishment of goals does not reflect its appropriateness to the task. Rather, the choice of a methodology may instead reflect its popularity generally and its perceived ease of implementation. Surveys are one of the most widely-used methodologies, and are also widely—if incorrectly—perceived to be easy to develop and implement.[10] It is therefore not surprising that surveys are the most widely-used method across all goals. Document analysis is similarly appealing for evaluators as it does not require collecting new data, and is therefore often seen as being efficient given the time constraints evaluators typically have. Again, however, rigorous content analysis is more time-consuming and complex than it is often perceived to be. An area for further work that would be extremely useful for both the IMLS and state library agencies is the determination of the appropriateness of different methodologies for evaluating various types of goals and outcomes.

**Table 4: Percentages of methods used to investigate the accomplishment of goals, for both 1998-2002 and 2003-2007**

| | Rendon Group Goals | | | | | |
|---|---|---|---|---|---|---|
| | **A** | **B** | **C** | **D** | **E** | **F** |
| **Survey** | 34% | 29% | 28% | 31% | 40% | 31% |
| **Interview** | 19% | 21% | 21% | 18% | 14% | 20% |
| **Document analysis** | 25% | 24% | 21% | 22% | 14% | 23% |
| **Site visit** | 8% | 8% | 10% | 10% | 17% | 10% |
| **Focus group** | 15% | 16% | 18% | 18% | 14% | 16% |
| **Town hall meeting** | 0% | 1% | 1% | 0% | 0% | 0% |

### Overall Quality of the Reports

As one might expect, the readability and overall quality of the evaluation reports varied considerably from state to state. Some were quite lengthy and some were quite short; some were poorly organized and difficult to follow in their presentation; some included examples of the data collection instruments as appendices and some did not; others subcontracted the evaluation effort to consultants while some performed the evaluation in-house. None of the reports used sophisticated statistical analyses: the most extensive analysis typically was cross-tabulation tables. A number of the reports would have to be graded as a C– or lower in terms of meeting the general requirements for a quality evaluation report that would meet the needs of the state library agency to make recommendations for improving existing programs or justifying new programs. While some did an excellent job of addressing the IMLS's recommendations for writing these reports,[11] a number did not.

## Discussion

The review of the various LSTA state evaluation reports provides numerous discussion topics that affect the overall quality and usefulness of these reports. The authors believe that the following items are some of the most important.

**Standard Terminology.** A number of states use terms such as goals, objectives, sub-goals, strategic directions, etc., in very different ways. Conducting a meta-analysis across content that uses inconsistent terminology required the authors to extrapolate these terms such that they could be better compared. A better understanding of how to use and define these terms at the state level would assist in conducting such a meta-analysis. Standardizing terminology could also make writing these reports easier, allowing for more effective and efficient longitudinal comparisons at the state level, as well as in the aggregate, across states. Further, standardization would aid the IMLS in its use of these reports, both for informing subsequent development or revision of LSTA program goals and providing evidence of the impact of these funds when communicating with funders, library administrators and practitioners, end-users, and other stakeholders.

**Vague and Broad Goals and Objectives.** While some states did an excellent job of listing goals that were clear and objectives that were measurable, many others did not. The inclusion of poorly-conceived objectives, or objectives that were politically expedient but could not be measured easily or with validity, is an issue requiring more attention. Further, some reports include goals that were too narrow and should have been objectives, or objectives that were too broad and should have been goals. Developing clear goals and objectives is a difficult task, but there is some evaluation literature on how to do this.[12] As noted above, guidance on appropriate evaluation terminology may help to standardize ways in which libraries develop and then ultimately measure their goals and objectives.

**Emphasis on Surveys and Outcome-Based Evaluation.** The IMLS has spent some considerable time and effort over recent years stressing the importance of outcome based evaluation (OBE) as a means for gauging the success of library programs and services. In fact, there may be a number of additional types of

program assessment approaches that should be considered for use by the state library agencies other than OBE. Moreover, the heavy dependence on surveys as opposed to other kinds of assessment techniques (e.g., log file analysis of Web sites) suggests the need for more innovative evaluation approaches and methods.

**Planning for Evaluation Methods and Measurement.** As far as the authors could determine, many states did not conduct a planning process to consider how to conduct an evaluation, and what types of measures would be most important and appropriate for programs before those programs were implemented. Indeed, it was clear that "post-hoc" evaluation and determination of measures was common in these reports. Evaluations that had pre- and post- program measurements were only rarely identified.

**Simplifying the Process.** Despite the findings reported in this study, it is clear that for many state library agencies some considerable time and effort—and expense—goes into planning and implementing the 5-year evaluations. Given the mixed results identified by reviewing these reports, the IMLS should consider easier yet more powerful ways for state library agencies to demonstrate the usefulness and impact of their LSTA allocations.

**Additional Research.** The work reported here is exploratory and raises numerous additional topics that are worthy of additional research, such as:

- How do state library agencies use these evaluation findings to improve existing programs or shape new programs and services?
- To what degree do state library agencies have the evaluation capacity either to conduct evaluations in-house or to manage consultants who conduct the evaluations?
- What are the specific training needs of state library staff related to evaluation, measurement, and assessment?
- To what degree do these evaluation reports assist the state library and the IMLS to justify the LSTA program?
- What reasons can be put forth for the large number of goals that are not accomplished or for which only "progress" is made?
- What costs are associated with accomplishing the various goals?
- Do federal policies and guidelines regarding LSTA need to be revised to make the 5-year plans and evaluations more useful and have greater impact?
- How do IMLS staff assess the overall usefulness and impact of the evaluation reports, and how would that assessment compare to a similar assessment by the Chief Officers of the state library agencies?
- What quality control processes could be established—by the IMLS or other stakeholder—to assist state agencies in planning and conducting evaluations?

These are but some of the more interesting topics that deserve additional future discussion and research.

## Conclusion

Every state is required by law to submit 5-year LSTA evaluation reports. It is therefore in the best interests of both the IMLS and state library agencies to develop these reports such that they can be used to monitor and improve existing programs, determine the degree to which new programs are needed and what those programs might be, and demonstrate both to the federal government and other constituencies the impact and usefulness of LSTA allocations to the states.

Despite the excellent information on the IMLS Web site regarding the development and submission of these 5-year plans and evaluation reports, it is clear that more training needs to be provided to a number of the state library agencies on how these reports *should* be done. Instructions and tutorials on evaluation can be found on the IMLS Web site, and other institutions have developed their own, including: the Information Institute at Florida State University (www.ii.fsu.edu); The University of Washington (ibec.ischool.washington.edu/toolkit.php); The University of Central England, Birmingham (www.evalued.bcu.ac.uk/outcomes); and the Florida State Library (www.lstatoolkit.com/index.cfm). Despite this, our investigation provides evidence that, overall, state library staff need more training in evaluation in general and in completing the LSTA evaluation reports specifically.

Space does not permit in this paper a detailed set of recommendations for revamping the entire IMLS LSTA 5-year planning and evaluation process. Such an effort, however, should be

considered. For a number of state library agencies these 5-year plans and evaluations are "canned" activities that are done because they are required and the state cannot continue to receive its annual LSTA award if they are not done. It is fair to infer from our findings that some states' evaluations are performed less to assess the impacts of funded programs in a comprehensive manner, and more in response to this funding requirement. For its part, the degree to which IMLS provides consistent and high-quality feedback to states on the quality of these reports is unclear—but would be another interesting follow-up study.

That the state evaluation reports assessed only 39% of the stated goals as completely accomplished suggests a need to review the overall process and assumptions underlying the IMLS' procedures related to state library development of the 5-year plans and evaluation reports. While there may be many reasons for this finding, and many reasons for the wide variance in the overall quality of the reports, a more formal effort by the IMLS would be appropriate to better understand these issues and how best to improve the usefulness and impact of these reports.

## Acknowledgements

The authors wish to thank Bruce Kingma for his advice and feedback on our methodology. The authors also wish to thank the State Library of North Carolina for the opportunity to work on the LSTA 5-year evaluation in North Carolina, which prompted our work on this study.

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## Endnotes

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12. See, for example, Michael Q. Patton, *Utilization-focused Evaluation: The New Century Text*, 3rd ed. (Thousand Oaks, CA: Sage Publications, Inc., 1996).

# Research Evaluation: Changing Role for Libraries?

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## Abstract

A shift is underway in academic institutions where the library is increasingly playing a central role in research evaluation and performance assessment. This shift is more visible in countries where comprehensive national level assessments are being implemented but even in decentralized educational systems such as that found in the United States, the library is involved in new ways as the institution undergoes assessment and impact exercises. The library is being called on to extend its traditional service provider role of supplying information and collecting data for periodic reviews to now implementing tools and systems that enable systematic institution-wide evaluation processes.

This change for the library reflects a broader trend in all aspects of managing academic institutions. Performance measurement is an important component in managing the academic enterprise though also one where few guidelines, standards, or best practices exist. Indeed approaches to research evaluation vary by discipline, type of institution, and across geographic boundaries. Thomson Reuters, Scientific, through the Science Citation Index, has been at the center of this evolution by providing traditional research impact and bibliometrics analyses and also by providing institutional data and analyses on institutional, journal, and author productivity and impact.

This paper will look at some of the drivers that are causing the shift in focus and the changing role for libraries within the academic institution. It will describe some of the data and tools—traditional and emerging—that are available for monitoring and assessing research performance. Measures will be discussed in the context of the library and its role in evaluating the journal collection, tracking the output of the researchers, and assessing the overall impact of the institution. Summary data from recent TS studies will be presented.

## Introduction

The current academic environment of assessment and measurement has been described as pervasive, relentless, chaotic, and uncertain. Increased requirements to demonstrate value, to determine impact, and to justify all resource allocations are demanded from all parts of the institution and increasingly visible across each phase of the scholarly communication and research workflow—though the drivers and metrics may vary depending on whether one is looking at an operational unit such as a tech transfer office, an academic entity such as a research institute, or an individual such as a PhD student or faculty member. This pervasiveness is evident in the papers presented here and indeed in the literature of many disciplines and professions. Outside of journals that are primarily concerned with evaluation, measurement, and research management, discipline specific journals such as clinical medicine, law, nursing, even the math community, have recently addressed evaluating and measuring the output and impact of their field in recent issues.

The perspectives for this paper are the result of a series of multi-year research studies undertaken by the scientific division of Thomson Reuters beginning in 2004. The studies represent both qualitative and quantitative research including surveys, in depth interviews, and online forums. Subjects in the research included key academic administrators drawn from the a worldwide community of research organizations and included titles such as: provosts, vice chancellors, university presidents, research deans, VPs for strategy, university librarian, directors of funding organizations, academic deans, and chief information officers. Additionally, subjects were drawn from what might be termed operational units of the organization including institutional research office, sponsored research, research management, tech transfer, public affairs, and those departments that support the academic mission while not always being directly involved in active teaching or research roles. Finally, public and private institutions were represented as were large

research intensive as well as smaller education-focused universities.

All major geographic regions were represented including Asia Pacific, Europe (Western, Northern, Eastern), in addition to North America and Latin/South America. Some of this research was conducted under the auspices of the TRS institutional partner program which involves working collaboratively with library partners to conduct research that is of interest to Thomson Reuters and the library.

## Background

The impetus for the research was in response to new and different questions regarding research evaluation and output /impact measures. Largely, these questions are managed by a research office within the organization that has for over thirty years conducted citation analyses and output measurement studies. These are shared via research papers, newsletters, and through delivery of large-scale aggregated statistics as well as custom metrics and analytics deliverables that are used by national science policy makers worldwide, many academic institutions, publishers, and individual researchers interested in the evolution and management of science.

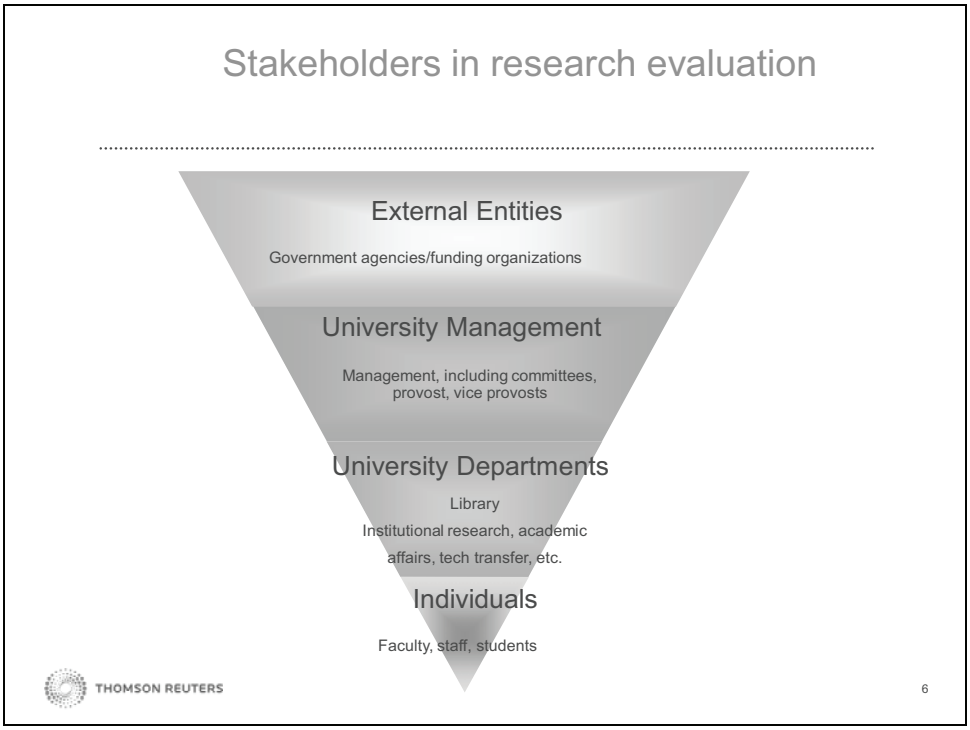
The discussions in the research centered on:

- Exploring how academic administrators use, source and apply citation metrics in their decision making. Much has been written and researched on the role of the Impact Factor in evaluation but application of other citation analyses are less well understood by the community though widely applied in some fields and geographic regions.
- Describing the set of tools, content, and services in place at the institution to support evaluation efforts. Included here was a desire to understand methodologies, metrics (traditional and emerging) standards, and processes in place or well defined.
- Identifying the key participants, stakeholders, and consumers, of research evaluation data, outcomes, and impact studies. And with an understanding of the roles, we also sought to understand the flow of information in the evaluation network.

Results of the studies have been distributed widely within the participating institutions and a summary report of the cross study view will soon be presented in a whitepaper available on the Thomson Reuters Web site.

## Discussion: Stakeholders in Research Evaluation

In looking at the participants in the discussion and the constituents they serve and/or interact with, a representation of the stakeholders emerge. They are represented here by the pyramid where the entities driving the evaluation requirements are represented at the top. The External Entities such as funding organizations, state legislatures, and external accreditation bodies represent the driving forces shaping the increasing need for evaluation and evaluation processes. Similarly as one moves down the pyramid, the University Management segment represents those engaged with the academic management of the institution. Here are the deans, VPs for research, presidents, vice chancellors, etc. University Departments includes what may be termed support organizations or units within the institution even though they may be actively involved with research efforts in addition to supporting research and administration activities. Examples include the library, the office of institutional research, technology transfer departments, research administration, and indeed financial systems. Finally, at the end of the pyramid, are the Individuals—those often the subject of research evaluations and representing the output and productivity of the institution. An inverse of this pyramid would represent the size of the populations where there are many more researchers and faculty than external funding bodies for example.




## Drivers for Increased Research Evaluation

As stated above, overall respondents noted that measurement of research output and impact is a component in all areas of managing the academic enterprise though also one where defined processes or established workflows are in place. Indeed, approaches to performance measurement vary by discipline, type of institution, and across geographic boundaries. At the same time common themes and pressures exist and center around:

- **Funding Pressures:** All administrators face increased competition for funding and greater pressures to compete effectively for large scale research project funding. In academic institutions, allocation of resources is tied directly to researchers' and departments ability to secure external research funding. Individuals are tasked with garnering funding earlier in their careers; funders are charged to assess the impact and ROI on their funding decision.
- **Efforts at Objective Approaches to Promotion and Tenure:** Within universities, there exists a desire to utilize transparent, consistent, and less ad-hoc processes in the career assessment and promotion exercises. Within the US this manifests itself as a desire to reform the promotion and tenure practice, while in other parts of the world, where funding is more centralized, the goal is to allocate funds to those individuals and departments who are producing work which is having a research impact.
- **Reputation Management and Demonstration of Achievement:** Across all stakeholder groups' reputation and brand management is a critical component and area of concern for administrators and individuals alike.
- **Global Competition in the Sciences or Big Science, Large Scale Medical Research Projects:** Within the National Institutes of Health in the US, and across other national science agencies, recent focus of funding has been on large scale, cross institution, multidisciplinary initiatives. The Centers for Translational Medicine for example pose new challenges for evaluation and assessment with a particular requirement to assess impact and measure results throughout the lifecycle of the projects. Related are growing emphasis on collaboration and indeed international collaboration. Researchers seek to collaborate with scientists in related fields and across geographic boundaries in order to create a more diverse research environment, to extend the reach of their work and to stay competitive in their careers and science.
- **Changing Nature of Scholarly Publishing:** As the so called "open access movement" changes

how publishers and librarians disseminate and manage scholarly output, there exists growing desire to understand the impact of research depending on its funding model, on the distribution model, and indeed on the iteration of the dissemination, i.e., to be able to compare the impact of a pre-print in an subject repository to the final published work as it appears in the traditional journal publication. Tracking and measuring research performance of the overall output of the institution is also related to these changing output trends and opportunities. Online repositories—discipline, institution, or country all are creating new challenges for all stakeholders.

## Challenges in Measuring Research

Moving beyond the disparate forces that drive output and impact evaluation, institutions engage in regular data gathering to support their evaluations. A range of measures are regularly gathered by academic institutions. Many of these are required for data gathering exercises required by internal and external agencies such as funders, annual reports, accreditation agencies, and reputational or media surveys. The table below list the most cited measures—those that are collected on a regular basis, those that they are required to track and report, and those that they desire to track with regularity. Generally public institutions were more likely to track and report a range of measure on a regular basis while in private institutions a strong desire existed to manage these data in a more systematic way.

| **Measures**: *Most frequently occurring measures tracked by academic institutions* | |
|---|---|
| Faculty salaries | Grant funding |
| Research expenditures | Awards and honors |
| Research output | Patents |
| Private gifts | Graduation rates |
| Faculty reputation | Enrollment growth |
| Teaching performance | Faculty turnover |
| Endowment growth | Accreditation |
| Faculty and student diversity | Faculty hires |
| Peer characteristics | Internal funding sources |
| Student retention | Student performance |

Significant barriers exist for institutions in compiling these data on a regular basis and the challenges center around:

- Sourcing and compiling data;
- Coordination across types of assessments: duplicative efforts where the same data are gathered multiple times by several departments;
- Standard measures across institutions, countries;
- Need for understanding of organizational attributes and structures in order to do viable peer comparisons;
- Lack of standard data definitions and consistent update frequencies;
- Confidence in Methodologies and Approaches: the right tools for the job;
- Absence of integrated systems and tools; and
- No central (organizational, national, international) databases to provide regularly updated data.

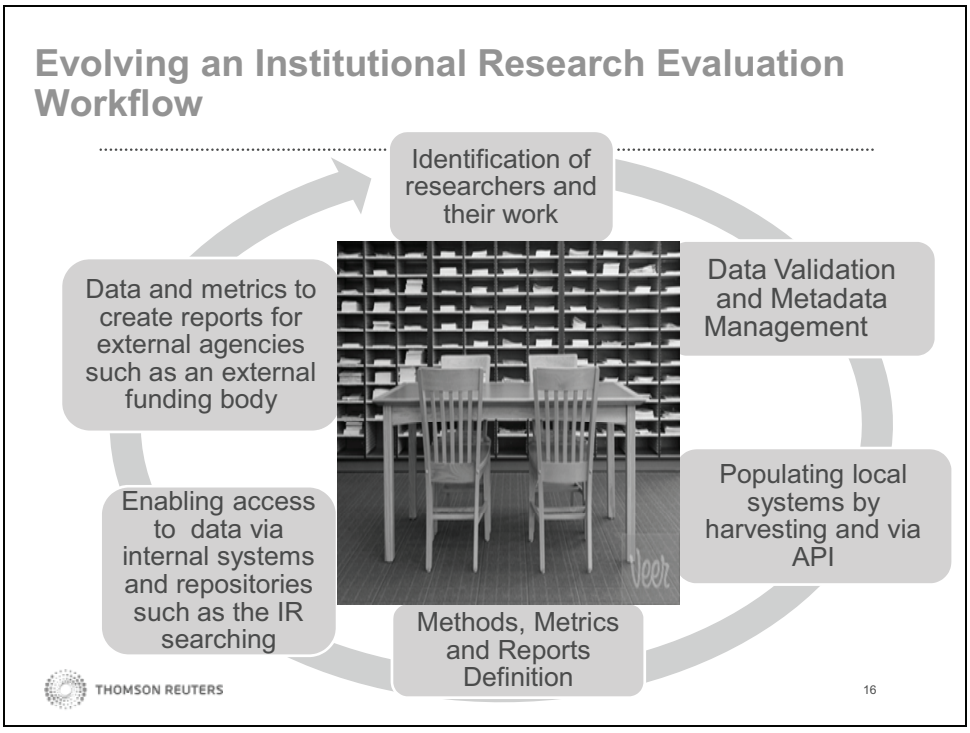
## Role of the Library in Supporting Institutional Research Evaluation

When considering the goals, drivers, and challenges facing institutions in their research evaluation needs, there exist many opportunities and roles for the library. Outside of the North America, especially in the UK and Australia where national level research assessment schemes are being established, a new and changing role for the library as key coordinator, and systems manager, is already taking shape. Over the course of 2008, many libraries have taken on a central role in creating integrated data systems to support the ongoing aggregation of data, outputs, and metrics. These efforts are increasingly coordinated with other evaluation efforts that are critical to the library such as building institutional repositories or assessing the impact of open access research for the institution's authors and researchers. A number of activities are converging in terms of the institution's

needs and the library's evolving role to support it. These include efforts around:

- Tying research evaluation activities to core library services—collections (journals) and services that are acquired, used, cited, etc;
- Application through enhanced, integrated, flexible services, collections, and support systems;
- Increased role for institutional repositories;
- Coordination among collection and use of data;
- Understanding of integrated systems development;
- Equipped at researcher level service delivery;
- Application across multi level campuses or collaboration institutions;
- Policies, best practices; and
- Technology support for interactivity and data supplies.

Finally, perhaps most obvious is the emergence of a workflow to support research evaluation. While this workflow cuts across many departments and extends from the external community to the individual researcher, the library is playing a central role in shaping and implementing the workflow to ensure an integrated approach to aggregating, managing, storing, and exposing, the institutions research output in such a manner that it can be both measured and have widest possible impact.




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# Student Research Behavior: Quantitative and Qualitative Research Findings Presented with Visualizations

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## Abstract

The authors investigated the information-seeking patterns of 650 college students at the University of Maryland, College Park and explored ways to generate knowledge about research behaviors. Through focus groups and individual interviews, students from a wide variety of matriculation levels and subject areas described the tools they used and the order of use. Construction of the interview analysis application is described here, including interviewing techniques, interview form, results coding sheet, application structure, and screen shots from a Web-based prototype application that renders tables, charts, and graphs about student research behavior from the data set. This methodology helps analyze information-seeking behavior data regarding library and non-library, and Internet/non-Internet resource use. It can make comparison of this dataset with other datasets possible, and can help track emergent behaviors and tool use in the future.

The contents of this presentation reflect the views of the authors who are responsible for the opinions, facts, and the accuracy of the data presented. The contents do not necessarily reflect the official views or policies of the National Library of Medicine, National Oceanic and Atmospheric Administration, or University of Maryland Libraries.

## Introduction

As librarians, we spend our careers determining what information our audiences need, but we don't spend enough time finding out what people actually do and what they want.[1]

Library-related initiatives such as ARL's MINES for Libraries™,[2] COUNTER,[3] the Normative Data Project for Libraries,[4] and the Penn Library Data Farm,[5] as well as non-library-related initiatives such as the U.S. Census Bureau's Community Economic Development HotReport[6] combine information technology and reporting standards to help us make sense of large amounts of data.

This project envisions an Internet-based platform on a smaller scale that analyzes the results of one-on-one interviews about information-seeking behavior and allows flexible rendering of statistics about behavior using an analytics dashboard similar in appearance to OnLine Analytical Processing (OLAP) interfaces used by business executives.

To be worth the development effort, such a platform should address several management challenges and emergent needs that confront librarians and administrators:

- The rise of emphasis on evidence-based practice; the interest in local assessment techniques, and analyzing local evidence.[7-10]
- The need for a coherent picture of ALL information resources in the life of the user, a full view that is person-focused rather than institution-focused,[11-13] expressed through a taxonomy derived from behavior that can aid in building models of student information-seeking behavior, and can accommodate new behaviors and spot trends.
- The advancement of an Internet-based prototype utilizing search queries and statistical depiction code to render the taxonomy into a browsable and "walk-up usable" interface. If a picture can be said to be worth 1,000 words, the right interface and information designs could be worth 1,000 pictures.[14]

- The interface should allow its users to visualize current information-seeking behavior by exploiting "the dynamic, interactive, inexpensive medium of graphical computers to devise new external aids enhancing cognitive abilities."[15] Statistical displays should help people think more spontaneously and more deeply than before regarding traditional and emergent information-seeking behaviors.
- It should allow analytical capabilities and understandings to be "pushed down the organization" in a way that helps analytically sophisticated users accomplish their work, but also put the analysis of information seeking behavior within the grasp of anyone who is interested, including less sophisticated users.[16]
- Several methodologies exist for improving organizational effectiveness through analytics by focusing on skills, sponsorship, organizational culture, and/or information technology.[17-19] This small, re-configurable application could serve as a useful test case for building analytical "capability maturity" among staff, and could provide insights on what our organizations require in order to get the clearest, most practical understanding of information-seeking behavior.

This paper describes three types of work undertaken to address these challenges and create the prototype:

1. Building an understanding of previously used statistical depictions of the information-seeking behavior of college students.
2. Building new knowledge about how people currently search for information and integrating this into a taxonomy of behavior. We gathered data through focus groups and individual interviews with 650 students at the University of Maryland, College Park, in 2005 and 2006.
3. Making decisions about what behaviors should be rendered in the interface.

Data shown in the analytical dashboard screen shots comes from 544 interviews of University of Maryland students in 2005 and 2006. The sample design was one of convenience and ran for two weeks each year as part of a graduate class. Not being a random sample, generalization is not possible.

## Part 1. Understanding Statistical Depictions of Student Information-seeking Behavior

Table 1 organizes statistical depictions of college student information-seeking behavior into five categories that emerged from an analysis of research studies. A *statistical depiction* is defined as a table, chart, graph, or other information graphic, but also includes prose descriptions of more than a few lines; the preference for data density was important to building the analytics application.

**Table 1. Overview of the types of statistical depictions researchers have created that are partly or completely amenable to the data set of this project.**

| Category | Sample topics | Studies including statistical depictions |
|---|---|---|
| **"eResources"** (anything Internet-based) | Comparisons between search engines and library resources | George,[20] Griffiths,[21] Jones,[22] Lubans,[23] OCLC 2002,[24] OCLC 2006,[25] Urquhart,[26] Van Scoyoc & Cason[27] |
| | Whether a distinction is made between course-related, vs. non-course-related, searches | Urquhart |
| **"The library"** | Library as a place: Who uses resources in the building and how | George, Lubans, OCLC 2006 |
| | Whether and how a librarian was consulted | George, OCLC 2006 |
| | The library's online resources: Frequency of use; who used; how used; adequacy of | George, Griffiths, OCLC 2002, OCLC 2006, Van Scoyoc & Cason |
| **Behavioral aspects** | Order of resources used; library site or search engine first, etc. | Griffiths, Head,[28] OCLC 2006, Urquhart |
| | How behavior might differ by year in school | Jones, Perry,[29] Van Scoyoc & Cason |
| | Location where student searched | Perry |
| **Consultation with people** | Whether the professor/advisor provided advice, or other students were consulted during the search | George, Jones |
| **Demographic aspects** | Number of participants by college of study / discipline (Note: year in school is covered under behavior) | George, OCLC 2006. |

There was variance across studies regarding the population studied, making it difficult to compare and contrast across studies. Lubans studied only first-year college students; George studied only graduate students.

The research team took special interest in the depictions cited in Table 1 because most can be rendered from this project's data set. Other statistical depictions of student research often make up the bulk of published studies, but are outside the scope of the present study; these include how students chose a resource and affective aspects such as trust in a specific resource and confidence in one's search success. For example, these were a primary focus in OCLC 2006, Lubans, George, OCLC 2002, and Jones.

Another common form of statistical depictions are those from server log analysis; the present research focuses on counting resource accesses as well, however this project relied on the recollections of people rather than the more concrete information tool "accesses" gathered by software. This methodology sacrifices precision for broader scope and detailed demographics.

## Part 2. How University Students Currently Search for Information

During 2005 and 2006 researchers studied the information-seeking behavior of more than 650 university students at the University of Maryland, College Park, a large land grant state university. We sought to determine:

1. What contemporary university students' information-seeking behaviors are;
2. What role(s), if any, libraries and/or librarians play in these behaviors; and
3. Whether those behaviors and roles differ according to level of matriculation, from first year students through graduate school.

Secondarily, we wanted to determine what contemporary students' mental models are—if any—of the tasks performed by librarians (not addressed in this paper).

### Focus Groups

In 2005, researchers Travis Johnson, Gerry Foudy, and Neal Kaske conducted twelve focus groups with students of all years, freshmen to graduate students, totaling 110 students. The questions asked included what students did first, what they did second, and their perceptions of librarians and their work. Results are described in Foudy, Johnson, Kaske, and Wendling.[30]

### Individual Interviews

Individual interviewing was conducted by two consecutive classes of Library Planning and Evaluation (LBSC 713) students at the University of Maryland's College of Information Studies. Instructor Neal Kaske, PhD, introduced students to a sample of convenience and critical incident reporting methodology. Students practiced by interviewing their fellow students and filling in an interview form (Appendix A).

The students then conducted interviews with 10-15 UMD students each, usually on campus but not in or near a campus library. After signing a waver the interviewees were asked to describe their most recent course-related and most recent non-course related searches for information. Interviews were conducted in April and November, a time when students would not have trouble recollecting such an event. Interviewees were asked: "What did you do first," "What did you do second," etc., up to five things they could recollect. Some interviewees offered more than five. A small amount of additional information was gathered, including major, year in school, gender, location of interview, and an anonymized interviewer designation.

The LBSC 713 students then coded the results using an interview coding sheet (revised as Appendix B), with each interview form being coded by at least two students for accuracy. The coding sheet was created by converting the behavioral model in Abels[31] into a more linear form. Through nine drafts the researchers incorporated focus group findings, and student interviewers tested and improved the structure so interviews could be accurately coded. The tenth version included with this paper was created later; it is better suited to counting operations. A total of 544 interviews were processed. The 2005 class coded on paper and the codings were later added to a database; the 2006 class used Excel to submit codings.

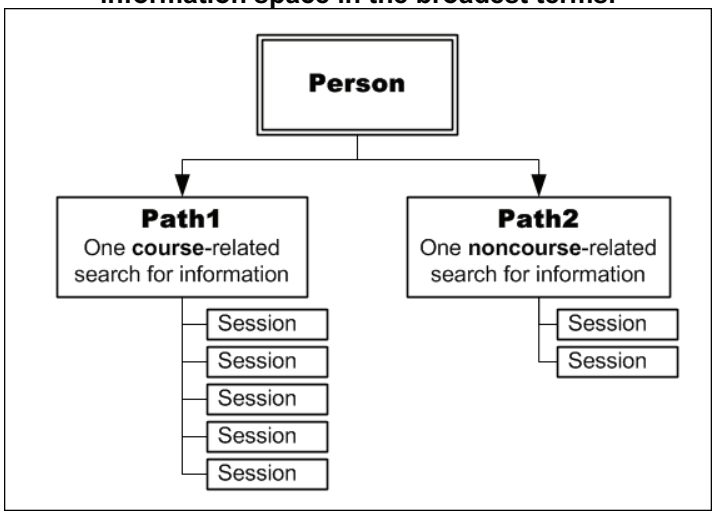
## Part 3. Rendering Student Behavior in an Analytics Dashboard

This prototype application was designed to articulate, and establish new ways to articulate, how college students look for information. Unlike many studies, this one attempts to keep the numbers "alive" so fellow researchers are able to move through the dataset in multiple ways. While the application is unfinished and functionality is somewhat limited, it is finished enough to start a conversation about new ways to depict information-seeking behavior.

### From Results to Calculations

As described above, students were asked about themselves and two search paths, their most recent course-related search and their most recent non-course-related search, as shown in Figure 1.

**Figure 1. Persons, paths, and sessions describe how people move through the information space in the broadest terms.**



**Person** information includes year in school, gender, and major. The major was used to derive 'school or college name' and to put each student into one of the following broad academic area categories:

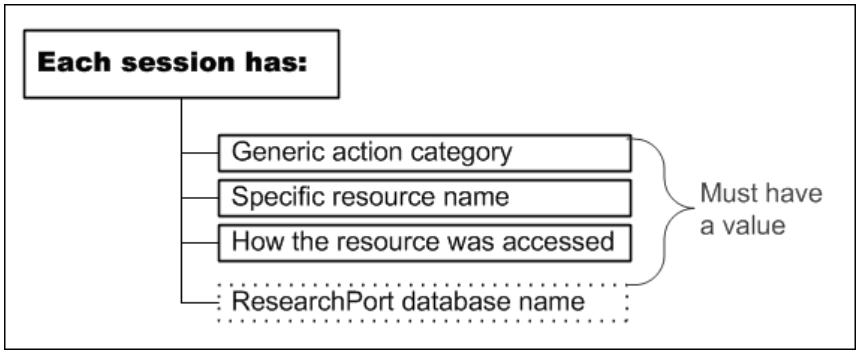
- Arts and Humanities
- Science and Technology
- Social Sciences and Allied Professions
- Other/undeclared/unknown

The search **path** comprises everything the person did to satisfy one search for information. Most interviews described two paths, one course-related and one noncourse-related.

Each path is divided into around two, but up to seven, sessions. Here the term **session** is defined more broadly than the definition used by COUNTER[32]; in this methodology a session started when a person accessed a resource and the session ended when the person stopped using that resource. For a person who searched UMD's Catalog, then searched UMD's ResearchPort system, then visited the library stacks, three sessions were recorded. Google sessions comprise going to Google, finding sites, and going to those sites. Sites accessed via Google are considered search-engine-related sites, which are separate from sites counted as being on the "open Web." An example of a visit to a site on the open Web would be going to the CNN Web site by using a bookmark or typing http://www.cnn.com into the browser address bar.

Each session has three mandatory components and one optional component as shown in Figure 2.

**Figure 2. Breaking up the session contents allows for recombination of elements and flexible visualizations of behavior.**




The **Generic action category** aggregates similar resources; as shown in Appendix B it puts ResearchPort database sessions together with library catalog sessions under the label "Accessed UMD library eResources."

The **Specific resource name** is the tool name the student told us, such as "UMD Catalog."

**How the resource was accessed**, also referred to in the interface as "ViaMechanism," describes the way the student accessed the resource. Examples include "Remote search" or "From library computer." In the original coding sheet the primary options were "Remote search," "Went to a place," and "Asked a person," so we can infer that "Remote search" means a search from home. As noted in Appendix B, revision of this item in future codings may be warranted.

When the interview coder was unable to select an item for the above three categories from the coding sheet, they created a new value or used "unknown"; no blank entries were allowed in order to enable percentage calculations.

When the university's **ResearchPort** database system was used, the record includes the specific name of the ResearchPort resource, or "Unknown."

Appendix C demonstrates an XML version of one complete interview record.

## Building the Application

Evolving a way to render behaviors accurately through a user-friendly design evolved through several interfaces and coding configurations; the resulting prototype application is based on MySQL, a popular Web-based database application, and Adobe ColdFusion Server, a popular scripting and Web-page-rendering toolset. Through SQL and ColdFusion any element or group of elements can be paired with any other element or group of elements.

The primary benefits of selecting these tools are:

- The application would run on most institutional web servers (if a future version of the application is released for use by others);
- Readily available development support; and
- The potential for new statistical depictions to be rendered by others (if the application architecture were opened up), to analyze this data set or other similar data sets.

Limitations of selecting these tools include:

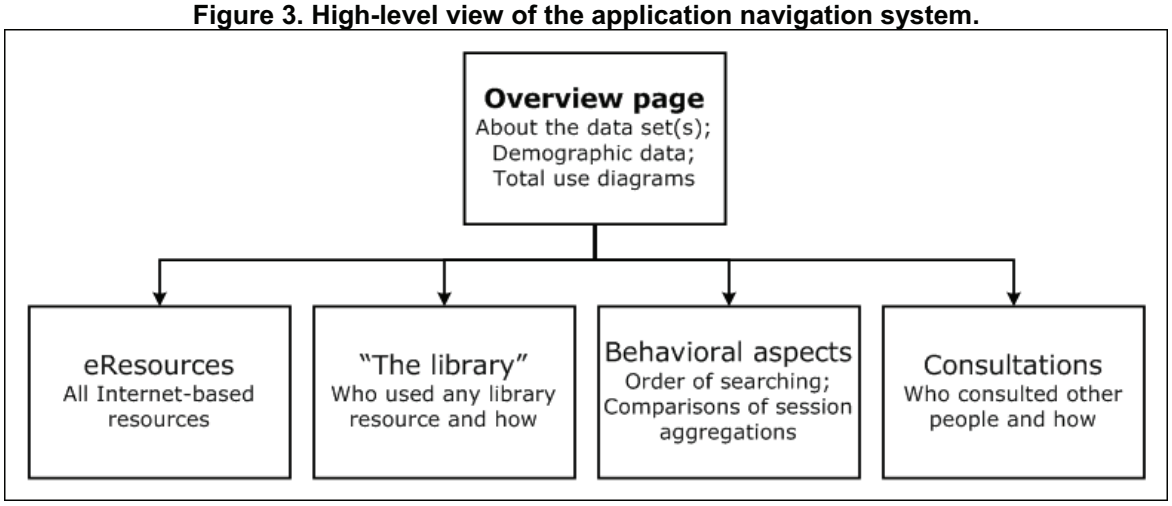
- Problems controlling the space within and around charts;
- Inability to put data values near graphic elements;
- imitations in depiction elements that make some displays; and
- Limited functionality due to the beginning- to intermediate-level skill of the person scripting the prototype.

More benefits and limitations are listed below.

The objective was to create "the simplest dashboard that works" based on a data-mining-type structure, rather than a best-practices database structure. This reduced the work required to revise queries, database entries, and graphical renderings after updating the taxonomy.

Figure 3 describes a simple site map for the application.

**Figure 3. High-level view of the application navigation system.**



## Selected Screenshots from the Prototype Application

**Figure 4. Course-related search activities of all 544 interviewees divided into eResource use, library resource use, and consultations with other people. (Grayed out diagonal text is not part of the study findings; it says "Adobe ColdFusion 8 Developer Edition, not for production use," meaning that version of ColdFusion should not be posted to the Internet.)**

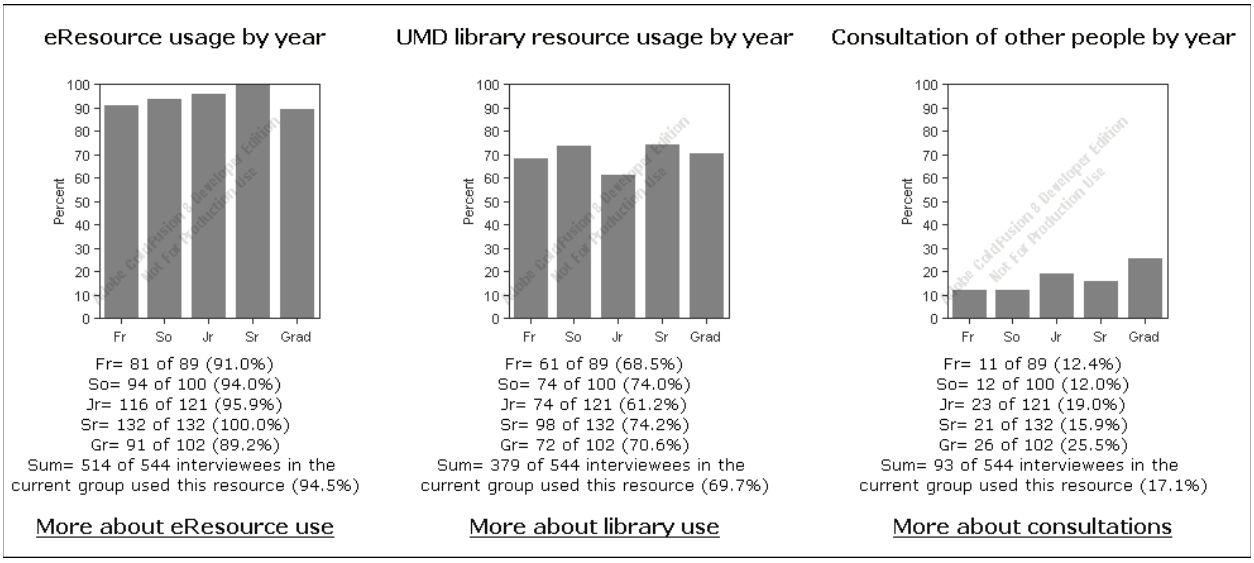



**Figure 5. Tools used to find information in the course-related activities of all 544 interviewees, and the order of their use.**

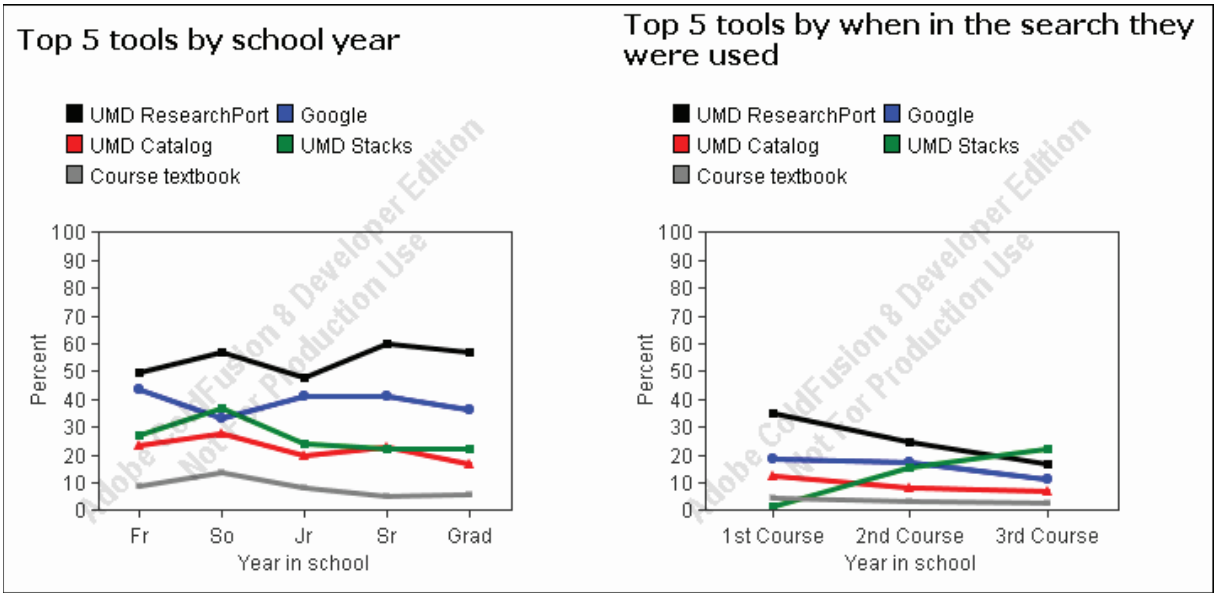


**Figure 6. The Library tab, showing several graphical depictions on the right and the "drill-down" categories on the left. Here the user clicked on the academic area "Social Sciences and Allied Professions" in order to limit results to that group of 162 students.**

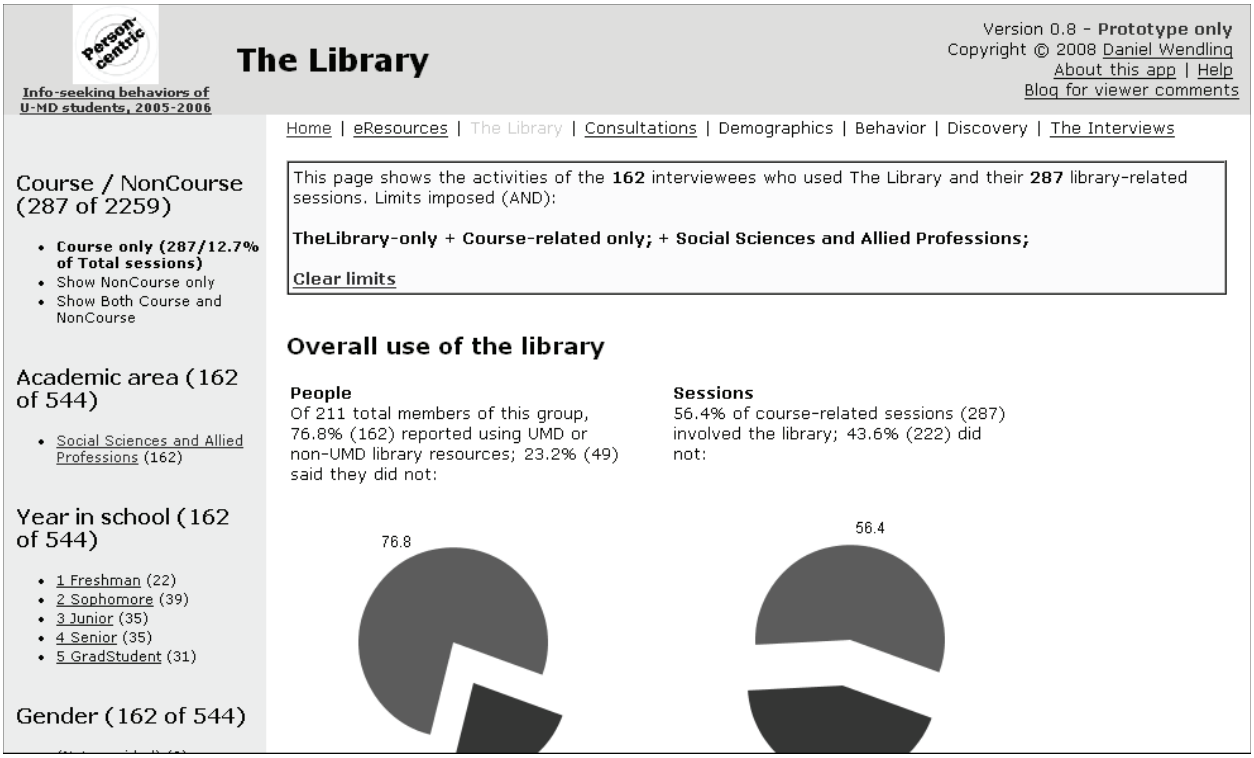



**Figure 7. Here the user clicked on the academic area "Science and Technology," and this tag cloud shows how 123 science and technology students used the library or library resources (such as a computer in the library) in their last course-related search.**

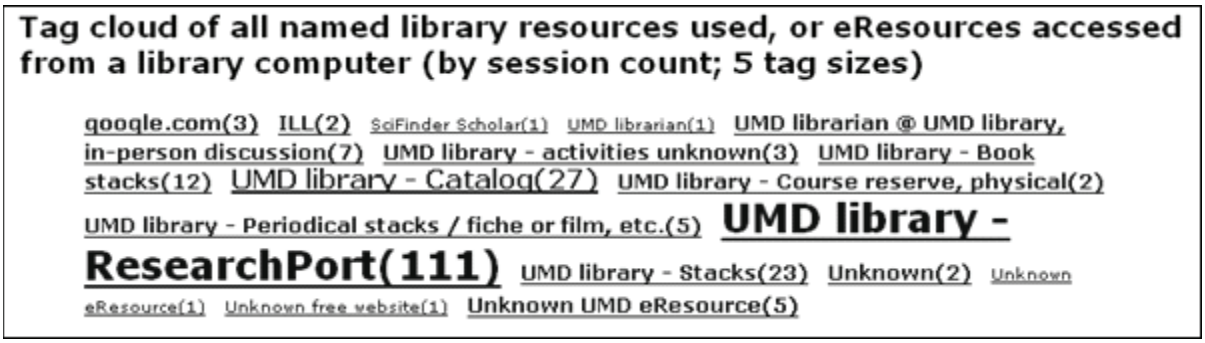
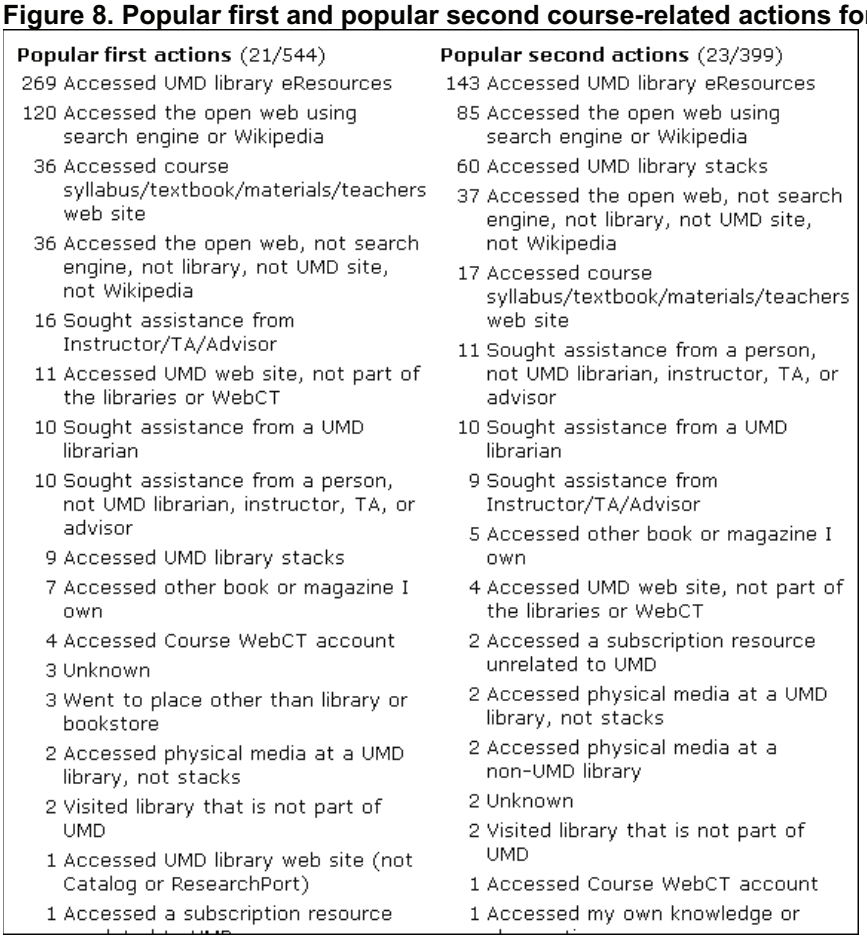


**Figure 8. Popular first and popular second course-related actions for all students (separate counts).**



| Popular first actions (21/544) | Popular second actions (23/399) |
|---|---|
| 269 Accessed UMD library eResources | 143 Accessed UMD library eResources |
| 120 Accessed the open web using search engine or Wikipedia | 85 Accessed the open web using search engine or Wikipedia |
| 36 Accessed course syllabus/textbook/materials/teachers web site | 60 Accessed UMD library stacks |
| 36 Accessed the open web, not search engine, not library, not UMD site, not Wikipedia | 37 Accessed the open web, not search engine, not library, not UMD site, not Wikipedia |
| 16 Sought assistance from Instructor/TA/Advisor | 17 Accessed course syllabus/textbook/materials/teachers web site |
| 11 Accessed UMD web site, not part of the libraries or WebCT | 11 Sought assistance from a person, not UMD librarian, instructor, TA, or advisor |
| 10 Sought assistance from a UMD librarian | 10 Sought assistance from a UMD librarian |
| 10 Sought assistance from a person, not UMD librarian, instructor, TA, or advisor | 9 Sought assistance from Instructor/TA/Advisor |
| 9 Accessed UMD library stacks | 5 Accessed other book or magazine I own |
| 7 Accessed other book or magazine I own | 4 Accessed UMD web site, not part of the libraries or WebCT |
| 4 Accessed Course WebCT account | 2 Accessed a subscription resource unrelated to UMD |
| 3 Unknown | 2 Accessed physical media at a UMD library, not stacks |
| 3 Went to place other than library or bookstore | 2 Accessed physical media at a non-UMD library |
| 2 Accessed physical media at a UMD library, not stacks | 2 Unknown |
| 2 Visited library that is not part of UMD | 2 Visited library that is not part of UMD |
| 1 Accessed UMD library web site (not Catalog or ResearchPort) | 1 Accessed Course WebCT account |
| 1 Accessed a subscription resource | 1 Accessed my own knowledge or |

**Figure 9. Popular first and second action categories that are concatenated to show the behaviors of specific people (there were 210 different behaviors among 544 students).**

| Count | Concatenated first and second actions |
|---|---|
| 68 | UMD library - ResearchPort |
| 34 | UMD library - ResearchPort \| google.com |
| 32 | UMD library - Catalog \| UMD library - ResearchPort |
| 32 | google.com |
| 21 | UMD library - Catalog \| UMD library - Stacks |
| 21 | UMD library - ResearchPort \| UMD library - ResearchPort |
| 17 | google.com \| UMD library - ResearchPort |
| 15 | UMD library - ResearchPort \| UMD library - Catalog |
| 11 | UMD library - Catalog \| UMD library - Book stacks |
| 10 | Unknown UMD eResource \| UMD library - Stacks |
| 8 | Course textbook \| google.com |
| 8 | google.com \| UMD library - Catalog |
| 6 | google.com \| Unknown free website |
| 5 | UMD library - ResearchPort \| UMD library - Periodical stacks / fiche or film, etc. |
| 5 | UMD library - ResearchPort \| UMD library - Stacks |
| 5 | UMD library - ResearchPort \| scholar.google.com |
| 4 | Course textbook |
| 4 | Instructor/TA/Advisor \| UMD library - Catalog |
| 4 | UMD library - ResearchPort \| Course textbook |
| 4 | UMD library - ResearchPort \| UMD librarian @ UMD library, in-person discussion |

## Pros and Cons of This System

### The Methodology—Pros

- Not hypothetical—asks what students really did in a recent information search rather than asking them to speculate or provide opinions.
- The taxonomy was built to describe all types of information-seeking behavior of college students, and is able to accommodate emergent resources and behaviors in the future.
- Readers of this paper should have enough information to replicate this study using the methodology described. The results could be analyzed using a desktop spreadsheet or database program.

### The Methodology—Cons

- The "Via mechanism" data that was collected in 2005 and 2006 was insufficient. Interviewers replicating this research may wish to break the current "Via mechanism" item into "mechanism used to access" and "location of access." This would make the behavior picture clearer.
- In this study, sampling by convenience was used. While results can be considered relevant, the lack of a fully randomized sample is a barrier to generating general conclusions about behavior from the current data set.

### The Application—Pros

- Like a WebTrends for interviews, the application takes interview data and turns it into a cohesive, browsable, diverse universe of behaviors, with multiple high-level entry points that allow the user to "get into a position to think" about student research behavior.
- It allows not just broad overviews but also the ability to "drill down" based on one or more demographic or information resource factors, such as arts and humanities students only, or who used Google first. The prototype's library tab allows the user to drill down to the individual interview level. This is an information visualization best practice described by Shneiderman and Plaisant as "Overview first, zoom and filter, then details on demand."[33]
- Allows the user to compare interview data in this data set to the statistical renderings given in other studies about information-seeking behavior. If a study is published in the future about how graduate students use the library, this data set can be limited to graduate students and library use to compare results.
- Such an application, when made available to all library staff, would make it easy for any staff member to learn more about how "local" students look for information.
- By providing examples of a wide variety of statistical depictions, the application could be capable of starting a conversation within the assessment community about the most-needed statistical depictions of information-seeking behavior.
- The application is constructed with common tools that are capable of public or private "cloud computing"—using such a system untrained workers could interview new samples, import the data, and analyze it alone or with other data, without worrying about how the application works. ColdFusion Server and MySQL are widely used applications on the Internet.

### The Application—Cons

- As a prototype the application is still under development. Much of its promise is unfulfilled.
- It is currently not compliant with accessibility regulations such as Section 508 of the Rehabilitation Act. It could not be run on servers that require 508 compliance.
- ColdFusion doesn't render statistics up to dashboard standards such as those described by Stephen Few.[34]
- Basic ad hoc query capabilities for hypothesis testing were added, but could be improved.
- Limitations in the knowledge of the application creator limit the functionality of the current version of the application.

## Future of the Application

On the basis of positive experience with the application to date, several future development directions will be considered.

- Through usage we will determine ways to optimize the taxonomy for calculations and depictions.
- The existing application is an example of what is referred to by Michael Schrage as a "rapid prototype," a tool for collecting interested target users in order to engage in a conversation about what a "real" version of the project ought to look like; "The most important function that software builders do for their

clients is the iterative extraction and refinement of the product requirements."[35] It is hoped that usability testing, followed by redesign work, and a new iteration of the application, will make it a more practical tool.

- One resource in this regard might be Shneiderman & Plaisant's description of a methodology for evaluating information visualization tools called Multi-dimensional In-depth Long-term Case studies (MILCs); it involves building an understanding of individual and organizational use of information visualizations by domain experts and addresses needed improvements, levels of user acceptance, and testing the quality of application-related decision making.[36]
- XML import and export capabilities could be added to make interview data more portable. This would allow non-technology experts to gather and input data for remote analysis, and would allow technology experts to download datasets for further analysis. One demonstration XML record is presented in Appendix C.
- Applications capable of using this dataset that generate better statistical depictions should be sought.
- A mechanism should exist for users to "tag" statistical views they find interesting and comment on them, as well as a mechanism to suggest new statistical views that should be added. This Web 2.0 functionality could aid in building a community of practice around the study of information-seeing behavior.
- If the application were to be released, a licensing scheme could be selected that makes capabilities freely available to investigators while preserving the right for application authors to release later versions.

## Conclusion

This methodology allows student-centered, rather than institution-centered, analysis of information-seeking behavior. Local evidence gathering and structured coding allow researchers to render a wide variety of statistical depictions of local information-seeking behavior, giving users a coherent picture of how students move through the information space. This is helpful for spotting trends and learning how to accommodate new behaviors, whether it means that new services should be planned or educational goals should be changed.

Giving a wider variety of staff access to a "walk-up usable" interface such as the one gestured at in this project should help people throughout the enterprise shape better judgments and decisions that are based on deeper thinking about research behavior. While coded data from this methodology could be analyzed and "packaged" into a report using a desktop spreadsheet or database program, the application created in this project is an example of combining activities in the traditional library arena with tools from the information management arena, where an investment in technology and assessment can lead to an enterprise-wide, higher-level understanding of resource use, which in turn can make whole library organizations, not just a few decision makers, smarter and more effective over time.

## Acknowledgement

The authors thank the students from the 2005 and 2006 Library Planning and Evaluation (LBSC 713) classes for their help in conducting the individual interviews. Their efforts were vital to this enterprise. Help from the staff at the Engineering and Physical Sciences Library, University of Maryland is also greatly appreciated.

The contents of this paper reflect the views of the authors, who are responsible for the opinions, facts, and the accuracy of the data presented. The contents do not necessarily reflect the official views or policies of the National Library of Medicine, National Oceanic and Atmospheric Administration, or University of Maryland Libraries.

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## *Appendix A: Interview form*

| Demographics | | |
|---|---|---|
| Interview # _____ | Major _____ | Year:<br>___ Freshman<br>___ Sophomore |
| Interviewer _____ | Location _____ | ___ Junior<br>___ Senior |
| Date (MM/DD/YR) _____ | M F ? | ___ Graduate student |

Please think of a recent time when you needed to find information or do research for a class. What was the information you needed, or the topic of your research?

Where did you go?

What did you find and how did you locate it?

Where did you go next?

What did you find and how did you locate it?

Is there anything else you would like to add?

Please think of a recent time when you needed to find information or do research outside of your coursework. What was the information you needed, or the topic of your research?

Where did you go?

What did you find and how did you locate it?

Where did you go next?

What did you find and how did you locate it?

Is there anything else you would like to add?

Kaske, Johnson, and Wendling (2006)

# *Appendix B: Coding sheet*

Reduced for publication; recommended printed size is 11x17.

## Interview coding sheet for understanding the information-seeking behavior of college students

Neal Kaske, PhD, Dan Wendling, MLS, & Travis Johnson, MLS

A tool for representing the information-seeking behaviors of college students.

August 1, 2008 - **Version 10**

For each information-seeking session select a letter/number/letter combination; for example, a Google search conducted from home would be coded as G.1.h. For ResearchPort, please add the database name, or "Unknown"; if ResearchPort was used, don't leave the database name blank.

| **Select one generic action category:** | **Select one specific resource name:** | **Select one mechanism for accessing the resource** |
|---|---|---|
| **A. Accessed an online bookstore** | 1. amazon.com<br>2. Other: _____ | a. Email<br>b. From UMD library<br>c. From UMD library computer<br>d. In-person discussion<br>e. Looked through personal/course materials<br>f. Sought assistance from a non-UMD librarian*<br>g. Telephone<br>h. Via remote search*<br>i. Visited in person<br>j. Watched television<br>k. Went to a bookstore<br>l. Went to a library that is NOT part of UMD; activities unknown*<br>m. Went to a library that is NOT part of UMD; searched eResources*<br>n. Went to a library that is NOT part of UMD; searched eResources, accessed stacks*<br>o. Went to a library that is NOT part of UMD; sought assistance from non-UMD librarian*<br>p. Went to a library that is part of UMD; activities unknown<br>q. Went to a physical place, not home, not a UMD library, conducted search of eResources<br>r. Went to an unknown place, not a library; activities not known<br>s. Went to an unknown place, not a library; searched for eResources<br>t. Went to place: _____*<br>u. Unknown<br>v. Unknown contact method<br>w. Other: _____ |
| **B. Accessed course syllabus/textbook/materials/ instructor web site** | 1. Course materials<br>2. Course textbook<br>3. Instructor web site | |
| **C. Accessed Course WebCT account** | 1. Course WebCT account | |
| **D. Accessed other book or magazine I own** | 1. Other book or magazine I own | |
| **E. Accessed physical media at a non-UMD library** | 1. Non-UMD library computer<br>2. Non-UMD library stacks | |
| **F. Accessed physical media at a UMD library, not stacks** | 1. UMD library - Course reserve, physical<br>2. Other: _____ | |
| **G. Accessed the open web using search engine or Wikipedia** | 1. google.com<br>2. scholar.google.com<br>3. wikipedia.com<br>4. yahoo.com<br>5. Unknown search engine<br>6. Other search engine: _____ | |
| **H. Accessed the open web, not search engine, not library, not UMD site, not Wikipedia** | 1. ebay.com<br>2. espn.com<br>3. expedia.com<br>4. fandango.com<br>5. mapquest.com<br>6. monster.com<br>7. orbitz.com<br>8. pubmed.gov<br>9. travelocity.com<br>10. Unknown<br>11. Unknown free website<br>12. washingtonpost.com<br>13. Other: _____ | |
| **J. Accessed UMD library eResources** | 1. UMD library – Catalog<br>2. UMD library – ResearchPort: (database name)<br>3. UMD library web site, not catalog or ResearchPort<br>4. Unknown UMD eResource<br>5. Other: _____ | |

| | | |
|---|---|---|
| **K. Accessed UMD library stacks** | 1. UMD library - Book stacks<br>2. UMD library - Periodical stacks / fiche or film, etc.<br>3. UMD library – Stacks (if the above are not known | *** Problematic entries; those interested in replicating this research may wish to consider breaking this into two components, Via Mechanism and Location of Access.** |
| **L. Accessed UMD web site, not part of the libraries or WebCT** | 1. umd.edu | |
| **M. Sought assistance from a person, not UMD librarian, instructor, TA, or advisor** | 1. Expert or professional working in this area; perhaps an author<br>2. Friend outside work and school<br>3. My parent(s)<br>4. School colleague/friend<br>5. Work colleague/friend | |
| **N. Sought assistance from a UMD librarian** | 1. UMD librarian @ UMD library, in-person discussion | |
| **O. Sought assistance from Instructor/TA/Advisor** | 1. Instructor/TA/Advisor | |
| **P. Visited library that is not part of UMD** | 1. Other library: _____<br>2. Unknown | |
| **Q. Went to a physical bookstore** | 1. Physical bookstore | |
| **R. Other: _____** | #. Other: _____<br>(Use the pound sign) | |

Derived from lists of the resources accessed by students five or more times as found in 2005 and 2006 data sets, which resulted from interviews with 544 students at the University of Maryland under the supervision of Neal Kaske, PhD.

## *Appendix C: One demonstration record shown in XML format*

A future version of the application could be configured to import and export records in XML format.

```
<?xml version="1.0" encoding="utf-8"?>
<records>
  <record>
    <person>
      <OrigID>150</OrigID>
      <DataSetInfo>CLIS2006</DataSetInfo>
      <SchoolYear>3 Junior</SchoolYear>
      <Major>English</Major>
      <Gender>F</Gender>
      <InterviewNumber>6</InterviewNumber>
      <Interviewer>CLIS2006 W</Interviewer>
      <InterviewDate>2006-11-10</InterviewDate>
      <InterviewLocation>Student Union, top floor</InterviewLocation>
    </person>
    <sessions>
      <session>
        <SessionDesignation>Course_Session1</SessionDesignation>
        <SessionAsCoded>J.1.c</SessionAsCoded>
        <ActionCat>Accessed UMD library eResources</ActionCat>
        <SpecificResource>UMD library - Catalog</SpecificResource>
        <ViaMechanism>From UMD library computer</ViaMechanism>
      </session>
      <session>
        <SessionDesignation>Course_Session2</SessionDesignation>
        <SessionAsCoded>G.1.h</SessionAsCoded>
        <ActionCat>Accessed the open web using search engine or Wikipedia</ActionCat>
        <SpecificResource>google.com</SpecificResource>
        <ViaMechanism>Via remote search</ViaMechanism>
      </session>
      <session>
        <SessionDesignation>NonCourse_Session1</SessionDesignation>
        <SessionAsCoded>G.1.h</SessionAsCoded>
        <ActionCat>Accessed the open web using search engine or Wikipedia</ActionCat>
        <SpecificResource>google.com</SpecificResource>
        <ViaMechanism>Via remote search</ViaMechanism>
        <SessionNotes>Had trouble thinking of a non-course search</SessionNotes>
      </session>
    </sessions>
  </record>
</records>
```

# Item Sampling in Service Quality Assessment Surveys to Improve Response Rates and Reduce Respondent Burden: The "LibQUAL+® Lite" Example

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## Abstract

Survey researchers sometimes develop large pools of items about which they seek participants' views. As a general proposition, library participants cannot reasonably be expected to respond to 100+ items on a given service quality assessment protocol. However, a survey method called "matrix sampling" can be used (a) to collect data on all survey items (b) without requiring every participant to react to every survey question. Here we investigate the features of data from one such survey, the LibQUAL+® Lite protocol. We explored the participation rates, completion times, and result comparisons across the two administration protocols--the traditional LibQUAL+® protocol and the LibQUAL+® Lite protocol--at each of four institutions participating in a randomized control trial (RCT) experiment.

## Introduction

As Rowena Cullen noted, "focusing more energy on meeting . . . customers' expectations"[1] is critical in the contemporary academic library environment, in part because "the emergence of the virtual university, supported by the virtual library, calls into question many of our basic assumptions about the role of the academic library, and the security of its future."[2] In this environment, as Danuta Nitecki has observed, "A measure of library quality based solely on collections [counts] has become obsolete."[3] Librarians have come to realize the wisdom of the words of French philosopher and moralist François de La Rochefoucauld, "Il est plus nécessaire d'étudier les hommes que les livres."[4] In the words of Bruce Thompson, "We only care about the things we measure,"[5] so we do not seriously care about service quality unless we listen to library users in various systematic ways. Within a service quality orientation, "only customers judge quality; all other judgments are essentially irrelevant."[6]

Surveys have always been popular methods with which librarians collect customer feedback from their users. However, getting users to respond to surveys is becoming harder and harder as Web-based surveys become increasingly ubiquitous. As far back as 1991, Hernon noted: "How can we improve response rates? . . . [W]ith everyone flooded with requests to participate in surveys and more people becoming resistant, how do we get more people to accept the imposition and participate? Part of the answer may depend on how librarians see the findings benefiting their situation and leading to service improvements.[7]

## LibQUAL+®

One service quality assessment tool that has been widely used in libraries around the world is LibQUAL+®. LibQUAL+® has three primary components. As noted elsewhere,

> First, LibQUAL+® consists of 22 core items measuring perceived service quality with respect to (a) Service Affect, (b) Library as Place, and (c) Information Control. Each item is rated with respect to (a) minimally-acceptable service expectations, (b) desired service expectations, and (c) perceived level of actual service quality . . . Second, the LibQUAL+® protocol solicits open-ended comments from users regarding library service quality . . . These comments are crucial, because here the participants elaborate upon perceived strengths and weaknesses, and sometimes offer suggestions for specific actions to improve service. Third, libraries using LibQUAL+® have the option of selecting five additional items

from a supplementary pool of 100+ items to augment the 22 core items to focus on issues of local interest.[8]

LibQUAL+® data can be evaluated using any combination of three interpretation frameworks: (a) location of perceptions within the "zones of tolerance" defined by minimally-acceptable and desired expectations, (b) benchmarking against peer institutions, and (c) comparing changes in a given institution's data longitudinally over time.

In the ten years since its inception in 2000,[9] LibQUAL+® has been used to collect data from more than 1.25 million library users from more than 1,000 institutions! LibQUAL+® now has been used in twenty-two different countries: the United States, Canada, Mexico, Bahamas, Australia, New Zealand, the United Kingdom (England, Scotland, Wales), France, Ireland, Belgium, the Netherlands, Switzerland, Denmark, Finland, Norway, Sweden, Egypt, the United Arab Emirates, South Africa, Hong Kong, Singapore, and Japan. Currently, the system supports fifteen languages: Afrikaans, American English, British English, Chinese (Traditional), Danish, Dutch, Finnish, French (Canadian), French (European), German, Norwegian, Spanish, Swedish, Welsh and Japanese. The development and use of LibQUAL+® has been documented in a host of academic outlets.[10] A recent special volume of articles focused on linking the LibQUAL+® protocol with effective, sustainable, and practical assessment elements within libraries.[11]

## Purposes of the Present Article

Survey researchers sometimes develop large pools of items about which they seek participants' views. For example, in the Association of Research Libraries DigiQUAL®[12] project, the item pool consists of more than 100 items. As a general proposition, library participants cannot reasonably be expected to respond to 100+ items on a given service quality assessment protocol. However, a survey method called "matrix sampling"[13] can be used (a) to collect data on all survey items (b) without requiring every participant to react to every survey question. Here we investigate the features of data from one such survey, the LibQUAL+® Lite protocol.

LibQUAL+® Lite is a survey methodology in which (a) all users answer a few, selected survey questions (i.e., three core items), but (b) the remaining survey questions are answered ONLY by a randomly-selected subsample of the users. Thus, (a) data are collected on all questions, but (b) each user answers fewer questions, thus shortening the required response time. The following graphic illustrates this survey strategy. In this example, all users complete three of the items (i.e., the first, second, and fourth items). But only Mary and Sue were randomly selected to complete the third item in the item pool, which was Service Affect item #2. Only Bob and Mary were randomly selected to complete the fifth item in the item pool, which was Service Affect item #3. Only Sue and Ted were randomly selected to complete the sixth item in the item pool, which was Information Control item #2.

| | Person | | | | |
|---|---|---|---|---|---|
| Item | Bob | Mary | Bill | Sue | Ted |
| **Service Affect #1** | **X** | **X** | **X** | **X** | **X** |
| **Information Control #1** | **X** | **X** | **X** | **X** | **X** |
| Service Affect #2 | | X | | X | |
| **Library as Place #1** | **X** | **X** | **X** | **X** | **X** |
| Service Affect #3 | X | X | | | |
| Info Control #2 | | | | X | X |
| Library as Place #2 | | | X | X | |

Note. Items completed by all participants are presented in **bold.**

On LibQUAL+® Lite, each participant completes only eight of the twenty-two core survey items. Every participant completes the same single Service Affect, single Information Control, and single Library as Place items, plus two of the remaining eight (i.e., nine - the one core item completed by everyone) randomly-selected Service Affect items, two of the remaining seven (i.e., eight - the one core item completed by everyone) randomly-selected Information Control, and one of the remaining four

(i.e., five - the one core item completed by everyone) randomly-selected Library as Place items.

Here we explore the features of the LibQUAL+® Lite protocol implemented at four university libraries in the United States. Specifically, we were interested in exploring participation rates, completion times, and result comparisons across the two protocols at each of the four institutions. An important meta-analysis of the literature conducted by Colleen Cook, Fred Heath, and Russell L. Thompson suggested that response rates should be improved with the use of the shorter protocol.[14]

In our study, at one institution 70% of all LibQUAL+® survey invitees were randomly assigned the LibQUAL+® Lite protocol, while the remaining 30% of survey invitees were randomly assigned the long form of the protocol (i.e., all twenty-two survey core items). We used a 70/30 random split at this one big institution because they surveyed all their large number of users, whereas the other three institutions surveyed only a random sample of their users. At the remaining three institutions, 50% of all LibQUAL+® survey invitees were randomly assigned the LibQUAL+® Lite protocol, while the remaining 50% of survey invitees were randomly assigned the long form of the protocol (i.e., all twenty-two survey core items).

## Results

### Survey Completion Rates

Table 1 presents the number of participants across (a) the four institutions (assigned ID numbers 433, 3, 107, and 5 to assure their anonymity) and (b) the two protocol forms (i.e., short and long). As indicated in the table the actual participation rates for persons randomly assigned the LibQUAL+® Lite protocol (i.e., 73.7%, 59.5%, 55.0%, and 55.3%, respectively) were higher than the baselines of the percentages of persons at each institution asked to complete the short form (i.e., 70%, 50%, 50%, and 50%, respectively). Thus, these results clearly indicate that *participants are more likely to complete the survey when the matrix sampling strategy is used to collect data on all the items in the item pool*.

**Table 1: Ratios of Completers across the Two Administration Formats and Four Institutions**

| Group/ | Institution | | | |
|---|---|---|---|---|
| Statistic | 433 | 3 | 107 | 5 |
| Short | 1,868 | 627 | 451 | 382 |
| Long | 668 | 426 | 369 | 309 |
| Total | 2,536 | 1,053 | 820 | 691 |
| Actual | 73.7% | 59.5% | 55.0% | 55.3% |
| Random | 70.0% | 50.0% | 50.0% | 50.0% |
| Difference | 3.7% | 9.5% | 5.0% | 5.3% |

Note. At institution #433, 70% of all participants were randomly assigned the short form, while at the remaining three institutions 50% of all participants were randomly assigned the short form.

Table 2 presents the median survey completion times in seconds across the two protocols. These results indicate that *completing the protocol with only eight versus all twenty-two core items took a little more than half as long as completion of the full item set*.

**Table 2: Median Completion Times in Seconds across Administration Formats**

| | Institution | | | | |
|---|---|---|---|---|---|
| Format | 433 | 3 | 107 | 5 | TOTAL |
| Long Form | 456.5 | 501.0 | 458.0 | 470.0 | 470.5 |
| "Lite" Form | 276.0 | 300.0 | 290.0 | 291.5 | 285.0 |

Of course, participants in both groups completed other items (e.g., demographic self descriptions), and were allowed to provide comments. Historically, about 40% of all LibQUAL+® participants write comments, and these qualitative data are at least as important as the quantitative data gathered on the protocol, because here users often present specific suggestions for library improvement! And persons writing longer comments would have taken longer to complete the survey regardless of which protocol they were randomly assigned.

Table 3 presents the percentages of participants who both (a) completed the survey once started and (b) met the protocol inclusion criteria across institutions and administration formats. In LibQUAL+®, participants are excluded from the dataset if they meet certain criteria. For example, on the longer protocol, if a participant answers more than eleven core items "not applicable," the participant's data are dropped under a view that such a user for whatever reason does not have a definitive view of library service quality. Also, no participant can logically rate a service item higher on what is "minimally acceptable" than the "desired" service quality on the same item, and any person with an excessive number of such "inversions" also is omitted under a view that the person is responding randomly rather than seriously. The exclusion criteria for the Lite version were more than four "not applicable" choices or more than three "inversions" out of the eight core items; the exclusion criteria for the full protocol were more than eleven "not applicable" choices or more than nine "inversions" out of the twenty-two core items.

**Table 3: Percentages of Participants Who Both (a) Completed the Survey Once Started and (b) Met Inclusion Criteria across Institutions and Administration Formats**

| | Institution | | | | |
|---|---|---|---|---|---|
| Format | 433 | 3 | 107 | 5 | TOTAL |
| Long Form | 56.18% | 35.26% | 61.40% | 51.07% | 49.18% |
| "Lite" Form | 66.08% | 51.44% | 73.57% | 60.54% | 62.91% |

The Table 3 results make clear that *higher percentages of persons who start the LibQUAL+® Lite protocol once they begin actually complete the survey*. Of course, some participants begin the survey, determine what the protocol is about, and return later to actually complete the survey. So, not all persons who fail to complete the survey in a given administration are actually non-responders.

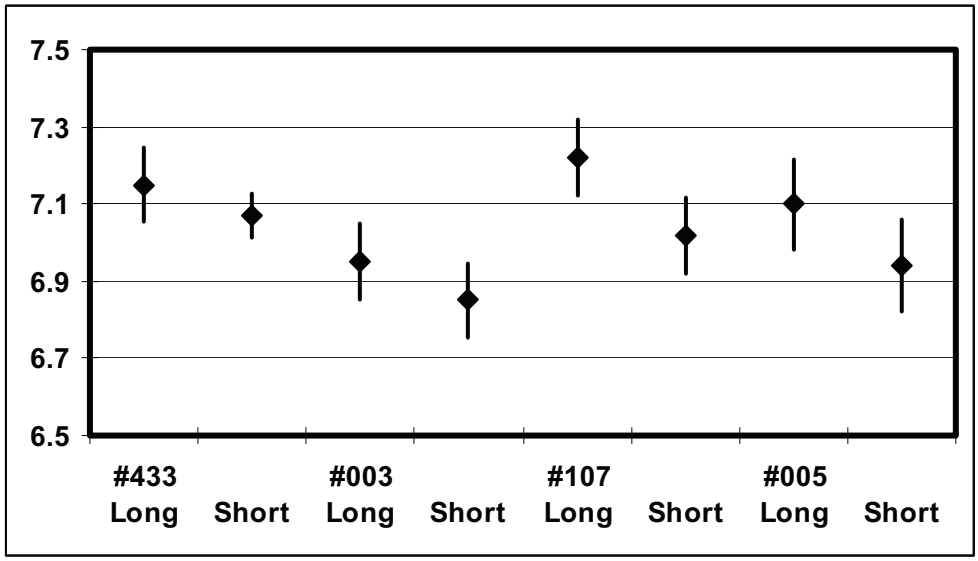
### LibQUAL+® Lite versus LibQUAL+® Score Comparisons

The present study was a randomized clinical trial or an experiment. Because the participants were randomly assigned either the LibQUAL+® Lite protocol or the conventional LibQUAL+® protocol, the scores on the measures at a given institution should be similar, *unless the protocols themselves caused score differences*.

All LibQUAL+® scores (i.e., total, the three scales, and items) are scaled on a 1-to-9 scale with 9 being the highest rating. Figure 1 presents 95% confidence intervals around the means of the total perception scores across the four institutions and the two protocols. Total perception score means across

institutions should not necessarily be equal, but means across protocols within institutions would be expected to be equal, or at least similar, unless the protocol variation caused score differences.

**Figure 1: 95% Confidence Intervals about Means for Total Perception Scores across Four Institutions and Two Protocols**




The Figure 1 results show that the mean total perception scores were somewhat lower on the LibQUAL+® Lite protocol than on the conventional protocol at all four institutions. The greatest difference occurred at institution #107. Thus, *the samples of people deciding to provide data are to some extent qualitatively different across the two protocols, with the samples for the Lite protocol having somewhat more negative views of library service quality*.

Figure 2 presents 95% confidence intervals around the means of the perception scores on the Service Affect (top graph in the figure), Information Control, and Library as Place (bottom graph in the figure). Again, means on the LibQUAL+® Lite protocol tended to be somewhat lower than those on the conventional protocol, although the means on the Service Affect scale were reasonably similar. Differences were most pronounced (a) on the Library as Place scale and (b) at institution #107.

**Figure 2: 95% Confidence Intervals about Means for Service Affect (top), Information Control, and Library as Place (bottom) Scale Scores across Four Institutions and Two Protocols**

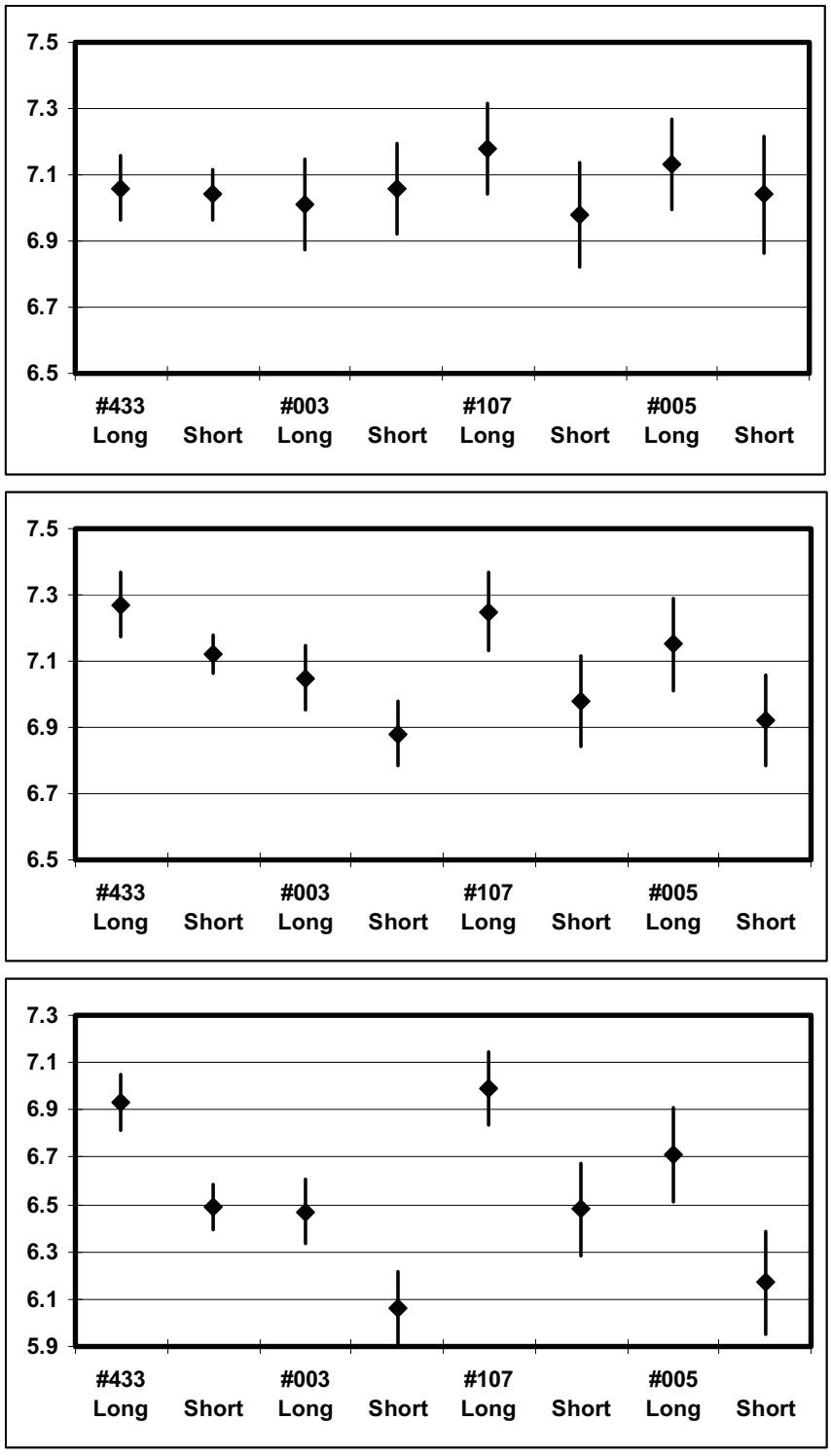
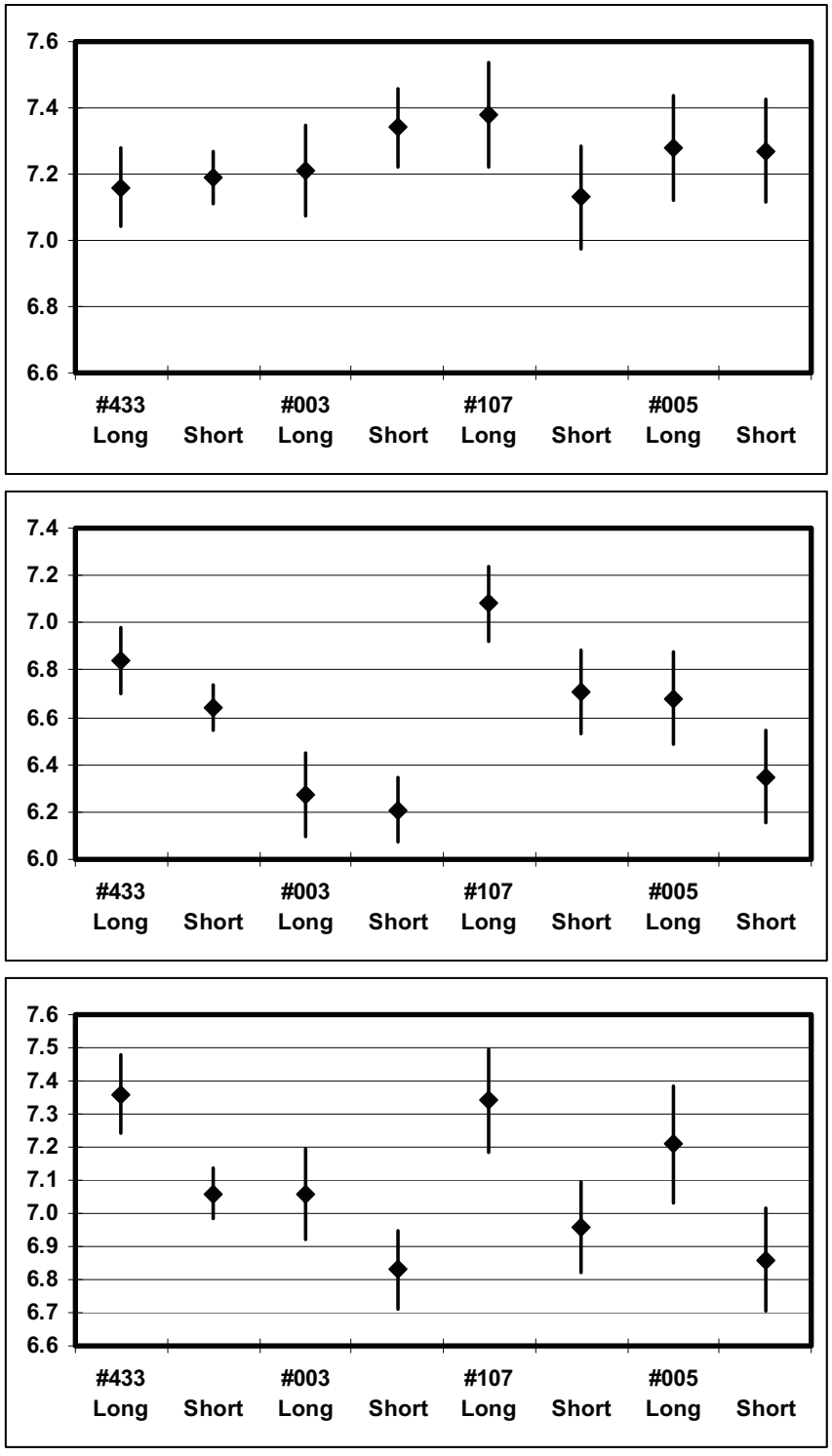


Figure 3 presents 95% confidence intervals around the means of the item scores on the three items (i.e., one from each of the three LibQUAL+® scales) completed by all participants, including those randomly assigned the Lite protocol. Again, means tended to be similar or somewhat lower on the Lite protocol, except on the Service Affect item, and the greatest mean differences occurred at institution #107.

**Figure 3: 95% Confidence Intervals about Means for Service Affect (top), Information Control, and Library as Place (bottom) Scores on Items 13, 10 and 3 across Four Institutions and Two Protocols**



## Discussion

Our results show that higher completion rates are associated with the shorter survey completion times that can be achieved by randomly selecting which items will be completed by given participants. At the same time, data can be collected on all survey items, even though demands on individual participants are minimized by the LibQUAL+® Lite protocol.

The somewhat troubling aspect of our results is that the samples realized by the two protocols may be qualitatively different. Theoretically, because the protocols were randomly assigned, the total, scale, and item means should be comparable across the two protocols at a given institution, unless the Lite protocol itself yields participants with different views of library service quality.

### Implications

Because greater completion rates were realized with the LibQUAL+® Lite protocol, the data from the Lite protocol might be the most accurate representation of the views of all the library users in a given community. Thus, our results might be interpreted as meaning that when the longer protocol is used, persons with more positive views are disproportionately likely to respond to the survey. This means that the longer protocol might result in somewhat inflated ratings of library service quality, especially for the dimensions of Information Control and Library as Place.

If this is true, our results argue for the adoption of the LibQUAL+® Lite protocol as against the traditional LibQUAL+® protocol. Thus, in future years we may routinely encourage libraries to present only the LibQUAL+® Lite protocol to their users, or at least to a large randomly-selected percentage of their users. This approach would also have the benefit of mitigating time demands on users, while still allowing collection of data on all core items.

### Equating Scores across the Two Protocols

The apparent finding that the LibQUAL+® Lite protocol and the traditional LibQUAL+® protocol yield somewhat different ratings does not mean that scores on the two protocols cannot be equated either (a) within a given institution at which some participants complete the long form and others the Lite form, or (b) across years in which the long form is used one year and the Lite form is used in another year. The three "linking" items completed by all participants in both formats provide the necessary linking equations.

The three linking items were: "The electronic information resources I need" (IC), "Library space that inspires study and learning" (LP), and "Employees who deal with users in a caring fashion" (SA). By examining the means and standard deviations of the three linking items on the Lite and the full forms, we derived the following formulas for converting item scores from the traditional LibQUAL+® protocol into the metric for the LibQUAL+® Lite protocol, or vice versa.

The equation to convert scores on the nine Service Affect items on the traditional LibQUAL+® protocol into the metric of the LibQUAL+® Lite protocol is:

(Service Affect item scores + 0.03) x 1.01 (1)

Conversely, the equation to convert scores on the Service Affect items on the LibQUAL+® Lite protocol into the metric of the traditional LibQUAL+® protocol is:

(Service Affect item scores - 0.03) x 0.99 (2)

The equation to convert scores on the eight Information Control items on the traditional LibQUAL+® protocol into the metric of the LibQUAL+® Lite protocol is:

(Information Control item scores - 0.27) x 1.01 (3)

Conversely, the equation to convert scores on the Information Control items on the LibQUAL+® Lite protocol into the metric of the traditional LibQUAL+® protocol is:

(Information Control item scores + 0.27) x 0.99 (4)

The equation to convert scores on the five Library as Place items on the traditional LibQUAL+® protocol into the metric of the LibQUAL+® Lite protocol is:

(Library as Place item scores - 0.32) x 1.10 (5)

Conversely, the equation to convert scores on the Library as Place items on the LibQUAL+® Lite protocol into the metric of the traditional LibQUAL+® protocol is:

(Library as Place item scores + 0.32) x 0.95 (6)

First, these equations would first be applied to individual core items to convert item metrics. Second, then dimension and total scores would be computed using these revised item scores.

These equations allow libraries administering the Lite protocol to compare scores apples-to-apples contemporaneously with libraries not using the Lite form, or vice versa. The equations also allow a given library now administering the Lite protocol to

compare current scores apples-to-apples retrospectively with the same institution's prior scores obtaining using the traditional LibQUAL+® protocol.

## Conclusion

One reason for the success of the LibQUAL+® project is that the four developers--Fred Heath, Colleen Cook, Martha Kyrillidou, and Bruce Thompson[9]--have meticulously studied and documented myriad features of the protocol. For example, issues such as the use of radio buttons versus slider bars on the web-administered protocol,[15] and whether or not users think about library service quality continuously as matters of degree versus categorically (i.e., there are good libraries and bad libraries),[16] have been investigated. The present study adds to this literature.

Our results demonstrate that matrix sampling strategies for administering randomly-selected items from a larger item pool to a given survey participant has numerous advantages (e.g., less time demands on survey participants, higher survey completion rates). These results also demonstrate the value of using "linking" items common to both protocol formats so that formulas can be developed to equate scores across the administration protocols.

Our findings have implications beyond the LibQUAL+® protocol. The matrix sampling procedure can be usefully applied with a variety of service quality assessments, including locally developed surveys involving numerous assessment items. However, our results also suggest that caution must be exercised with respect to assumptions that protocol changes will not affect the tenor of the assessment data that the protocols yield.

—Copyright 2008 Bruce Thompson, Martha Kyrillidou, and Colleen Cook

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# Does Size Matter? The Effect of Resource Base on Faculty Service Quality Perceptions in Academic Libraries

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## Abstract

We explore whether the relative size of an academic library's resource base, as indicated by the Carnegie classification of the library's parent institution, impacts faculty perceptions of library service quality. Using results from the 2006 administration of the LibQUAL+® survey, the study tests for statistically significant differences between research universities and masters-level universities in terms of faculty minimum, perceived, desired and adequacy gap scores for each of the three LibQUAL+® service dimensions (Information Control, Library as Place, and Affect of Service). Findings suggest that university type does impact expectations and perceptions of service quality, but does not impact ratings of service adequacy, the extent to which faculty perceive that a library meets their expectations.

## Introduction

The current study tests for differences in faculty perceptions of library service quality between two types of academic libraries: those at large research universities and those at master's-level colleges and universities. Our intention is to determine whether the relative size of an academic library's funding level, as indicated by the Carnegie classification of its parent institution, matters to faculty perceptions of library service quality, as reflected in LibQUAL+® data. Our primary motivation for conducting this study was to seek evidence that larger funding allocations translate into higher faculty perceptions of library service quality, as such evidence might be useful fodder for library administrators to use in future funding requests to the central administrations of their parent institutions.

The LibQUAL+® literature includes little in terms of comparisons between different types of academic libraries. In a fundamental grounding document for the LibQUAL+® instrument[1], Cook compared user groups within Association of Research Libraries (ARL) and non-ARL institutions to see whether types of users differed in their perceptions of each service quality dimension identified by LibQUAL+®. She found small but significant differences between user groups for both types of institutions, and the patterns seemed slightly different for each institution type. Among institutions with ARL libraries, the largest difference among user groups was for the Library as Place dimension, whereas for non-ARL institutions, the largest differences among user groups was in the Affect of Service dimension. As Cook's primary research focus was not on finding differences between institution types, she did not explicitly test to see whether these seemingly divergent patterns between ARL and non-ARL libraries were statistically significant.

A second factor motivating us to question whether there might be variation across different types of academic libraries surfaced some years ago when one of this paper's authors, Fred Heath, and his colleagues at Texas A&M, were grounding and validating the LibQUAL+® instrument. Focusing on adequacy gap scores, they noted an interesting clustering of these scores for ARL and non-ARL libraries. Adequacy gaps provide a useful indicator of how well an academic library is meeting or failing to meet users' expectations. An adequacy gap is calculated as the difference between a user's minimum expectation and perceived level of service quality for a given survey item. A negative adequacy gap score indicates that a user's

perceived level of service quality falls below minimum expectations. When Heath and his colleagues observed the adequacy gap scores for ARL and non-ARL libraries, they saw that ARL libraries seemed to cluster together with larger faculty adequacy gap scores than those for non-ARL libraries.

At the time, these potential differences in adequacy gap scores were not examined for statistical significance; yet the perceived pattern raised some interesting questions. Should a significant difference between these types of libraries exist, would it be due to the fact that many of the faculty served by these non-ARL libraries earned their degrees at large research institutions with ARL libraries, which are usually better resourced than their non-ARL counterparts? Were faculty expectations for library service quality created during the doctoral research process at institutions with better-resourced ARL libraries being transported to these non-ARL institutions with smaller resource bases? Were these faculty members transferring their expectations and frustrations with library services to their graduates students and undergraduates at these smaller non-ARL libraries? Were these smaller libraries being placed at a relative disadvantage in terms of perceived service adequacy by expectations created during their faculty's training?

Building on the work of Cook and the team at Texas A&M, the current study tests for significant differences across different types of academic libraries within the LibQUAL+® data, specifically focusing on faculty perceptions of library service quality at large research vs. masters-level colleges universities.

## Methods

### Sample

The sample for this analysis was taken from the 2006 LibQUAL+® survey administration, North American protocol, American English version. "Basic" Carnegie classifications for the parent universities of participating academic libraries were used to define research and masters-level.[2] For the purposes of the study, a research library is defined as one located at a Carnegie RU/VH or RU/H institution. These universities have a high or very high research activity; representative examples include Columbia University, Clemson University, and the University of Texas at Austin. A masters-level library is defined, for the purposes of the study, to be an academic library located at a Carnegie Masters L or M institution. These are institutions with larger and medium masters-granting programs; representative examples include Humboldt State University, Gonzaga University, and the University of Texas at San Antonio. For research libraries our sample included fifty-six libraries with 8,215 faculty members surveyed. For masters-level academic libraries, our sample included sixty-six libraries with 5,664 faculty members surveyed.

### Measures

LibQUAL+® is a set of services constructed in response to the Association of Research Libraries (ARL) New Measures Initiative. It is an assessment tool for collecting and analyzing customer perceptions of service quality in three areas: Affect of Service (questions in this category relate to the attitudes and abilities of employees when assisting others), Library as Place (questions in this category relate to the library facilities and use of space), and Information Control (questions in this category focus on collection breadth and scope, the ability of respondents to find information on their own, and the Libraries success in providing information).[3]

The survey consists of twenty-two service statements and a comment box. Respondents are asked to rate each service indicator on three levels (the minimum level of quality that is acceptable, the desired level of quality, and the current perceived level of service quality) using a Likert scale of 1-9. As noted above, adequacy gaps are calculated as the difference between perceived and minimum scores.

### Analysis

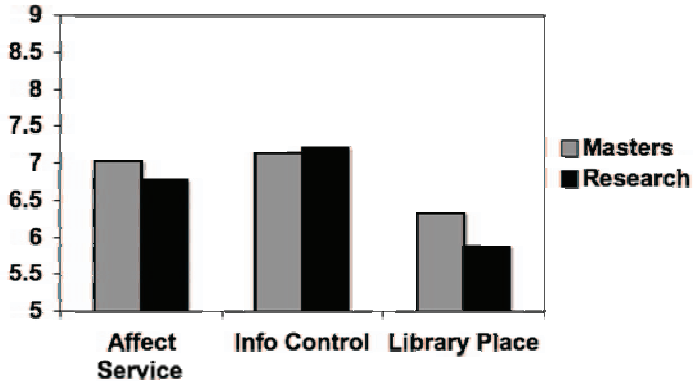
We accessed summary data for each school; that is, the average faculty minimum, perceived, desired, and adequacy scores for each dimension. For each type of rating, we conducted a separate analysis of variance (ANOVA), containing the between-subjects factor of Institution Type (Master's vs. Research) and the within-subjects factor of Dimension of Service (Affect of Service, Library as a Place, and Information Control). Rating types (minimum, perceived, desired, and adequacy) were treated as separate dependent variables; because adequacy is calculated from minimum and perceived scores, it was not appropriate to include all four outcomes in a multivariate ANOVA. In each analysis, we focused on the main effect of Institution, and the interaction between Dimension and Institution (using Hotelling's $F$). If the main

effect of Institution is significant, then the two types of institution differ significantly in terms of faculty ratings on the set of dimensions. If the interaction is significant, then the two types of institution differ in varied ways across the three dimensions; for example, the groups may differ strongly in one dimension while not differing in another dimension. If the interaction was significant for a particular type of rating, we conducted follow-up pairwise comparisons to determine which dimensions differed significantly between institution types. Mean ratings for each dimension at each type of institution are presented in Figures 1 through 4.

## Results

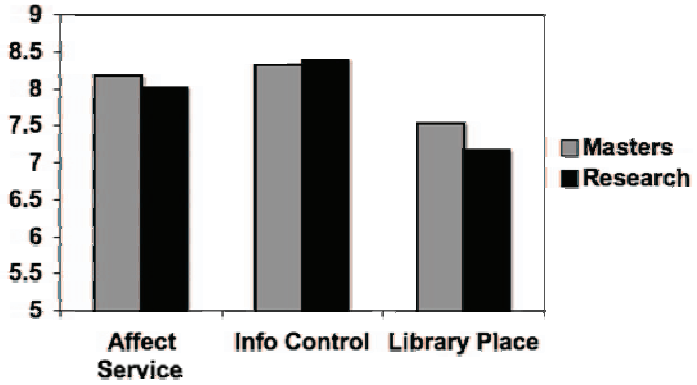
*Minimum ratings.* The two types of institutions differed significantly in their overall ratings, $F(1, 120) = 32.23$, $p < 0.001$, and in the patterns of those ratings across dimensions, $F(2, 119) = 61.76$, $p < 0.001$. Pairwise comparisons indicated that Master's institution faculty had significantly higher minimal expectations of Affect of Service ($p < 0.001$) and Library as Place ($p < 0.001$) than did Research faculty, while Research faculty had higher expectations in terms of Information Control ($p < 0.05$).

**Figure 1. Faculty minimum ratings for each level of service quality.**



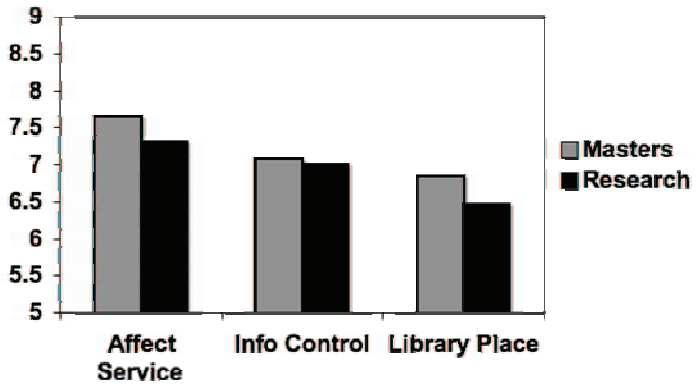

*Desired ratings.* Typically, desired expectations follow the same pattern as minimum expectations, and our study proved no exception. Overall tests were significant for both the main, $F(1, 120) = 38.12$, $p < 0.001$, and interaction, $F(2, 119) = 54.87$, $p < 0.001$, effects; and pairwise comparisons showed higher expectations for Master's than Research faculty in Affect of Service ($p < 0.001$) and Library as a Place ($p < 0.001$), but lower expectations for Master's than Research faculty in Information Control ($p < 0.001$).

**Figure 2. Faculty desired ratings for each level of service quality.**



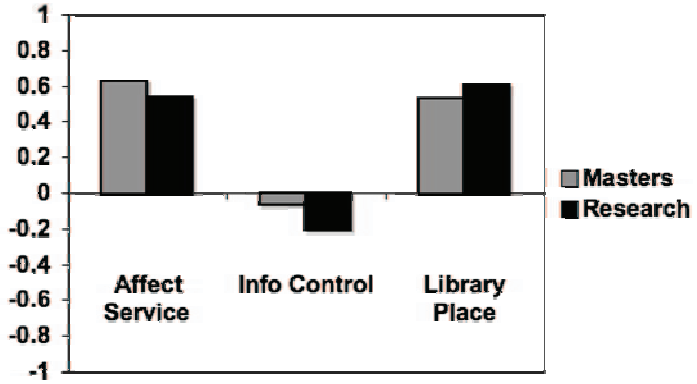
*Perceived ratings.* For perceived scores, results were again significant for the main effect of Institution, $F(1, 120) = 14.89$, $p < 0.001$, and its interaction with Dimension, $F(2, 119) = 20.15$, $p < 0.001$. Again Master's faculty gave higher ratings than Research faculty in terms of Affect of Service ($p < 0.001$) and Library as a Place ($p < 0.001$); however, there were no differences between institution types in terms of faculty perception of Information Control service quality.

**Figure 3. Faculty perceived ratings for each level of service quality.**




*Adequacy gaps.* Faculty within the two types of institutions did not differ in terms of overall adequacy gaps, $F(1, 120) = 0.50$, *n.s.*. Although the interaction was significant, $F(2, 119) = 3.40$, $p < 0.05$, follow-up pairwise comparisons indicated no significant differences between the institution types in terms of any of the three adequacy gaps.

**Figure 4. Faculty adequacy gaps for each level of service quality.**




## Discussion

Our analysis indicated higher minimum, perceived, and desired ratings of service quality for faculty members at masters-level institutions for the Affect of Service and Library as Place dimensions than for their research-level counterparts. These results might reflect the relatively high priority many academic libraries at smaller masters-level institutions place on services focusing on teaching and learning—often supported by "high touch," user-centered services and physical environments. It seems as though faculty at these smaller institutions have higher expectations for services focused on teaching and learning relative to their colleagues at research universities, and that libraries at these smaller institutions are doing a relatively good job meeting faculty expectations.

In contrast, faculty members at research institutions had higher minimum and desired ratings for the Information Control dimension. These results might reflect the intense pressures placed on faculty by the promotion and tenure

processes in the research university environment. In order to support their research programs, faculty at research institutions show an insatiable desire for scholarly communications, as well as high expectations for easy access to research information on their own terms.

While the analysis did find variation in faculty ratings between the two institution types, the differences detailed above tend to balance each other out. In terms of meeting faculty expectations across the three service dimensions, we found no statistically significant differences in adequacy means among faculty respondents from research and masters-level institutions. It appears that the relative size of an academic library's resource base, at least in terms of our rough research or masters-level classification, has no discernable effect on the library's ability to meet faculty expectations of service quality. Thus, context—higher expectations for research faculty for collections and their ability to navigate those collections on their own terms, as well as higher expectations for faculty at masters-level institutions for user-centered services and facilities—seems to matter more to faculty ratings of library service adequacy than does the relative size of funding allocations.

Contrary to our expectations, we see no evidence that faculty members bring their service expectations to employing institutions from the environments at which they were trained. Rather, faculty expectations are probably more substantially influenced by the context of their current employing institutions. When a freshly minted PhD recipient leaves the research institution where she earned her doctorate and begins a career at a masters-level institution, her expectations of library collections and services probably evolve to match the expectations placed on her at the new institution. Similarly, if the new faculty member moves on to another research institution, her expectations for library services evolve within the context of the research-intensive environment at that institution.

Another possible explanation for the lack of difference in adequacy gaps between the two types of institutions is the size of large research universities. While research libraries receive larger funding allocations, they are forced to spread those allocations across a broader range of programs and larger populations of faculty and graduate students than are their masters-level counterparts. Thus any expected effect in increasing a research library's ability to meet faculty expectations with a larger funding allocation is possibly attenuated by the need to stretch the larger allocation across a broader and more diverse research program.

Though we found no indication that the rough size of an academic library's resource base matters in terms of meeting faculty expectations, the results do not imply that increased funding for individual libraries will not have a positive effect on a library's ability to meet user service expectations. Additional funding used to purchase an oft-requested journal backfile or to hire an additional instruction librarian or educational technologist is certainly liable to improve perceptions of how an academic library is meeting needs and to increase faculty perceptions of service adequacy within that library's operating context. However, it may be that the differences in expectations placed on faculty members at these two institution types are more important factors in driving their expectations and judgments of service adequacy than the relative size of the funding allocated to the libraries that serve them.

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## Endnotes

1. C.C. Cook, "A Mixed-methods Approach to the Identification and Measurement of Academic Library Service Quality Constructs: LibQUAL+® (Ph.D. diss., Texas A&M University, 2001), 230-5.

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# Bench-marking on a National Scale: The 2007 LibQUAL+® Canada Experience

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## Abstract

In 2006/2007, the Canadian academic library community came together in the largest national LibQUAL+® consortium to conduct ARL library service quality survey. From an initial proposal among some members of the Canadian Association of Research Libraries (CARL), LibQUAL+® Canada grew to a truly national project with 54 university, college and federal government libraries. The most apparent accomplishment of this project was successful collection of a large, diverse data set for comparative analysis of services and facilities—a meaningful data set both for individual libraries seeking appropriate Canadian comparators and for analyses by region, institutional categories, etc. However, an equally valuable result of the project was to engage more Canadian academic libraries in the process of service assessment. For the majority of consortium participants, this was their first experience with LibQUAL+® or any comparative assessment instrument.

This paper will address:

- how and why the national consortial project came about, including the challenges for recruiting and managing participants;
- the challenges planning and implementing LibQUAL+® with such a large, diverse consortium, with its bilingual mandate and multiple library types;
- what made the project successful and its limitations; and
- what we learned and possible future directions (based on a closing survey of consortium participants).

## Introduction

The 2007 LibQUAL+® Canada Consortium was an historic achievement in the development of library assessment practice in Canada. As the largest ever LibQUAL+® consortium, covering the majority of Canada's university libraries, the LibQUAL+® Canada Consortium has taken a very large first step in collecting service quality data for benchmarking on a national and regional level. This paper outlines the development of the consortium within the national context, and what made it successful for its members and its experience with the LibQUAL+® survey. Specifically, what we have learned and where we would like LibQUAL+® to go in the future.

## Why Not Just Develop a Canadian Survey?

This question did arise during the initial planning of the consortium. However, LibQUAL+® was the clear choice for the consortium's 2007 survey project. It had been refined and validated over the years with input from participants, focus groups and other analyses. The challenges and costs to build a better Canadian survey instrument and a national support infrastructure such as that provided by ARL for LibQUAL+® participants would be huge. Above all, more Canadian institutions needed some experience with such a program before we could consider engaging in fruitful discussions about future assessment directions.

Sixteen Canadian university libraries were already members of the Association of Research Libraries (ARL) and regularly contributed their quantitative data (expenditures, collections, etc.) to ARL's annual member surveys. Thus, it was natural for Canadian ARL members to adopt the service assessment tool widely used among other ARL libraries, LibQUAL+®. Indeed, York University was one of the handful of institutions involved in the initial development of LibQUAL+®.

## LibQUAL+® and the Canadian Context

More than 20 Canada university libraries had participated in LibQUAL+® since its inception. However, among the hundreds of mostly American participants, in any given year, there had never been more than ten Canadian participants. The latter fact is crucial to understanding the impetus behind the development of the LibQUAL+®

Canada Consortium.

Education in Canada is under provincial jurisdiction and all academic institutions are publicly funded (other than a few small faith-based schools). Public policies, practices, and funding relating to higher education have varied widely across Canada. These factors have notably shaped higher education in each province. The opportunity for academic libraries to benchmark their services with those of peer institutions in the same provincial/regional jurisdiction was a powerful incentive.

By 2006, LibQUAL+® was the primary instrument used by Canadian academic libraries to assess library service quality, according to a recent study of assessment practices in Canadian university libraries by Jordan and McKennaD.[1] In fact, the study found that LibQUAL+® was the first, and in many cases the only, systematic service assessment instrument used by Canadian academic librariesD.[2]

## Anatomy of a Consortium

At the June 2005 Annual General Meeting of the Canadian Association of Research Libraries (CARL)D,[3] members expressed interest in coordinating LibQUAL+® participation in order to create a larger database of Canadian content that would offer more meaningful benchmarking of services for Canadian academic research libraries. The CARL Committee on Effectiveness Measures and Statistics proposed a CARL-sponsored Canadian "consortial submission" to LibQUAL+® in 2007. I was appointed to head the consortial project.

The original objective of the project had been to establish a consortium of CARL member libraries from across Canada to participate in the 2007 survey. However, I envisioned this project as a unique opportunity to engage the broader Canadian academic and research library community in developing a national service quality assessment survey. CARL agreed to sponsor a more broadly based Canadian consortium to include non-CARL member universities, community colleges, and federal government libraries.

When the survey opened in January 2007, 46 universities, 7 community colleges,[4] and 3 federal government libraries from across Canada registered as members of the LibQUAL+® Canada Consortium. More significantly, 66% of the libraries had never done the survey, including some smaller institutions who might not have considered using this service assessment tool on their own. A few other universities had initially joined the consortium but were not able to accommodate the survey program in their 2007 operations.

The members ranged from one of the largest universities in North America to small colleges. Our largest participant, the University of Toronto, registered each of its three campuses separately for the survey. At least two universities registered with a community college that shares the university's library facilities and services. One large member university (University of Alberta) does the survey annually. Notably, Alberta is also one of the very few Canadian libraries with a dedicated library assessment position.

A highly significant feature of the consortium was the need to represent French-language, English-language, and bilingual institutions. While informal communication within the consortium is generally conducted in English, all of the consortium's documentation and announcements are bilingual as are all of the consortium's Web pages. While ARL offers the basic survey questions in French, most of the optional/local questions did not have French translations. The consortium took on the responsibility, on ARL's behalf, of ensuring that all the survey and demographic questions used by members of the consortium had correct Canadian French translations.

## Opportunities & Challenges

The opportunity to benchmark the library's services and programs with comparator Canadian institutions offering similar programs and services or within the same political/funding jurisdiction was the consortium's most valuable primary purpose.

The consortium also offered its members:

- the opportunity to learn more about library assessment practice, including data collection, analysis and application in planning services, etc., within a supportive collegial environment;
- the opportunity for locally-hosted workshops, including a pre-consortial survey workshop held in June 2006 in Ottawa and a 2007 national assessment conference/workshop in Ottawa to help participants communicate and apply their findings effectively.

Although the LibQUAL+® Canada Consortium was by far the largest LibQUAL+® consortium, it was the bilingual nature of the consortium that presented the greatest challenge. Besides the

necessity of translating the optional questions, the demographic data elements for US government organizations were inappropriate for the Canadian federal library members. The consortium worked with ARL to develop a custom Canadian government demographic and to translate it into French. In addition, ARL had never before integrated the survey results from two languages into consolidated sets of consortial results.

## Building the LibQUAL+® Canada Consortium

What factors went into establishing and conducting this large and successful consortial project?

- **Governance and Support.** The 2007 project was funded through annual budget allocations from CARL in 2006 and 2007. My time, as coordinator, was seconded to the project by my employer. Ongoing operational support was provided by CARL staff, most notably by Katherine McColgan. The project reported to the association through the Chair of the Committee on Effectiveness Measures and Statistics, Mme. Sylvie Belzile. Ms. Belzile, Ms. McColgan, and I comprised the informal project team. The project team met periodically by phone to review the progress of the project and I prepared written progress reports for the CARL directors at pre-established milestones throughout the project.

  LibQUAL+® Canada and its conference programs could not have succeeded without the continued support of Ms. Belzile, Ms. McColgan, and Tim Mark, the CARL Executive Director, and the support of Martha Kyrillidou, Director of ARL's Statistics and Service Quality Program.
- **Project Management Approach.** CARL's commitment to the project is reflected in the decision to appoint a Project Coordinator with both LibQUAL+® and large-project management experience whose time would be seconded to the project by his parent institution, as needed. Many participants were first-time participants, and most did not have dedicated assessment staff to manage the process successfully on their own. By approaching the survey as a project, the consortium could guide its members through the planning process, via discrete, manageable sets of actions; each stage with its own timelines and deliverables. This approach was also important in coordinating the activities of all the consortium members throughout the planning and implementation process.

  The timelines were sufficiently generous to accommodate members new to LibQUAL+® while providing the LibQUAL+® veterans with targets for each phase in the consortial process.
- **Communication & Engagement.** Building an effective communication infrastructure was my primary goal. My first action as consortium coordinator was to establish a moderated discussion/announcement list to which I subscribed each library contact. To maximize engagement, any librarian from a Canadian academic library was welcomed to join. Members were encouraged to contribute in shaping each phase of the project. Timelines and action items were revised at each stage based on member input. My highest priority was to ensure that every query was answered in a timely fashion and, in most cases, that the exchange was shared with the membership.
- **Active recruitment of participants.** As persuasive as the benefits listed on the Web site may have been, recruiting the broad range of participating libraries involved:
  1. Building a critical mass. The Consortium sent invitations to the various library groups through their national and regional councils emphasizing the opportunity for peer benchmarking with libraries in the same regional/provincial jurisdiction. Follow-up announcements were sent to the councils, reporting who had signed up and encouraging others to enroll in the consortium. Once a critical mass of libraries from a region had joined, the regional councils (e.g., the Ontario Council of University Libraries), in turn, encouraged their other members to join the consortium.
  2. Individual invitations and follow-up communication were sent to encourage maximum participation by leading institutions that other libraries tend to use as benchmarks.
  3. Rapid response to queries from potential participants.
     a) To assist them in persuading reluctant, wary administrators, in each case, we were able to supply the library with the information and documentation required to gain approval to participate, including documentation submitted by

other Canadian academic libraries to gain research ethics board approval or exemption for their survey. The anonymous nature of the survey was certainly a consideration in gaining broad participation from the Canadian academic library community—particularly in a period when Canadian institutions were becoming concerned about the potential scrutiny of private Canadian data held in American databases, under the *US Patriot Act*.

Academic institutions are often sensitive to activities that may affect their reputations. The Consortium was able to offer explicit assurance that the survey results would not be used by the members for public comparisons.

b) To demonstrate how the consortium could help them accomplish the necessary preparation for the survey within the allotted time frame, including pointing them at specific resources available on the consortium's Web site (promotional ideas and material, invitation letters to respondents, incentive prizes offered, mass e-mailing, and much more).

- **Web Site.** A major tool for recruiting members and for success of the project was presenting the Canadian library community with a full-featured Web site at the start of the project. While ARL's LibQUAL+® site contains a vast amount of useful information, its very size makes it a daunting resource to navigate.

The consortial site was based on the highly-regarded 2004 Queen's University LibQUAL+® site,[5] with additional content adapted from ARL and other LibQUAL+® sites. The goal of the site was to provide an easy to use, one-stop resource for Canadian libraries—with material that could be readily adapted by individual libraries for their use. As an example, the Frequently Asked Questions (FAQ) page is designed to allow a library to simply insert their own name and specifics in the highlighted spaces to have an informative LibQUAL+® FAQ for their own community—with little additional work (Figure 1).

The home page of the consortial site changed at key points in the life of the project. At the beginning of the project, the focus of the site was to attract participants and highlight the benefits of membership. During the planning and preparatory phases, the timeline became the primary link at the top of the navigation sidebar. After the survey closed, the consortial results page became the primary link in the navigation bar. The pages were continually updated throughout the project to maintain accurate timely access to resources for the members.

**Figure 1**

| **4. How and when is the [institution's name] survey being conducted?** |
|---|
| A random sample of email addresses has been drawn from the Library's patron database, representing **[number]** undergraduate students, **[number]** graduate students, **[number]** staff and **[number]** faculty members … |

- **Consortial Conferences & Workshops.**[6] CARL, with invaluable support from ARL, sponsored two conference/workshops. The first was a one-day program, held in Ottawa in June 2006, in conjunction with the Canadian Library Association annual conference. The goals of the conference/workshop were to: (a) prepare consortium members to conduct the survey and (b) to recruit and inform prospective consortium members about the potential benefits of LibQUAL+® and the consortial project. The conference was very successful in meeting both goals. It attracted 60 delegates and the consortium grew by 30% after the program.

The second consortial conference had more ambitious goals. Held in Ottawa in October 2007, *LibQUAL+® & Beyond* was a two-day stand-alone conference/workshop whose goals were: (a) to help consortium participants to analyze their LibQUAL+® results effectively; (b) to serve as a first Canadian library assessment conference; (c) to encourage libraries to use their LibQUAL+® results and other kinds of assessment tools effectively, and start to build a "culture of assessment". The conference was a great success, attracting 70 delegates from across Canada and engendering lively discussion. As significant as the actual program was the opportunity for delegates to meet other colleagues engaged in library

assessment and talk about local practices, potential collaborations, and what an "assessment librarian" actually does.




## Conducting the Consortial Survey or Hurdling the Milestones

The consortium chose to conduct survey in Session I 2007 (January to May 2007). We selected this session, over a June to December session, because most incoming students would have had at least the fall term to experience the library and any new programs implemented over the summer. Member libraries were able to choose the exact dates most suitable to their local environment to run the survey.

- **Maximizing Response Rates.** Since LibQUAL+® is a Web-based survey, usually offered to potential respondents via e-mail announcement or invitation, careful timing, effective communication and promotion of the survey and its goals are critical factors in an institution's final response rate. The initial focus of the project, between September and December 2007, was on helping members develop their strategies for communicating and promoting the survey to their communities and engaging their library staff. The consortium was able to offer a collection of documentation, strategies, and incentive programs applied successfully by past Canadian participants.

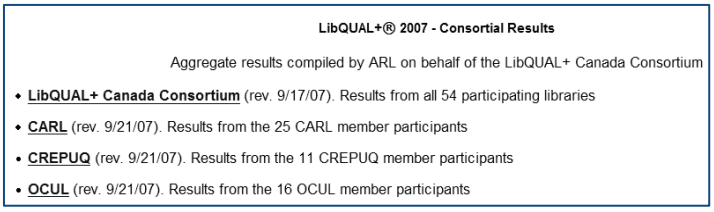
  Intolerance for unsolicited email has increased the challenge to attract potential respondents to take the survey. Increasing numbers of Canadian academic institutions have developed mass e-mailing policies and approval processes. The consortium's mass e-mailing page provided advice on mass mailing including the sometimes neglected requirement to accommodate e-mailing approval in the timeline.
- **Research Ethics Board Approval.** Every Canadian university has a board or committee mandated to review and grant approval for research involving human subjects. Since the LibQUAL+® survey does not retain personal information about individual subjects, no Canadian university has been denied approval to conduct the LibQUAL+® survey. However, the local approval process can vary from very quick approvals (or exemptions) to very protracted processes requiring substantial documentary support. The Consortium provided documentation from Canadian sources to support the argument for exemption from full ethics approval and documentation from successful ethics board approval processes.
- **Consortial Optional or Local Survey Questions.** The Consortium discussed the benefits of compiling a consortial set of optional questions and whether we wanted to add any custom questions to ARL's list. After polling the members, the consortium identified four questions from the ARL's existing list plus one new question to comprise a consortial set of local questions:
  - Ability to navigate library Web pages easily
  - Adequate hours of service
  - Making me aware of library resources and services
  - Teaching me how to access, evaluate, and use information
  - Ease and timeliness in getting materials from other libraries (New)

The new question was created to meet demands for a "jargon-free" equivalent to the optional question about interlibrary loan and document delivery. While it would have been ideal, for comparative purposes, if the whole consortium had chosen the consortial set of questions, the diverse needs of the membership made this goal impractical. The membership agreed that libraries would be free to choose the consortial set, any combination of five optional questions, or none at all. In the end, more than 40% of the LibQUAL+® Canada results included all of the consortial questions.

## Consortial Deliverables

- **ARL Report Notebooks:** ARL delivered the standard consortial results notebook with the aggregate data broken down by library type and user category. Within each group, the data was also broken down by survey language. In addition to the standard report notebook, the Consortium contracted with ARL to produce separate notebooks representing the aggregate results for CARL members, Ontario university libraries (OCUL), and Quebec university participants, Conférence des recteurs et des principaux des universités du Québec (CREPUQ).

  The councils also approved my request for the public posting of the report notebooks on the LibQUAL+® Canada Web site; making the data freely available to members and other researchers.




- **Data Sets:** The consortium had received the complete data set representing the results for all 48,000 respondents. While it was important to provide the data to member libraries for comparative analysis, the consortium also wanted to protect the privacy of individual libraries who might not want to share their own library's raw data. So, the consortium made a pre-processed form of the consortial data available to its members to do their own analyses. The fields with individual identifiable data, such as the institution name, names of campus libraries, local discipline groups, etc. were replaced with masking codes. Subsets of the processed data were also generated by region (Atlantic Canada, Quebec, Ontario, Western Canada) to facilitate comparison. The processed data was made available to members, upon request, in SPSS or spreadsheet form.

  The Consortium also offered to provide individual member libraries with the data set for their own library in SPSS form at no charge. ARL charges an additional fee if a library asks for its data in SPSS form after the initial LibQUAL+® registration. The consortium was able to provide the data in SPSS form shortly after receiving the data in (CSV) spreadsheet format from ARL.

  It is our goal to eventually make the complete masked SPSS data set available to all researchers in a searchable format.

## Future of the LibQUAL+® Canada Consortium

On November 7, 2007, each LibQUAL+® Canada official contact was asked to complete a survey to assess whether 2007 participants would be interested in doing the survey again. If yes, how frequently and in what form?

Forty-eight of fifty-four member institutions responded to the survey. The results[7] indicated that:

- 93.6% of our members wanted to take the LibQUAL+® survey again as members of the consortium. The remaining respondents were undecided for some of the reasons below.
- While 80% of respondents preferred the LibQUAL+® survey over developing a home-grown alternative, there was a slight preference among these respondents for a more abbreviated *LibQUAL+® Lite* survey instrument over the present 22-question-format.
- Members preferred to do the consortial survey every 2 or 3 years, with 53.5% favouring the longer period. While the registration fee is not particularly onerous, the demands on staff time required to plan the survey, review the results, analyze the implications for the library, prepare action plans to address concerns, and communicate these to the community, is often onerous.
- While the consortium had excellent representation from Canadian universities, it offered more limited benchmarking value for the small number of community college participants. Adding to the benchmarking challenge for this group of libraries are the

widely differing mandates of community colleges among the Canadian provinces, variously serving distance education students, continuing education, international students, students in certificate programmes, diploma programmes, academic programmes, etc.

- The online consortial resources and other support generally received very high satisfaction scores for utility, responsiveness, and timeliness. However, the LibQUAL+® manual and the consortial Web site did not offer sufficient guidance or examples relating to the needs of community colleges.
- Despite the strong support provided by the consortium, small academic institutions faced the challenge of finding sufficient staff time to assess their own results, review other best practices, and plan and effect improvements to services and facilities. It was reasonable for such libraries to question whether to continue collecting LibQUAL+® data on a regular basis or only do the survey after they have the opportunity to act on the results. Typical of the small library comments was: *We need an assessment librarian or someone who has more time to work with the results.*
- There was uncertainty among our federal government participants as to the value of the consortium and perhaps the survey itself in meeting their special and diverse needs. The consortium had to work with ARL to develop a custom demographic for the Canadian government libraries to accommodate their many employee classifications and specific terminology. In additional to their small number, our government library members have very different mandates and user populations.

## What Could Be Done to Improve the LibQUAL+® Survey for Our Members?

Two major challenges in maintaining a viable survey instrument that libraries will want to continue using are (a) balancing the need for standardization and providing sufficient flexibility for respondents to identify themselves in the survey's demographics and (b) for libraries to see their interests reflected in the questions. These challenges were amply reflected in the comments by consortium members in response to this question: *How to adequately reflect all the variant user classifications, library configurations including the virtual library, etc., while still generating meaningful comparative data?* While the tension between the LibQUAL+® as a benchmarking tool and its relevance to local needs is unavoidable, there are some improvements in flexibility that could make the survey more useful and appealing to Canadian libraries and perhaps other participants as well.

- **Alternative, briefer LibQUAL+® surveys**
  While running a large comprehensive survey like LibQUAL+® periodically (every 3-5 years) may be useful to gauge changes in performance across all the service dimensions, the length and scope of the present survey are potential deterrents both to respondents and to librarians who must review, analyze, and act on the results.

  LibQUAL+® Lite, ARL's planned alternative or complement to the full LibQUAL+® survey generated considerable buzz when Martha Kyrillidou mentioned it briefly at the October 2007 LibQUAL+® Canada conference/workshop. Shorter surveys, perhaps focusing on specific service dimensions, may make more effective use of staff resources and provide more timely feedback on program and service changes.

  Increasingly, libraries will have to use new channels and approaches for delivering surveys to spam-weary patrons and patrons who rely increasingly on mobile communication devices. LibQUAL+® will have to adapt accordingly if it is to remain relevant.
- **User Categories**
  Like the standardized discipline groups that a participating library may link to its own set of local disciplines, LibQUAL+® should allow for a fully customizable set of user types linkable to a set of standard user categories. This approach would allow libraries to define their own set of user classifications without necessarily having to negotiate the addition of yet another completely new LibQUAL+® demographic.
- **Terminology**
  While ARL has attempted to deal with major differences in linguistic expression through separate language surveys, e.g., British and American English, there are more subtle but no less important variants that are not accommodated through this approach. For example, the Canadian libraries found the term "Sex" instead of "Gender" to be outdated and inappropriate. Accommodating variant labels mapped to the same survey concepts would be a more flexible way of dealing with such differences.

- **Language of Survey Questions**
  Having to deal with a bilingual consortial environment revealed a significant limitation in the design of the LibQUAL+® program which ARL is committed to addressing. While a participating library can elect to take the survey in more than one language, there was no direct program link between the library's corresponding survey questions in the chosen languages. This meant that there was no automatic link between the local or optional questions in English and the equivalent French. English members of the consortium were able to select the consortium's package of optional question in English by simply selecting the consortial package when configuring their survey. However, for a member library to select the French version of the same questions, the library had to choose them individually from the list and know which individual French language questions corresponded to the consortium's package of English optional questions. The consortium had to compile and post a table of equivalents for all of the English corresponding French optional questions. The latter was complicated by the fact that ARL's lists of French and English optional questions did not correlate and the numbering of the in both lists changed from the previous year as new questions were added.

  Because the corresponding questions in both languages are not linked in the system, the original consortial report generated by ARL's program could only provide separate aggregate scores for the French language and English language surveys. To generate total aggregate scores of the survey results from both languages, ARL had to regenerate the consortium's report notebooks manually which, as expected, took much longer than the machine generated reports and had to be corrected a few times.

## Conclusion

The 48,000 consortial responses to the 2007 survey provide a rich new resource of assessment data for Canadian academic and research libraries. The availability of such a large data set offers Canadian library researchers a unique opportunity to study Canadian academic service quality data on a granular level not possible from individual library results or even from the combined results of the few past Canadian LibQUAL+® participants. This data set is large enough to provide opportunities to study potential difference in expectations and perceptions by gender, age, standard discipline group, undergraduate year, library type, region, etc. (e.g., 1st year undergraduates, female graduate students in the humanities).

This data may prove valuable to support advocacy efforts by academic library councils on behalf of their members, with governments and other funding sources.

When the consortium conducts the survey again, probably in 2010, we will have an additional set of valuable time-series data to help libraries assess the success of new cooperative initiatives and changes in client expectations and perceptions over time.

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## Endnotes

1. Julie McKenna and Isla Jordan, "Library Services Assessment," (presented at the OLA Super Conference, Toronto, Ontario, Canada, February 2, 2007), http://www.accessola2.com/superconference2007/fri/1408/mckenna_jordan.ppt.

2. Ibid.

3. CARL is an association of 30 research-intensive institutions: 27 universities, Library and Archives Canada, Canada Institute for Scientific and Technical Information (CISTI), and the Library of Parliament.

4. Canadian community colleges normally offer diploma and certificate programs, but not programs leading toward a university degree.

5. Association of Research Libraries. *LibQUAL+® Update* 1, no. 3 (2004).

6., The pre-survey HU http://library.queensu.ca/webir/canlibqual/carl-workshop.htm UH and post-survey HU http://library.queensu.ca/webir/canlibqual/carl-workshop-2007.htm UH conference programs and presentations are posted on the consortial Web site.

7. See Uhttp://library.queensu.ca/webir/canlibqual/consortial_survey/SurveySummary.htmlU.

# Keeping Assessment Results on the Radar: Responsibility for Action

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## Abstract

The University of Western Ontario Libraries began creating a culture of assessment with its initial LibQUAL+® study in 2004 and subsequent participation in ARL's "Making Library Assessment Work" program in 2006. By 2007, when we participated in a second LibQUAL+® study as a member of the Canadian Association of Research Libraries (CARL) consortium, the Libraries had created an Assessment Librarian position, established an Assessment Committee, integrated an Assessment Plan into its strategic plan for the next four years, and developed an Assessment Committee Plan for 2007/08 – 2010/11. Through these initiatives, Western Libraries' culture is changing. We have made huge strides; however, not all staff members see the importance of assessment or how this relates to their positions. Assessment to them is outside of, rather than integral to, their roles. Others who recognize the need to keep user-identified issues at the centre of planning and decision-making can lose sight of that with the pressures of challenging workloads.

This paper concentrates on the how the Assessment Librarian and Committee continue to work cooperatively within the Libraries to engage library managers and staff in using user-centred data to guide planning for service improvement. It also addresses some possible barriers along the way to achieving a culture change, and how we are attempting to keep assessment on the agendas of committees and service locations across the organization.

## Background

In 2004, The University of Western Ontario Libraries conducted its first LibQUAL+® study. For us at that time, LibQUAL+® provided a reasonably inexpensive project to test how useful the data would be for setting some benchmarks and providing comparisons with peer institutions. LibQUAL+® was in fact Western's first step toward developing a culture of assessment, although we did not use that terminology in 2004. It was not until Steve Hiller (University of Washington) and Jim Self (University of Virginia) visited Western in 2006 as part of ARL's "Making Library Assessment Work" program that we became conversant with the concept of a culture of assessment.

In 2004-2005, Western Libraries became involved in the MINES (Measuring the Impact of Networked Electronic Services) for Libraries™ study as one of the participating libraries of the Ontario Council of University Libraries MINES project. Also in 2004, the Libraries took part in testing the SAILS tool (Standardized Assessment of Information Literacy Skills). In 2005, Western Libraries assigned assessment responsibilities to an existing librarian position and gave the position the title of Assessment Librarian. A month or so later the LibQUAL+® coordinating committee broadened its terms of reference and developed into a full Assessment Committee.[1] In addition to the large scale projects undertaken centrally, librarians interested in developing assessment projects within their own service locations worked together to create and conduct user needs and satisfaction surveys, and to follow up with focus groups to answer questions regarding local needs.

Librarians who worked on all these assessment projects became increasingly enthusiastic about the possibilities for using the data gathered in our planning; however, it took the visit from Steve Hiller and Jim Self to help us articulate the overall goal of a culture of assessment and to guide us in a direction that will eventually involve all staff members. The visit resulted in the creation of the Assessment Committee's first Assessment Plan for 2007/08 – 2010/11. That plan is aligned with the Libraries' strategic plan. Most importantly, the ARL visit gave us the needed jumpstart in this newly defined direction.

## Along the Continuum to a Culture of Assessment

Since 2006, Western Libraries has made strides forward in changing our culture because of solid support at the executive level and the commitment

of many leaders and staff. We have not, however, yet achieved that systemic change described by Amos Lakos and Shelley Phipps in their article on assessment as a catalyst for organizational change.[2] In 2007, when Western Libraries once again decided to participate in a LibQUAL+® study, this time as a member of the Canadian Association of Research Libraries consortium, the Assessment Committee took the opportunity to reflect on how we could use LibQUAL+® to move the Libraries closer to the ideal.

This involved first looking inwardly at the Libraries' success in responding to major concerns expressed in the 2004 LibQUAL+® study. We found that, although we had done well with our response to the concerns of the various user groups, we had not addressed all significant issues. In some cases there was a gap between what we learned from our users and our action. We explored why this was the case and discovered three possible barriers within the Libraries impeding progress. In struggling to understand the obstacles, we also looked outwardly to the community of librarians and other researchers external to Western who are publishing and giving presentations on assessment.

## Obstacles along the Way

The first of the three identified barriers had already been acknowledged as an area where we needed to do more work at Western when, in 2006, two Assessment Committee members attended the Library Assessment Conference in Charlottesville, Virginia. At that time we learned about the work ongoing in many libraries to assess the needs and perceptions of library staff in a variety of ways. At Western, we have done a little of this kind of assessment with staff; however, we realized when we heard these presentation that we needed to do more to involve staff in assessment. In addition to the benefits expressed in the sessions, we saw this as an opportunity to help staff to learn about user-centred assessment by relating it to their own experience of a study that had a positive impact on their workplace environment. We believed that we had been asking staff to work with us to create a culture in which they had little understanding because they had not seen the benefits of assessment.

The second obstacle that the Assessment Committee identified is connected to this first one. In a book on organizational surveys edited by Allen Kraut,[3] we discovered that, if we ask staff to participate in an assessment study, then we need to involve staff in discussing the results and working towards solutions. Staff members expect that there will be some action. If staff members do not see their concerns being acted on, how can we expect them to take assessment seriously? In the pace of libraries today, the results of a staff survey can easily become buried under the many pressing and competing student and faculty needs.

We know from surveys, such as LibQUAL+®, not all solutions are easy to effect. In some cases, solutions need more time and additional resources than are immediately available to make requested improvements. Often we need to go back to user groups and explore more deeply what the issues are when survey results are unclear or we believe that the results are not truly representative. Yet it is essential that there is action and that it be the right action. No action or the wrong action leads to cynicism. This is true whether you have invited faculty, students, or library staff to participate in a study.

The third identified barrier is organizational short term memory. When we first present the analysed results of a study, there is great excitement to hear what our users and, in some cases our staff-as-customers, have said. It is difficult to keep the momentum of that initial thrill when we need to begin addressing the issues identified in a study. That is when the real work begins and it can be daunting and taxing. If we are not able to address user concerns quickly and easily, we have found that the further you move away in time from a survey, the more it fades in memory. If you jog the organization's memory, you are apt to find that the information is now considered out-of-date and useless. Unfortunately, outstanding issues tend not to disappear, as we found in 2007 with our second LibQUAL+® study when issues not addressed in 2004 surfaced once again.

## Engaging the Libraries to Act on Results

With these three barriers unearthed, the Assessment Committee considered ways to use the LibQUAL+® study to engage more staff and managers in continuing toward a culture where our success is measured by those for whom we provide service. As part of our strategy, the Committee presented first impressions of the 2007 LibQUAL+® results to library leaders and managers just over a month after the survey period ended. Since comments traditionally provide the most interesting and motivating information for staff

within our Libraries, we focused on the more 1,000 comments received.

The comments' analysis was divided among Committee members. Two members provided overall commentaries on the comments, one focusing on major themes and the other one presenting on information control issues which were of particular concern to faculty and graduate students. Other members focused on the comments for individual libraries. Each summarized the significant issues for the three distinct user groups: faculty, graduate students, and undergraduates. By taking this approach, managers and leaders could trace the themes that crossed all locations as well as those that were particular to their own service.

We also provided a quantitative analysis for each user group, for example we showed the top five questions (where we did well) and bottom five (where more work is needed) for undergraduate students, graduate students, and faculty. These data complemented the qualitative data. From beginning to end, the presentation was designed to centre on the major issues that needed to be addressed.

The Assessment Committee asked leaders and managers to share the results with staff and because we wanted to stay within the loop, we asked for each service location and library department to report feedback to us from the staff meetings, especially how staff would like to move forward with resolving some of the issues or with suggestions for follow up with user groups. All of the documentation from the presentation by the Assessment Committee was made available on the staff intranet, including the LibQUAL+® results notebook prepared by ARL. Assessment Committee members offered to help with presentations to staff. We also offered to prepare more detailed analysis for specific locations on request.

The initial response from the Libraries was impressive. The Committee heard back from every location. We identified issues that could be handled locally as well as those that would need central coordination and action.

Although we were successful in involving all staff in responding to the LibQUAL+® results, it is taking more effort to keep the issues identified by users on the table. The LibQUAL+® report and other reports like it can quickly fall from view as other projects and initiatives start up and daily pressures take over. When resources are stretched thinly across libraries it becomes harder to stay focused on the user concerns from 2007, even those that are aligned with our strategic priorities. Assessment Committee members have been turning attention to how we can further engage the library staff in times of constant change and challenging workloads to stay the course towards that ideal of a truly user-centred organization.

## Keeping Assessment on the Radar

A new committee structure at Western Libraries is expected in time to have a positive impact on communication of "customer service" issues. The Assessment Committee is one of only two that will continue within the new structure and assessment will cross all committees. This means that there will be an *ex officio* representative of the Assessment Committee on the standing committees for teaching and learning, research and development, and customer service.

In the meantime there have been more opportunities for staff to participate in surveys and focus groups, as well as to provide feedback on a number of initiatives. Some of these have been generated within units to involve staff in planning and decision-making relating to their own work spaces and work flows. Others span across the Libraries such as a survey to gather staff input on a new staff news service. Overall more staff members are becoming familiar with the assessment process and can see the benefits of incorporating this into our roles and ways of providing service.

The Assessment Librarian participated in a recent 20-month Web site redesign project that was guided throughout by user-centred assessment. Western Libraries initiated the project as a result of an environmental scan. LibQUAL+® data further confirmed the need for an improved Web design. From the beginning of the project, the Next Generation Web site Implementation Team invited faculty, student, and staff participation in focus groups, an interactive "build an ideal library Web site" exercise, and usability testing to provide input. More recently, the Team invited online feedback on a preview and beta of the site. The site has been tweaked accordingly as users took advantage of the comments form available on all pages to let us know what was working and not working for them.

Throughout the project the Team leader ensured that the information gathered has been used to steer the project and that students, faculty, and staff received quick and consistent responses to their input. This project has established a good model for building assessment into a project plan.

At Western, we have not yet reached that critical tipping point where most managers and staff are engaged in gathering and using data for planning. There are certainly many positive signs throughout Western Libraries that encourage the Assessment Committee to rally the energy for further promoting the use of assessment within the Libraries. The challenge for the Committee now is how to be heard in the cacophony of meetings, e-mails, telephone calls, and competing priorities so that assessment becomes integral to what we do and it is indeed a catalyst for change.

In order to keep assessment visible and to encourage the use of data in planning, the Assessment Committee members continue to reach out to managers and staff across the Libraries in a variety of ways. We focus on managers and staff in the Libraries who are most ready for incorporating assessment as a means to improve service. We are flexible, ready to step in and help, and ready to take advantage of opportunities that serendipitously occur. As Committee members work with more individuals and groups, we believe that there will be greater understanding of a need for a culture of assessment to help us not only improve service but also help us to remain a viable and significant support of the University's strategic priorities for teaching, learning, and research.

Some of the ways that the Assessment Committee members continue to take advantage of the LibQUAL+® 2007 and other assessment results on the radar are discussed below. Barriers to action in other libraries may vary; however, suggestions offered here along with examples may help generate ideas for what will work in other libraries.

## Promotion and Communication

Perhaps the most important function for libraries engaged in gaining continued support for assessment is the promotion of user-centred studies and the communication of results in a way to engage staff to use the data. Assessment Committee members take advantage of every communication vehicle available to us. We have prepared columns for the Libraries' newsletter *Direct Communication* on studies carried out within the libraries as well as student surveys conducted by the University. We also write brief items on surveys conducted by media, such as the *Globe and Mail* that include questions about our services. At times we have prepared 4-page issues of *Direct Communication* focused entirely on assessment initiatives and results.

For both users and staff we offer a LibQUAL+® action report available on the Libraries' Web site. The report is updated as we make improvements, and we notify users and staff about the updates through news announcements on the internet and intranet respectively to keep everyone up-to-date on the status of significant issues.

Assessment Committee members open conversations with members of other committees and groups to wrangle invitations when appropriate. In addition to trying to gain invitations to meetings of other committees to talk about assessment, we invite staff members to join us when there are topics on the agenda we feel may be of interest. For example, when colleagues in the Allyn & Betty Taylor Library presented the results of a study they did of graduate student information literacy needs, we opened the meeting to interested staff. The Taylor study team was subsequently invited to present the results to various groups of staff throughout the libraries, and their enthusiasm sparked similar studies in other subject disciplines.

Members keep up-to-date in areas of particular assessment interest. We share what we find with each other and also with others in the Libraries who may be interested in studies that could perhaps be adapted here.

## Working Cooperatively to Use Results Effectively

Assessment Committee members learned, as we reflected on our 2004 LibQUAL+® experience, that we need to stay involved after presenting results. In 2004, the LibQUAL+® implementation team analysed the results and then handed over the report to leaders and managers to work with the information. This time we took ownership along with managers and library staff and we are working with others to achieve some needed change.

Overall, Assessment Committee members are manoeuvring to be where we can have the most impact within the Libraries. We provide detailed analysis of the LibQUAL+® data to support the Libraries' executive and our colleagues who are working on identified user concerns. The Executive members have used detailed graduate student information to explore with the Society of Graduate Students some of the identified issues. We also pulled together a special package of material for the Student Services Liaison Librarian who will be working with undergraduate student groups as well as library staff to address some of the

"etiquette" issues such as noise from cell phones, identified by undergraduates. We take on leadership of new projects, and assist with others. We work as a committee as well as individually with those who are ready to incorporate assessment into their projects and roles. All members work within their own libraries and departments to provide leadership in promoting and conducting local assessment initiatives.

Some projects in which Committee members are currently involved are listed below.

1. New Communication/Marketing Committee. The idea of combining assessment and marketing was picked up at the Library Assessment Conference in 2006 from a presentation on a "symbiotic relationship" between assessment and marketing at the American University Library.[4] At Western the Assessment Librarian shares communication responsibilities with the Student Services Liaison Librarian. As a result of the 2007 LibQUAL+® study which indicated that faculty and graduate students in particular would like the Libraries to be more proactive in "pushing" information on research level collections and services out to the academic community, these two librarians drafted a proposal to establish a communications/marketing team for a six-month pilot project to provide this much needed support in the Libraries.

   The Student Services Liaison Librarian took the lead with the team, and the Assessment Librarian provided assessment expertise to guide setting priorities as well as to assess at least one initiative of the team. The team's final report on the pilot project included recommendations for Western Libraries to endorse promotion and communication as priorities within the Libraries and to establish a marketing/communication committee. With the data provided in the report supporting these and other recommendations, the Management Committee quickly approved all recommendations. The new marketing/communication committee will include representation from all service locations and departments. It will complement and support local marketing initiatives in individual libraries as well as coordinate library-wide promotion and communication. Assessment is being built into the terms of reference to ensure that the committee continues to respond to new and changing needs among our users.
2. Collections Analysis Needs Assessment. The Assessment Committee used LibQUAL+® results, along with information gathered at the time of the 2006 ARL "Making Library Assessment" work visit to encourage the provision of collections analysis tools that can take advantage of COUNTER, SUSHI and our ERM. The Assessment Committee met with the Associate University Librarian (Information Resources) to consider the need for collections analysis tools and how these could be used by subject librarians as they develop collections especially in areas of research priority identified by the University. Although Western Libraries provides access to some collections analysis software, only a few librarians are aware that the tools are available and there is currently no one who has the expertise to take full advantage of the software.

   As a result, with the encouragement of the Associate University Librarian, the Assessment Committee established a working group with members who have collections experience and expertise to assess the kinds of collections analysis reports that collections staff need and how the data will be used. This is a first step to putting the necessary data reports into the hands of those who need them. The working group will also look at the software now available to see whether it meets the needs of the subject/collections librarians and will make recommendations accordingly.
3. Music Library Space Use Study. The Assessment Librarian together with the Director of the Music Library is working on a year-long space use study of the Music Library using observational and interview methods for gathering data. The LibQUAL+® results clearly indicated that faculty, graduate students, and undergraduates were united in their concern regarding user space for working in the Library as well as space to house the collections they need to hand. The University is moving administrative units to the periphery of the campus to make more room for classes and academic needs in the core. The time is opportune to work with the Faculty of Music to create a better library space. With good representative data from LibQUAL+®, as well as information being gathered on current use and user expectations for the future, the

Director of the Music Library will be making a strong case to the Faculty that we hope will benefit library users.

In addition to projects noted above in which Assessment Committee members have been involved this year, we have also provided staff access to Web usage analysis software and to survey software for those who need these tools. We have offered training and help in a variety of ways, including one-on-one and hosting audio sessions on assessment provided by the Education Institute. The Assessment Committee has worked with the Web site redesign team to put forward recommendations for continued assessment of the website once the team signs off the project. The recommendations are intended to help the Libraries stay current with the changes in the needs and expectations of faculty and students using the site and to help us keep pace with our users' changing research environment. For staff involved in research activities, we provide a list of assessment projects in progress and completed on the intranet site, along with links to reports. In this way we try to help everyone have access to the growing body of information available on our libraries and to be able to tap into the expertise being developed throughout the libraries. The list also helps those who are scheduling assessment projects to avoid conflicts.

## Moving Forward

When, in 2006, many staff became excited by and embraced the ideas presented by Steve Hiller and Jim Self during their ARL visit, a culture of assessment seemed imminently achievable. Two years down the road, we know that a change in culture does not happen overnight, as necessary as that change may be. Our goal now is to keep the momentum going and to share the enthusiasm and the excitement of working with users to provide the quality of service they expect and need and we are capable of providing.

At Western we are now seeing assessment listed in the mandates of working groups for a variety of projects. We also see it listed in the unit workload balance plans of librarians and archivists across the Libraries. Some staff members have been incorporating assessment into their work flow to assist with planning, and are using data both qualitative and quantitative on a regular basis to improve service. These steps are gratifying, yet, in reality we know that there is still a need to keep the voices of users and library staff where they can be heard.

Responsibility rests with all of us in the Libraries to keep pace with our users. The leadership, however, will come from those who believe that using assessment as a means to changing the culture is definitely a step in the right direction.

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## Endnotes

1. Assessment Committee is composed of Assessment Librarian (Chair), Associate University Librarian (Services and Planning), one research/instructional librarian representative from each of the two larger libraries (Allyn & Betty Taylor Library and the D.B. Weldon Library), one librarian/archivist to represent the smaller service locations (Business, Education, Law, and Music Libraries and Western Archives), one librarian to represent Information Resources/Library Technical Services. The committee consults with Library Information Technology Services and adds *ad hoc* members as needed.

2. Amos Lakos and Shelley Phipps, "Creating a Culture of Assessment: A Catalyst for Organizational Change," *portal: Libraries and the Academy* 4, no 3 (2004): 345-361.

3. Allen H. Church and David H. Olliver, "The Importance of Taking Action, Not Just Sharing Survey Feedback," in *Getting Action from Organizational Surveys: New Concepts, Technologies, and Application,* Allen H. Church ed. (San Francisco: Jossey-Bass, 2006), 102-149.

4. Melissa Becher and Mary Mintz, "A Leap in the Right Direction: How a Symbiotic Relationship between Assessment and Marketing Moves the Library Forward," in *Proceedings of the Library Assessment Conference: Building Effective, Sustainable, Practical Assessment Charlottesville, Virginia, September 25-27, 2006*, Francine DeFranco et al., ed. (Washington, DC: Association of Research Libraries, 2007), 69-81.

# Collaborative Design and Assessment: Learning 'With and For' Users

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## Abstract
Two California State University libraries (California Polytechnic State University in San Luis Obispo and San José State University) used a collaborative design and assessment framework to successfully design and development several initiatives, including a federated search interface, a digital research portal, a Web site persona prototype, and a campus learning commons.

*"Assessment should become part of the everyday work process … part of the decision making loop in the organization, a normal part of evaluating internal processes."*

*"… time for group learning, and the creation of supportive organizational systems must be deliberately developed."*[1]

## Introduction
In development since 2003, a robust collaborative design and assessment framework has produced practical improvements in two California State University (CSU) libraries. This action research approach advances four guiding principles:

- User-centric, inquiry based relationships advance participants' learning;
- 'User as co-researcher' interactions produce 'authentic voice' insights;
- Evidence-based project outcomes reflect user-centric success indicators; and
- Dialogue-based processes sustain inclusive communication and continuous improvement.

To date, these principles have informed the design and development of several initiatives, including a federated search interface,[2] a digital research portal,[3] a Web site persona prototype,[4] and a campus learning commons.[5] Throughout, a wide array of research methodologies, including focus groups, usability studies, rapid prototyping, and user surveys, were employed within the framework of 'soft' systems analysis and design.[6] An action research orientation encouraged real world benefits, including emergence of a user centered design and assessment organizational culture.

## Evolution
The original applied research effort at California Polytechnic State University in San Luis Obispo occurred between 2003 and 2006. It relied on student-framed, student-conducted, and student-reported research results which shifted digital project decision making from 'library centric' to 'user centric.' This occurred naturally as student-generated and student-interpreted evidence caused the library staff to question existing ways of seeing and doing and produced novel proposals for advancing thinking and taking action.

In a second implementation at San José State University from 2006 to 2008, this action research orientation informed both reflective (re)learning and responsive action-taking. Initiatives partnered librarians with students and faculty to co-design library learning spaces and information literacy programs. Problem-solving occurred simultaneously with professional enrichment. Reconsideration of organizational purposes, reinvention of constituency relationships, and re-imagination of workplace roles furthered organizational effectiveness.

## Context
Changing internal and external circumstances require that libraries transform their workplace processes and organizational outcomes. In response, intentional workplace (re)learning has been introduced at the Dr. Martin Luther King, Jr. Library. A future-oriented partnership between San José State University and the City of San José, this organization is the largest co-managed library in the United States. Since it opened in 2003, the King Library has served as a lifelong learning center for the greater campus and city community. The state-

of-the-art award winning facility is enriched by abundant physical and virtual information resources. Core communication and marketing messages invite people from diverse backgrounds to come together to explore issues, share ideas, and expand knowledge. This mission is supported by high quality programs and services for both campus and city community audiences.

The King Library sits in the heart of the high-tech Silicon Valley—worldwide headquarters for Adobe Systems, eBay, Cisco Systems, Apple Computers, Yahoo, and Google. At the opening ceremony, local dignitaries praised the joint library as reflective of the innovative and entrepreneurial spirit typical of the Valley. In the ensuing years, however, the organization's continued reliance on traditional technologies and unexamined processes rendered it unable to satisfactorily respond to unanticipated service opportunities.

Therefore, in 2006, a joint library 'virtual services' task force initiated a Learning 2.0[7] educational initiative that enabled staff members to develop new Web 2.0 competencies. Following delivery of this 15-week course, a library wide strategic direction setting effort was initiated. One of several task forces examined workplace communication, decision making, and planning structures, systems, and processes. Members recognized that maintaining a nimble, responsive organization required more timely and transparent information sharing and decision making. As was characteristic of all the task forces' work plans, proficiency in and appreciation for lifelong learning was purposefully advanced.

The lifelong learning construct represents a core value in the founding mission of this joint university-city library, as expressed thusly on the King Library Web site (http://www.sjlibrary.org/about/vision/index.htm):

- Enrich lives by fostering lifelong learning and ensuring that every member of the community has access to a vast array of ideas and information; and
- Provide students, instructors, and the community access to the information they need for educational and personal growth throughout their lives.

This paper will describe how collaborative design and assessment 'with and for' users served to advance workplace learning and, in so doing, furthered employees' lifelong learning capabilities.

## Literature

In a seminal book on lifelong learning, Candy[8] states that lifelong learning takes, as one its principal aims, equipping people with skills and competencies required to continue their own self-education beyond the end of formal schooling. These capabilities support lifelong "learning whereby people with shared interests are able to communicate with, learn from, and contribute to learning by others," enabling "people to take control of their own learning".[9] Requisite proficiencies encompass both cognitive and affective domains: recognition of the need for lifelong learning (affective domain) and ability to engage in lifelong learning (cognitive domain), as detailed in Bloom's taxonomy.[10-11]

In groundbreaking work, Bruce[12-13] advances another critical dimension of lifelong learning in recognizing the importance of providing relational context to maximize the learning potential of information encounters. She connects individual and group learning to organizational learning in terms that both further experiential relationships with a topic and also advance understanding. It follows, then, that appropriately contextualized information encounters can advance workplace learning which exercises information literacy capabilities transferable to lifelong learning. A small but important literature has connected the furtherance of relational information literacy in the classroom with lifelong learning.[14] It follows that that relational information literacy experiences in the workplace can likewise advance lifelong learning proficiencies.

Workplace information literacy is a collaborative, socio-cultural practice[15] within a context specific environment consisting of a 'constellation of skills, practices and processes'.[16] It focuses on the construction of shared professional meanings and the development of communal outcomes through situated engagement with information.[17] When cultivated at both group and organizational levels, intentional thinking processes can enable connecting information sources and workplace practices to advance information usage proficiencies.[18-19] Over time and with practice, as collective competencies become integrated into the workplace culture,[20] nimble, sustained responsiveness produces capacity to dynamically respond to new circumstances.[21] This is especially so when researchers aim to create organizational change while simultaneously studying it.[22]Our results suggest that this action research approach

also serves to fortify individuals' lifelong self-education.

## Readiness

In preparation for this organizational initiative, a 'virtual services' task force initiated an online education program in 2006. Developed by Helene Blowers, the Learning 2.0 (http://plcmcl2-about.blogspot.com/2006/08/about-learning-20-project.html#contact) course introduced over one hundred city and university library staff members to twenty-three Web 2.0 tools.[23] Course learning outcomes intended to prepare participants to exercise 21st Century information and communication technology (ICT) competences[24] that satisfy workplace requirements as well as enable civic engagement and further education.

Through online evaluations of King Library's customized Learning 2.0 initiative (http://sjlibrary23.blogspot.com/), librarian, administrator, and staff participants reported that the process of completing the "23 things" modules enabled conversance with the tools and technologies that are changing the way that people around the globe are accessing and communicating information. These online survey results also confirmed employees' interest in using these tools to improve organizational communication, decision making, and planning.

In preparation, participants began to conduct Web 2.0-enabled pilot projects. For instance, several library groups initiated departmental blogs so members could maintain current awareness rather than waiting for (mediated) Intranet postings of meeting minutes and other unit communications. In addition, wikis were developed to share information, clarify goals, and consider actions—in the recognition that this technology enables easy access and ready editing. Knowing this, planning teams employed wikis to enable staff members to post and review information[25] during strategic planning activities focused on such topics as organizational learning and professional development.

Early project success suggested the potential for using Web 2.0 tools to share information and cultivate understanding. Therefore, a joint library task force was charged with investigating how to apply these technologies to improve merged decision making, problem solving, and strategic planning activities. In framing their initial applied research focus, task force members asked: What are the issues and roadblocks between where we are now and where we need to be in order to better communicate, decide, and plan?

During the course of their explorations, task force members purposefully advanced their relational information literacy, as embodied in the *Australian and New Zealand Information Literacy Framework*.[26] In an iterative fashion, they refined their research question(s), identified authoritative sources, and evaluated and organized information for the purpose of communicating findings that inform and influence. Their success prompted library leaders to continue constituting working groups to explore topics of strategic organizational importance and thereby further organizational effectiveness concurrent with organizational capacity. Throughout, dialogue and reflection enhance information gathering, assessment, and reporting in this evolving, and increasingly embedded, King Library workplace learning approach.

## Evidence

In customizing and extending the collaborative design approach, King Library leaders recognized that in addition to tailoring Kennedy Library's user-guided collaborative approach to local circumstances, they must better integrate consultative practices into day-to-day decision making and action taking throughout the organization. Leaders also noted that, after completing Learning 2.0 training, several library groups initiated departmental blogs so members could maintain current awareness rather than waiting for (mediated) intranet postings of meeting minutes and other unit communications. In addition, wikis were developed to share information, clarify goals, and consider actions on topics such as organizational learning and professional development, since this technology enables easy access and editing. This early experimentation suggested the potential for using Web 2.0 tools to intentionally exchange information and purposefully build knowledge throughout the library organization.

At the same time, leaders recognized the need to build a sustainable infrastructure for situating information encounters, expressing information practices, and exercising information skills. Therefore, in setting strategic directions for advancing community and promoting learning, leaders emphasized evidence, reflection, analysis, and application for (re)considering organizational

purposes, (re)aligning library mission, (re)framing programmatic initiatives, and (re)learning professional competencies. They sought to co-design an integrated communication, decision making, and planning system that would facilitate and inspire organizational (re)learning.

In constituting a strategic task force to investigate opportunities and recommend solutions, King Library leaders urged members to solicit a wide array of social, procedural, and physical information. In response, task force members decided to employ a Six Sigma problem solving and quality management process used by major corporations and organizations throughout the world.

To initiate their study, task force members asked: "What are the issues and roadblocks between where we are now and where we need to be in order to make more effective decisions?" The question—which emphasized decision-making—assumed that planning and communications challenges would also surface. This proved correct when task force members solicited analyzed organizational structures and practices for planning, decision making, and communication. To enrich their conclusions, they also solicited comments in the form of 'sticky notes' (3M brand 'post-its') from co-workers. During the second phase, members organized and categorized over one hundred and fifty staff generated 'sticky notes' into related groups. Following this, concise statements were formulated to describe the main ideas. The third step involved creating an Interrelationship Digraph to identify and analyze the cause-and-effect relationships that existed between critical issues identified through the Affinity Diagram process. The issues with the greatest number of arrows leading *from* them are the drivers (root causes) and answer the question: "What are the issues and roadblocks between where we are now and our ability to make effective decisions?"

Among the main issues which surfaced were these: ineffective cross-organizational communication, inconsistent decision making processes, and inadequate technology strategy. The task force conclusions emphasized that current structures and practices for planning, decision making, and communication are insufficiently transparent because they are not well documented in a single accessible location. As a consequence, when changes in group (committee or unit) functions, names, and reporting relationships are made, but not communicated, it is difficult for employees to know where to direct proposals, recommendations, or questions. So the final step in the Six Sigma process required identification of countermeasures for primary drivers, using a similar process of soliciting solutions from co-workers. This once again involved organizing 'sticky notes' and defining categories to produce design concepts for new organizational structures and processes.

## Systems

As one outcome of the task force study, the 'digital futures' librarian worked with information technology staff to design and develop a 'master blog' communication system. This design concept envisioned one master blog for all organizational groups. Designated content providers could 'self publish' to their blog. Groups were required to post all content in established categories such as agendas, minutes, and decisions. Posts would be tagged with the group's name, as well as the various categories and subcategories of content. Employees could subscribe to the blog overall or just to certain tags. Subscriptions were available via e-mail or RSS feeds. This virtual Web 2.0-enabled information access system was accompanied by a complementary system for ensuring face-to-face dialogue to promote face-to-face 'sense making' of the abundant and accessible organizational information.

For instance, among public services librarians, these conversations occurred within a new disciplinary team structure in which dialogue and reflection was integrated into virtual and physical communication, decision making, and planning processes and practices. Four leadership roles both advanced day-to-day team work and also ensured cross team 'movement forward together' through regular face-to-face meetings.

Team leads' responsibilities included convening meetings, building agendas, and facilitating team processes. They met regularly to exchange information and build 'big picture' contexts, which they infused into their teams' deliberations. Team leads also cultivated 'bigger picture' perspectives by convening all teams quarterly to report on team progress in meeting annual goals aligned with the library's strategic plan. At year's end, they orchestrated evaluation of discipline-based team outcomes. Finally, this group advised senior library administrators on

organizational matters such as librarian liaison resource needs.

Three other team roles offered leadership development opportunities to less experienced librarians. Information literacy leads were tasked with developing program level approaches to information literacy instruction, including learning outcomes and assessment strategies. Cooperative collection development leads evaluated and developed disciplinary print and virtual resources, including interdisciplinary materials. Research and referral leads streamlined processes for handling specialized research consultations—including reference desk and 24/7 virtual reference referrals—within the discipline-based teams.

In this way, collegial 'sense making' discussions at the unit level advanced, informed by the rich content of the master blog-enabled communication, decision making, and planning system. These co-designed in house systems ensured information access and encouraged information engagement within a team structure that cultivated collaborative information practices and thereby readied librarians for innovative campus learning partnerships.

## Users

Toward that end, members of a second library task force elaborated guidelines to ensure that users' diverse experiences remained central to action planning. They recommended that planners and implementers consider these central questions:

- Who are the stakeholders (students, faculty, staff, public) affected by the plan?
- How have you determined that the plan is what stakeholders want?
- What will success for the project look like?
- How will you measure the success of the outcomes you are trying to achieve?
- How will stakeholders determine the success of the project?
- How will stakeholders be informed of the results of the project?

Task force members also recognized the importance of encouraging information practices which ensured user-centered considerations and sustained organizational learning. Therefore, a second set of questions was developed to cultivate intentional collaboration.

- Do the data collection methods currently in place capture information you need to know? If not, what needs to be added to the organization's data collection systems?
- Describe how you are going to make the collected data available. How will you ensure that the information remains accurate and timely?
- Describe how you will define success. Within this context, what do your measures 'mean'? How will you know if progress occurs? How will you know why progress did or did not occur? How will you remain 'user centric' in your assessment measures?
- Summarize the key anticipated (or achieved) implication(s) in terms relevant to your user constituencies. For instance, within a university context, implications for student learning and faculty teaching would be most compelling. Include appropriate comparative data from comparable libraries with similar populations to help inform analysis and reveal areas in most need of continued improvement.
- Describe how organizational learning has been evidenced and identify how individual and team learning could be furthered.

Finally, because the goal throughout was to foster positive relationships and continuous communication with both internal and external user communities, other guiding questions encouraged the adoption of user-guided question formulation, research design, data collection, and information analysis processes:

- How have you identified the segments of the population that the library's programs, systems, and services will address? How have you determined what these users and potential users expect from the library?
- How are you listening to the 'voices' of library users? How are your listening methods customized for different types of users?
- How are you ensuring that the library's programs, systems, and services continue to be relevant, given a volatile information universe?
- How are you using information/feedback from user communities to make improvements, identify initiatives, and remain informed?
- How are you including input from individuals who are not currently served by the library—but will be in the near future—as you develop new programs, facilities, and services?
- How are you determining if the library is creating an overall climate that is conducive to

teaching, learning, and research for an increasingly diverse metropolitan community?

These 'thinking' guidelines recognized that advancing workplace learning through furthering user relationships requires discovery-based inquiry practiced at personal, team, and organizational levels. Information-focused activities provided the catalyst for organizational change. Measurements for relevance, value, and impact increasingly emerged out of users' points of view. The new user-centered assessment framework required significant changes in workplace cultural practices, fortified by new learning-focused communication, decision-making, and planning systems.

## Philosophy

King Library's collaborative design initiative employed a Scandinavian style participatory research orientation. This approach is naturally sympathetic to interactive design processes which facilitate evaluation, modification, and implementation of 'solutions' in relatively short time frames. As the name implies, interactive design also encouraged communication and built relationships between planners and beneficiaries. In addition, user-generated recommendations produced locally usable products, applications, and environments, especially when workplace culture integrated reflective dialogue and continuous learning practices.

Since organizational and individual change begins with the onset of research, King Library leaders recognized that the question of what to study was critically important. As organizational experiences illustrate, it is equally important to consider the question of how—and with whom—to conduct research studies. This approach requires relinquishing control of the research process. In its place, the iterative dialogue inherent in collaborative design fosters sustainable communications which alter relationships, processes, and practices for librarians and their campus beneficiaries. Professional frameworks shift from 'library centric' to 'user centric' as 'habits of mind' increasingly embrace inclusive practices and diverse viewpoints.

In addition, collaborative information practices are paired with an action research orientation that seeks to bring about user-guided changes as a direct result of the research process. This is necessary in order to satisfy mounting user expectations. In a large part, therefore, the most useful design processes produce rapid prototyping of solutions that can be evaluated, modified, and 'piloted' quickly.

In addition to furthering practical problem solving, new workplace information practices transform internal and external constituency relationships. Employees cultivate 'bigger picture' understanding of workplace issues and, within the context of the larger academic enterprise, reconsider organizational purposes in the light of multiple points of view encountered in appropriately contextualized settings which support 'sense making' and 'meaning making.'

The action research orientation necessarily pairs workplace learning activities with 'real world' situation improvements, thereby offering a number of important benefits. First, data collection and interpretation requires sustained face-to-face communication between librarians and collaborators. These personal, 'voiced' exchanges offered librarians 'first hand' knowledge of constituencies' perspectives. In response, agile problem solutions, service improvements, and organizational changes emerge quite naturally. Continuous dialogue also aids 'authentic' interpretation and ensures clarification opportunities throughout a project life cycle. In addition, when relationships continue, it is possible to continue to investigate different aspects of particularly perplexing problems.

Over time, as learning relationships became established within the library and with the campus community, more and more employees consider the questions, sources, and interpretations which foster collaborative information practices. Throughout, information—in this case, anything experienced as informing—fuels learning through different ways of experiencing information usage. In so doing, it predicts new roles for library resources and library expertise in 21st century higher education institutions.

## Outcomes

As the second implementation year concludes, there is ample evidence of substantial and sustainable organizational learning.[27] Employees increasingly use an integrated framework for information literacy which situates decision making within progressively evolving contexts, oftentimes aided by appropriate technologies. Employees express increasingly more sophisticated appreciation of information sources, information use, problem solving, and information management. From Bloom's affective perspective,

this learning can be understood as reflecting movement from levels 1 to 5: receiving, responding, valuing, organizing, and characterizing. Similarly, workplace information literacy skills—demonstrated by situated questions and contextualized interpretations—are fortified by enhanced cognitive competences which supports evidence-based deliberations reflecting knowledge, comprehension, application, analysis, synthesis, and evaluation.

These multifaceted lifelong learning outcomes have also informed both structural and process improvements for communication, decision making, and planning improvements. In acknowledging that 'information literate people are engaged, enabled, enriched, and embodied by social, procedural, and physical information that constitutes an information universe,'[28] a 'master blog' communications system was designed. Now under development, this Web 2.0-enabled system will ensure abundant information access for subsequent 'sense making' experiences at the unit level. Throughout, workplace learners anticipate engaging with and drawing meaning from an ever growing variety of information sources.

## Reflections

The co-design philosophy assumes that enabling library tools, systems, services, programs, and environments are best designed and developed inclusively, with and for beneficiaries. Toward that end, practical guidelines permit replication of this approach, which depends on user produced and interpreted evidence, in other organizational settings.

Of fundamental importance, because libraries today face complex situations where even deciding what the problem *is* can be controversial, leaders must implement processes that activate continuous learning cycles. Such learning opportunities exercise workplace information literacy proficiencies, as participants identify opportunities and formulate questions, find and appraise information, and then apply insightful interpretations to achieve meaningful performance outcomes. Because such (re)thinking is circular rather than linear, the search for solutions requires devising iterative, perpetual learning processes which cross traditional departmental and divisional boundaries. Continuous learning also requires considering multiple viewpoints, which encourages seeing the organization for what it is: a complex organism affected by factors within and without. Reaching this understanding—and then activating it— requires enrichment of the workplace environment through intentional and collaborative information-focused learning activities. To achieve this, organizational leaders must fulfill essential responsibilities, including the:

- Design of workplace systems and structures which facilitate information access, information exchange and reflective dialogue;
- Advancement of collaborative relationships which accelerate learning in house and on campus;
- Allocation of human and financial resources to incentivize collective innovation and creativity; and
- Co-creation of a collaborative design, implementation, and assessment culture within campus stakeholders.

Over time and with practice, these conditions permit librarians and paraprofessionals to exercise and extend their information practices and information skills through increasingly collaborative information activities. Resulting staffing patterns and role responsibilities will anticipate new professional purposes and paraprofessional responsibilities. In turn, re-allocation of workplace responsibilities can open doors for innovative learning partnerships 'with and for' faculty and students operating within a collaborative design and assessment framework reflective of these assumptions:

- Philosophy: Collaboration improves library user experiences and builds interactive relationships.
- Process: Interactive, user-centric design and assessment creates context and promotes learning.
- Outcome: Communication systems and reflection opportunities ensure continuous improvement.

Implementation of these guidelines can produce planning, decision making, and communication structures and practices that encourage access, dialogue, and reflection—especially when organizational incentives and rewards value thought leaders, boundary spanners, and culture shapers. As the King Library example suggests, simultaneously advancing strategic organizational directions and cultivating workplace information capabilities offers enormous potential. Process improvements enabled by Web 2.0

communication tools now promise to further the depth and breadth of information exchange. Complementary organizational systems enrich face-to-face dialogue, reflection, and deliberation, enriching collective capacity to make service improvements while cultivating individuals' capability for lifelong learning.

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# Creating a Culture of Assessment: Cascadia Community College Student and Faculty Focus Groups

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## Abstract

This paper describes how two Reference & Instruction Librarians at the University of Washington Bothell/Cascadia Community College Campus Library furthered their institution's assessment goals by conducting human subjects research approved focus groups with Cascadia Community College students and faculty. As co-chairs of the User Needs Committee, the librarians lead the effort to research, plan, and implement focus groups with Cascadia students and faculty, which resulted in a model for staff to follow in conducting future focus groups. This paper will describe the focus group research project, how it contributed to an institutional culture of assessment, the pros and cons of the focus group method, and strategies and recommendations for running sustainable and effective focus groups.

## History of the Project

The Campus Library and Media Center serves the collocated campus of the University of Washington Bothell (UWB) and Cascadia Community College (CCC). The Campus Library is one of the twenty-one University of Washington libraries, and the Media Center is housed within the Campus Library. Our project began when our student-centered Library Director sought to gather faculty and student input on Library and Media Center resources and services. Cascadia has 1,400 students (FTE) and 108 faculty. Almost 60% of the students attend part-time and are from the northern suburbs of Seattle.[1]

The UWB Academic Services User Needs Committee was formed in the autumn of 2005. Amanda Hornby, Reference & Instruction/Media and Technology Studies Librarian, and Julie Planchon Wolf, Reference & Instruction/Nursing Librarian, served as Committee co-chairs through the summer of 2007. The Academic Services unit includes the following departments: Information Systems; the Library and Media Center; the Quantitative Skills Center; the Teaching and Learning Center; and the Writing Center. The User Needs Committee members were Academic Services staff, including representatives from the Library, Information Systems, and the Quantitative Skills Center. The formation of this committee represented an institutional commitment to assessment. Our charge was to research, plan, and implement focus groups of students and faculty from CCC and UWB and to create a model for Academic Services staff to utilize in future qualitative assessment projects.

## Preparing for the Focus Groups

As User Needs Committee co-chairs, we researched and interviewed faculty and librarians to be proactive in setting up the qualitative research project. We interviewed faculty with qualitative research experience about qualitative research methods, focus groups, the human subjects review process, and report writing. We also conducted informational interviews with stakeholders in the Library and Media Center to gather feedback on the type of questions we should ask students and faculty about the Library and Media Center. Based on our research and these interviews, we assembled a detailed list of potential focus group questions for students and faculty.

When beginning the process of setting-up focus groups, there are many questions to consider. These questions are listed below in Table 1:

**Table 1. When considering if focus groups are an appropriate means of assessment for your institution, consider the following questions:**

**What do you want to know?**

- It is very important to have a clear vision of what you want to investigate.
- Determine if focus groups are the best way to get your answer, as opposed to other assessment methods, such as quantitative surveys.

**Who do you want to ask?**

- Who is your audience? For example, do you want to ask the student body as a whole or only targeted student groups?
- We decided our population was to be students taking classes for credit and the faculty teaching those courses.

**How many people do you need to ask?**

- Six to twelve participants per focus group is ideal.
- But how many groups do you need to have? According to Krueger and Casey, once you have figured out which populations to target, three focus groups per targeted population is the appropriate number.[2] The goal is to reach saturation, which means that you reach a point when you are not hearing any new information from the participants.

**Defining your populations**

- We organized our student focus group population into sub-groups that targeted the three main discipline groups for CCC. The disciplines include Integrated Studies (the largest group), Business and Information Technology, and English as a Second Language. For our pilot focus group we mixed the group members together.
- Due to Cascadia's small size, our faculty focus group population was a mix of faculty from different discipline areas. For larger schools it may be more appropriate to recruit and group faculty participants into sessions by discipline group.

## Focus Group Question Design

As we began to work with our list of potential focus group questions, we relied heavily on suggestions and research from the literature about how to design effective questions. In general, focus group questions should be questions that can't easily be answered in a quantitative survey and that are designed to generate participant discussion and set focus group conversations in motion. According to Krueger and Casey, focus group questions should sound conversational and use words the participants would use; they should also be short, clear and easy to say; questions should also be one-dimensional and include good directions.[3] Open-ended questions in focus groups are an effective way to gather attitudes, opinions, behaviors, beliefs, or reactions from participants. Focus group questions should avoid jargon and the questions should try to be neutral. Finally, create a script from your questions that focuses on what you want to learn from your targeted populations. Within the focus group question script, the questions should be sequenced logically and have an introduction, transition between questions, in-depth questions and closure.

We learned from Greenbaum that we should have an objective moderator for the groups.[4] We recognized that the librarians should not moderate the groups because we interact with the students in the classroom and at the reference desk, which could stifle honest responses to our questions. We wanted a moderator that the students would not recognize but would feel comfortable sharing their opinions with. We contracted with a professional

moderator who also guided us in formatting our questions into a discussion guide and agenda. The focus groups asked in-depth questions of CCC students and faculty about their experiences with, and opinions about, the UWB/CCC Campus Library and Media Center.

## Human Subjects Approval

We were encouraged to seek approval from the University of Washington (UW) Human Subjects Department and the CCC Human Participants Committee. It took more time than we had anticipated to prepare the long applications with many attachments and appendices and then wait for permission to be granted through both groups. We were successful with both applications and in the spring of 2006 we received approval through 2011 to conduct focus groups with students and faculty at CCC and UWB through the UW Human Subjects Department.

## Focus Group Process

We then organized and facilitated planning meetings with key personnel who were going to support the management of the focus groups. This included collaborating to create a screening form with the contact for the potential participants. We worked with the UWB Academic Services Marketing Team to create focus group flyers and faculty focus group invitations as marketing materials. We used sandwich boards outside of the Library and CCC, posted flyers with contact information tear-offs in CCC and in the commons areas of campus, and worked with faculty in the disciplines we targeted, asking them to read an announcement in class to potential participants.

We piloted the questions with a group of CCC students in December 2006. In January 2007, we heavily marketed the upcoming focus groups to students and faculty. In February 2007, we conducted seven focus groups, five groups of students within the targeted disciplines and two faculty groups from a mix of disciplines. We checked picture identification to make sure the participants were over the age of eighteen and we had all participants sign consent forms to be audio-recorded. A total of twenty-seven students and eight faculty participated in the groups.

A table of the participants' genders is listed below in Table 2:

**Table 2. Gender of Participants**

| Number of student participants | | Percentage of students | |
|---|---|---|---|
| Females | Males | Females | Males |
| 17 | 10 | 63% | 37% |
| | | | |
| Number of faculty participants | | Percentage of faculty | |
| Females | Males | Females | Males |
| 5 | 3 | 63% | 37% |

The audio-recordings were transcribed so that User Needs Committee members could identify focus group themes and valuable student and faculty quotes. All information identifying the participants was deleted from the transcripts. The results of the student and faculty focus groups will be described in detail in the following section.

## Focus Group Reports

As Committee co-chairs, we led the effort to compile the four formal focus group transcripts, four sets of informal notes, and process notes into reports in the spring and summer of 2007. We mined the transcripts for quotes and organized them into themes to be used in future marketing projects and administrative reports. We also authored recommendations and directions for the next group of staff who will undertake focus group research projects on campus. We organized our reports and documents for the UWB Academic Services Department staff to utilize. The reports include the list of focus groups, primary themes and recommendations, quotes for marketing librarians, quotes for marketing the Library and Media Center, recommendations for running focus groups, and tasks, processes and timeline for running focus groups. All the reports and a table of contents are located online at http://library.uwb.edu/focusgroups/.

## Focus Group Results

Overall, positive comments were made by both students and faculty concerning the staff and services that our Library and Media Center offers.

We identified several themes in the transcripts and informal notes including: facilities and environment; services; technology; collections; librarians; library instruction; Media Center and tours. Each theme will be discussed below.

### Facilities and Environment

Regarding the space, the students found the design of the library to be conducive to studying and that the librarians and staff cared about helping them. The faculty enjoyed the space but requested more informal gatherings for CCC and UWB faculty to discuss assignments and teaching strategies. They also want the library to offer forums on topical issues. Additionally, both groups expressed their appreciation of the benefits they receive from the co-location of the CCC/UWB campus and how it augments their on-campus experiences.

### Services

In asking about what services the participants used, we were reminded that we need to market our services more. The students expressed that our staff are very helpful and they liked that we demonstrate how to use library services, resources and processes, rather than just sending them on their way. They requested more and better signage directing patrons to the book stacks and posting explicit "how to print" signs. The English as a Second Language students requested more visual signage and maps pointing out where everything in the library is located.

### Technology

The students were happy with much of the Library's technology, especially wireless services, but they requested more computers and scanners. They also requested free printing in the Library computer lab.

### Collections

Students and faculty found the collections useful at the Bothell campus as well as through the UW. They also appreciated having access to the UW collections and resources as a whole. The students valued having their textbooks on reserve in the library and the faculty enjoyed the speed and quality of service that the electronic reserves staff provides. The students found the Library of Congress Classification System, the term "book stacks," and the location of books in the Library confusing.

### Librarians

The students and faculty shared that they find the librarians to be helpful and knowledgeable, but we need to market subject librarians' roles more. The faculty suggested that we have host an "open house" meeting for faculty to meet with librarian liaisons before fall quarter begins. Several faculty indicated that the librarians are their favorite part of the Library as these quotes express: "It's the librarians. I could give everything else up." and ". . . the message that goes out to the students is that somebody in the library cares and that there's somebody there that they can come to even if the teacher isn't available and I think that that's a real unique feature. . . ."

### Library Instruction

In response to the library instruction question, the students indicated they liked having a librarian to contact in their discipline. They noted that the librarians are helpful in knowing where resources are and how to focus on specific research areas. The faculty viewed the librarians as colleagues who were important partners in their classes. They favored the librarians' information literacy focus, and the librarians' awareness of students' developmental progression. The faculty perceived the librarians as the most interdisciplinary group on campus. The faculty also appreciated the imbedded and course-integrated library and information literacy instruction.

### Campus Media Center

The students and faculty found the Media Center to be helpful, but the students wanted more exposure to what the center has to offer. Both students and faculty appreciated the Media Center's collection, equipment, services, and its connection to the UW collections and the interlibrary loan catalog. The faculty also appreciated all of the equipment made available for student use.

### Tours

The students suggested improvements for the Library tours that are part of their new student orientation. They expressed that they would prefer a guided tour of key services, rather than a scavenger hunt. Students felt they were not being treated as adults in the scavenger hunt. Some students requested more tours for individuals and groups while others thought the Library orientations were long and boring. The faculty also had mixed feelings about the tours and bounced

around the idea of requiring certain lower level courses to require a Library orientation so all students receive an introduction.

## Actions Taken

Our focus group findings and recommendations have been put into practice in the day-to-day procedures of our Library. Student and faculty input was taken under advisement and utilized to make improvements. In general, the focus group data has reminded the Library and Media Center of the need to market services, staff, and facilities to students in a variety of ways. Actions taken so far include improved signage, the integration of Library of Congress Classification System into library instruction sessions, new marketing techniques, and technology improvements.

### Improved Signage

The Library and Media Center have implemented improved signage, including multiple signs with subjects corresponding to Library of Congress Classification System call letters. This signage helps clarify the Library of Congress organization in the book stacks. Also a permanent directional sign was added at the third floor to guide patrons to the stacks more easily.

### Integration of LC Classification System into Instruction Sessions

Librarians have built into research workshops time for students to get acquainted with the Library of Congress Classification System and to look for books in the stacks. Quotes from the student focus groups have added authenticity to instruction sessions. By referencing specific student quotes from the focus groups, librarians can use real evidence from fellow students to explain why we teach the Library of Congress Classification System.

### New Marketing Techniques

Marketing strategies comprised of integrating student focus group quotes into library instruction sessions as evidence for promoting subject librarians. Also, the Web Team moved the "Subject Librarians" W0eb link to a more prominent location on the library website.

### Technology Improvements

Technology improvements in the Information Commons include explicit printing instructions posted and the addition of two more flatbed scanners for a total of five.

## Creating a Culture of Assessment Part 1: Institutional Impact of Focus Groups

Our focus group experience helped contribute to our institution's assessment experience. The focus group quotes from students and faculty have provided Library administrators with a rich source of quotes that powerfully convey the human and emotional side of users' perception of the Library. The focus group results are being used by administrators in strategic Library planning documents, budget documents, and annual reports. The student and faculty focus group quotes form an important part of the strategic planning narrative; indeed the literature confirms that "the focus group technique [is] an important tool in strategic planning."[5]

We presented the results of the focus group research project to a variety of stakeholder groups, including Library and Media Center administrators and staff, University of Washington librarians, and Cascadia Community College faculty. Our intention was to disseminate the focus group results as widely as possible and to close the loop on our long-term assessment project. Our presentations were tailored to the specific audience and we ensured that our User Needs Committee processes were widely available, in order to contribute to other campus assessment projects. For example, our successful UW Human Subjects Department application was used as a model by a UWB researcher when applying for another project, and the researcher's project was accepted quickly. Another important step in our research dissemination process was a presentation to Cascadia faculty at their monthly Faculty Assembly meeting. By sharing results and student and faculty quotes, faculty were able to hear what their peers and colleagues said about the library and librarians in their own voices. The faculty were also interested in hearing their students' comments and quotes about the Library and the impact of library instruction on student learning.

As User Needs co-chairs and co-investigators in the research project, it was important to us to ensure that the results of the focus group project would be examined over time and by other librarians. Over the 2007-08 academic year, we have lead the effort to revisit different parts of the focus group results with librarian colleagues at regular meetings to explore the data in-depth and gather feedback and ideas from our peers. A key to ensuring the sustainability of this process is the fact that we have administrative support for these

ongoing discussions. This backing from Library administration ensures that regular discussions about assessment and assessment project results are now part of our institutional culture.

## When Are Focus Groups an Appropriate Assessment Method?

As detailed in this paper, the focus group method can be a powerful assessment tool. This section will concentrate on when to use the focus group as an assessment method, and the advantages and disadvantages of the focus group method. A review of the literature emphasizes the significant potential the focus group method has for gathering rich, qualitative data from library users and assessing user needs.[6 7 8] In addition to the valuable data librarians and researchers can gain from focus groups, "involving users in these groups can help develop a very positive image of the library among users and strengthen their perceptions of themselves as important stakeholders in the library's ongoing existence and future development."[9]

Appropriate uses for focus groups are listed in Table 3:

**Table 3. Appropriate uses for focus group interviews** [10]

- To obtain background information on a particular topic; generate user impressions of services, resources, facilities, etc.
- To generate research hypotheses that can be submitted to further research using quantitative approaches or to provide in-depth interpretation of previously obtained qualitative results.
- To generate new and creative ideas and user-generated solutions
- To uncover potential for problems with a new service, resource, etc.

## Advantages and Disadvantages of Focus Groups

The literature cites many advantages of the focus group method. By design, focus groups are flexible. Unlike many assessment methods, focus groups allow researchers tremendous flexibility in terms of how long you want to spend conducting focus groups, how large or small you want the sample size to be, the order of focus group questions, and the length of focus group sessions. Another advantage of focus groups is that researchers can obtain a large amount of rich information from a potentially large group of users in a relatively short period of time.[11] Because focus groups employ open-ended questions (and ideally a skilled moderator), this method also allows researchers to discover new or unexpected information from users. Glitz summarizes this benefit of focus groups: "as a research method, the focus group's success lies in its ability to draw out what is on people's minds, rather than forcing them to respond to what is on the researcher's mind."[12]

The focus group method also has certain disadvantages. Because focus group attendance by users is voluntary, it can be challenging for institutions to attract attendees, despite marketing efforts and monetary incentives. A lack of focus group attendees results in focus groups that are too small to generate the desired user response and data. Another disadvantage of focus groups is their small sample sizes: data gathered from focus groups, therefore, cannot be generalized and the researcher must be cognizant of the need for focus group participant anonymity and privacy.[13 14] Another possible disadvantage of focus groups is the fact that the focus group moderator can positively or negatively impact the focus group results and quality. Berg asserts that "the quality of the data is deeply influenced by the skills of the facilitator to motivate and moderate."[15] An inexperienced or ineffective moderator can negatively influence the focus group results.

Our personal experience with focus groups confirms many of the advantages and disadvantages of focus groups cited in the literature. The overall positive impact of the focus group research project has been integrating the student and faculty suggestions and requests into the everyday business of our Library. As the second human subjects research-approved assessment project at the Library, it has also been gratifying to see how the focus group project has significantly contributed to a culture of assessment at our Library, within the larger Academic Services unit, and even across UWB and CCC campuses. From our experience, the main disadvantages of running

focus groups included the two year time commitment and intensive human resource requirements needed to complete the entire project. Other disadvantages included the additional costs of the gift cards and lunches for student groups, food for the faculty groups, the contract with the moderator, the transcription service, and the human resource costs.

We found that the focus group research method worked very well to generate data from users on topics of interest to the Library and Media Center. Table 4 highlights library-centered topics suitable for focus group interviews:

**Table 4. Sample Library Topics for Focus Group Discussions** [16-17]

- Assessment of library collections
- Staff satisfaction; effects of organizational change on staff
- Patterns of online resource or internet use by library users
- Strategic planning
- Evaluation of library services; evaluation of librarians
- Information seeking behavior of library users
- User feedback on new services or resources
- Evaluation of library instruction programs
- Generate ideas for library marketing campaigns

Before proceeding with a large-scale focus group research project, however, we recommend comparing the focus group method with other qualitative research methods, such as face-to-face interviewing, participant observation, unobtrusive measures, and quantitative methods such as surveys.[18]

## Focus Group Recommendations

The advantages and disadvantages of focus groups have been discussed from our personal perspective and from evidence in the literature. Based on our experience, we have compiled suggestions for running successful focus groups.

### Focus Group Design: Have a Clear Vision

In the focus group design process, it is essential to have a clear vision of what you want to assess and what you want to ask your users, as well as which population(s) you specifically want to target. To generate useful data from your user groups, the focus group design process must include effective and open-ended questions targeted to focus group participants. It is important to be clear about what you want to learn and who you want to question because of time constraints and the limited number of questions that can be asked. The quality of your end-product, the user data, is directly proportional to how clear your questions are and the quality of your focus group interview design.

### Focus Group Process: Communicate and Be Flexible!

Throughout the focus group process, including organizing and running focus groups, it is important to frequently communicate with team members and other stakeholders, such as administrators. Communication is essential when working with a variety of departments who all must balance different schedules and priorities. Communication will also help ensure that focus group logistics run smoothly. When organizing and running focus groups, it is also important to be flexible, creative, and determined to get through any challenges that arise. In our case, our focus group timeline was significantly changed by both human subject research approval process delays and snow-related school closures!

### Work with a Skilled Focus Group Moderator

A non-biased and talented moderator is key to running successful focus group interviews. A skilled moderator can encourage attendees to reveal unexpected or new information and can help overcome any obstacles encountered by domineering focus group participants or unresponsive participants. The University of Washington Bothell Institutional Researcher was contracted by the UWB/CCC Campus Library to moderate the focus groups because of her educational background and focus group facilitation experience. We purposefully sought a

moderator from outside of the Library so that the moderator's presence would not unduly influence focus group participant responses, positively or negatively. A final benefit of working with a skilled moderator in focus groups is the moderator's ability to facilitate a positive group dynamic. Depending upon the focus group participants, peers can draw out additional answers and ideas from each other because they feel comfortable talking with each other.[19]

### Use Focus Groups with Other Assessment Methods

As discussed previously, the literature recommends using the focus group research method in combination with other research methods. Focus group data often raises new ideas and research questions, which can be explored through additional quantitative and qualitative assessment methods. The literature confirms the value of using multiple data-gathering techniques, or triangulation, in research methods. Berg recommends this approach and states that "by combining several lines of sight, researchers obtain a better, more substantive picture of reality."[20]

## Creating a Culture of Assessment Part 2: Past and Future Assessment Projects

The success of the first Academic Services User Needs Committee and our focus group experience helped to foster a culture of assessment at our institution. The Library and Media Center's prior assessment efforts included quantitative surveys, such as a 2004 UWB/CCC quantitative student survey, focused on student satisfaction with Library and Media Center resources and services. The Campus Library also participated in a University of Washington Libraries-wide quantitative survey, which at that point was not customized to our users. In 2005, Academic Services also conducted a UW Human Subject Department approved qualitative research project with UWB faculty. The focus group research project represented the Library's second human subjects research-approved qualitative assessment project. The focus group process and focus group data has set the tone for future assessment projects on campus.

The focus group data is being used in tandem with current assessment projects at UW and Cascadia and will continue to serve as a model for future assessment projects. In 2008, the Univeristy of Washington Libraries asked the Campus Library, among other UW Libraries branches, for feedback and customized questions to personalize a regular quantitative in-library use survey. Because of the institutional assessment experiences now part of the Library, administrators were more empowered than ever to customize the survey to our users and have a clearer sense of what we wanted to ask our users. The in-library use survey was conducted and once results of this survey are in, the results will be examined alongside the focus group data.

In order to contribute to a larger culture of assessment, as co-chairs of the User Needs Committee we made it a Committee priority to thoroughly document our process and recommendations and disseminate them widely, including to administrators and other stakeholders. The goal of documenting focus group processes was to help create a sustainable model for staff to follow in conducting future focus groups and other assessment efforts on campus.

Another significant step in cultivating an institutional culture of assessment was the continuation of the User Needs Committee for 2007-2009. The User Needs Committee is now a permanent Academic Services committee with the goal of administering strategic annual or biannual assessments. For 2009, the Committee's assessment project will be brief quantitative surveys for other Academic Services Units, including the University of Washington Bothell Writing Center and Quantitative Skills Center. Strategic issues for the User Needs Committee include avoiding survey fatigue and working with other units' ongoing assessments and evaluations.

The User Needs Committee's focus group research has improved the way our institution conducts business and continues to influence our institution's assessment efforts. Our goal in disseminating our focus group research project process and findings has been to assist librarians and researchers in determining if focus groups are the appropriate assessment project for their institution and to provide our experiences as insight into the process.

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## Endnotes

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# Reflections on Library Assessment: A Conversation with Duane Webster, Amos Lakos, and Shelley Phipps

**Julia Blixrud**
Association of Research Libraries, USA

## Abstract

Library Assessment Career Achievement Awards were presented at the 2008 Library Assessment Conference to three pioneers in the field: Amos Lakos, Shelley Phipps, and Duane Webster. As part of a plenary session at the conference, these three individuals were asked to reflect on how the library assessment landscape has changed since they became involved with it. Colleen Cook, current Chair of ARL's Statistics and Assessment Committee, and Brinley Franklin, former Chair and current ARL Board Liaison to the Committee, served as moderators for the discussion. In addition, the panel responded to questions from the audience.

## Assessment Milestones

Ms. Cook began the session by asking the pioneers to highlight significant assessment milestones they observed during their career. Mr. Webster began by noting that the Seattle Conference itself was one he would signify. Four decades ago, he would not have expected today to see 380 people at such an extraordinary event. He also commented on the amount of collaboration and experimentation taking place as evidenced by the program, perhaps due to the investment in organizational development made over the years. In thinking about earlier times, Webster considered the 1970 Booz Allen organizational and staffing study done for Columbia University as a seminal event. Although the study examined one institution, it led to the establishment of the forerunner of ARL's Office of Leadership and Management Services. Initially the Office's activities focused on assisted self-studies, benchmarking, and training and development. Then in the 1990s, ARL created the statistics and assessment capability to devote professional capacity to developing analytical tools. That program represents the investment of academic library directors to professional data gathering and use.

Ms. Phipps had a different take on significant milestones and noted that the ballroom was filled with librarians working at two levels. There were those working on the ground while the others were looking at their institutions at a higher, overarching level. Some in the room have become directors (e.g., Brinley Franklin and Betsy Wilson). In coming together both groups were sharing methodologies about what is successful in an assessment environment. She suggested that the library instruction movement was a successful model to be followed. It provides information on the value that librarians add to the classroom. The byproduct of that effort has been in knowing what we were doing and we now are looking at processes were shared. Assessment is taking that direction now.

## Tools and Skills

Mr. Franklin observed that Mr. Lakos began talking about management information systems fifteen years ago and asked what had raised his interest in them. Lakos responded that his experience at the University of Waterloo in working with staff indicated to him that necessary skills were not available. He saw assessment activities as an opportunity to learn something new and took advantage of them in helping to develop the Culture of Assessment workshops. In his opinion, Joe Zucca at the University of Pennsylvania is an example of someone with the skills and commitment needed in large research library assessment programs. Lakos thinks many libraries do not yet have the necessary staff skills, nor are the environments for assessment in place in either libraries or consortia. When he began his work, there were no assessment tools but they have been developing over the years.

The use of tools provided a basis for a short discussion among the panel. The pioneers discussed whether it was useful to drop the focus on development of tools in favor of new methodologies. Webster suggested moving away from design and improvement processes developed

by single institutions toward collective sharing of methodologies. He acknowledged the extraordinary development of LibQUAL+® through its collaborative development and suggested the community should be more deliberate about collective efforts for research and development. Lakos agreed and noted he works at an institution where everything is developed in-house, which he considers neither economical nor productive. Collective efforts are like teams in that they have more brain power.

## Process and Library Roles

Phipps suggested there was much emphasis and effort devoted to means, but she thought the conversation should move towards ends. Instead of talking about assessment, the community should focus on a culture of improvement by talking about what we do. Evaluation should be done by experts, but then the libraries should focus on what to do with the results.

Redefinition of library roles would provide a better understanding of the kinds of outcomes that need to be addressed at the local level, said Webster. Lakos provided an example from the University of Virginia about the difficulty of giving up tasks when acquiring something new to do. Libraries need to think differently about their activities. Instead of focusing on data gathering, they should be identifying the right questions to ask.

Aligning the goals of the library with that of the institution was mentioned several times during the conference noted Phipps. Libraries need to find ways to demonstrate their contribution to their parent institution. An investment should be made to go through the process of learning user needs. The value of an investment in the library is something library administration should want to know. It is effective in gaining faculty support and in gaining acceptance for the library to participate in developing learning outcomes.

Webster noted that the financial pressures of higher education will lead to restructuring of smaller institutions. It is important to know and understand institutional leadership as well as the character and nature of the institution's financial pressures. He provided an example of university presses that need to position themselves not as victims, but rather find a way to redefine themselves for a new environment. Libraries have learned that going to the user has been successful in making change and presses can learn from the library experience. Libraries can demonstrate their leadership.

Lakos noted the need to think about the case to be made when the library is not the size of an ARL library. He suggested that smaller libraries may have better success in characterizing their contribution because of their size. They are closer to campus leadership and it may be easier to focus their activities. They can identify more easily what they need to know in order to be agile and any missing skill sets can be purchased.

Webster noted that the balanced scorecard provides a useful overall picture of an institution's activities. Lakos commented that the conference presentation by Patricia Brennan on research measurements in other countries reminded the US audience that it is important to track global activities for examples of different practices.

## Accreditation Effect

Phipps said that early on in the Culture of Assessment workshop design, the discussion included issues of how an organization adapts to its culture and environment. Certainly the accrediting bodies are one reason many people came to the conference. Agencies are interested to see that institutions are measuring themselves, but they are more interested in the "what" of the measurement rather than the "how." Accreditation cycles may be an impetus for assessment, but it dissipates soon after the cycle is completed. The purpose of assessment should be internal improvement, not to respond to external forces.

The accreditation process provides an opportunity for assessment activities responded Webster. Government interests such as the Spellings report and accountability do encourage institutions to be responsive. Lakos said the reality is there will be more oversight in the future. External, environmental forces are very real.

## Library Education

The pioneers discussed whether assessment classes should be added to the library education curriculum. Recommendations for additions and changes to library education are common within the profession and Webster noted there is generally much critiquing of programs. Phipps agreed it would be useful to have something in the curriculum but asked the audience if the purpose is to make students into assessment experts or if it would be better if they understood the use of measures and had an interest in the results. She

concurred that the balanced scorecard at the University of Virginia provides value. She noted that questions to assessment questions should be generally understood and hopes that libraries know what should be done with the answer. Phipps did not think the community is stressing efficiency enough; she is strongly in favor of process improvement. Through that she believes we can increase quality and contribute to or save resources.

### Infrastructure Creation

Lakos noted it is important to have some kind of local infrastructure and expertise, but recognized that it is not cheap. Here he would stress thinking collaboratively. Phipps noted that one piece of infrastructure was how to gather data, but another piece was needed to support what you want in your own organization. She identified not just doing activities, but building toward improved performance. Planning, staffing, training are all infrastructure. Lakos added that committed and continuous leadership is crucial.

### Standardized Tools

There are standardized tools collected by parent institutions (e.g., NSSE). Phipps suggested that libraries needed to influence development of those tools. We need to care to be proactive about and make necessary connections to know what is being developed and how it is being used. Webster agreed that having connections within the institution (e.g., institutional research) is important so that the library is seen as an authoritative source like they are with intellectual property.

### Grant Criteria

Regarding the development of criteria for grants for library improvement, the panelists had some suggestions. Webster thought that leadership development in redefining roles for libraries, experiments, output and input measures for traditional and emergent roles would all be important criteria. Phipps suggested that if the granting agency was national, the US would want to know how the library was contributing to the GNP or whether research being done on its students would be able to tell if they are contributing to a vibrant economy. Webster responded that he hoped the criteria would include societal interest as well as GNP. Lakos suggested changing from competition to collaboration and creating an environment for collaborative structures would go a long way.

## The Conversation Ends

After a stimulating late afternoon conversation among the panelists and with the audience, the program adjourned for a reception at the Olympic Sculpture Park where the pioneers were presented with special awards.

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# Using the READ Scale© (Reference Effort Assessment Data): Qualitative Statistics for Meaningful Reference Assessment

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## Abstract

The READ Scale (Reference Effort Assessment Data) is a six-point scale tool for recording vital supplemental qualitative statistics gathered when reference staff assist users with their inquiries or research-related activities by placing an emphasis on recording the effort/knowledge/skills/teaching etc., utilized by library staff during a reference transaction.

This paper combines submissions from different authors who are using the READ Scale at their institutions, and provides real use perspectives. Authors detail how the READ Scale was employed at their respective organizations and answer the following questions: Has it altered data gathering/assessment at their libraries? How? Is it difficult to implement? What, if any, changes in services/attitudes have occurred as a result of using the Scale? What are the perceptions of staff/managers to the READ Scale? Where can we go from here?

## The READ Scale National Study

### Bella Karr Gerlich and G. Lynn Berard

### Introduction

A 2002 survey conducted by the Association of Research Libraries (ARL) suggests that many academic institutions are not completely satisfied with the usefulness of the reference statistics gathered, noting that "the migration of reference activity to areas beyond the traditional reference desk (e-mail, chat, office consultations), has further motivated many libraries to re-examine and modify current practices." The ARL survey hoped to reveal current best practices, but instead, "revealed a situation in flux" and "a general lack of confidence in current data collection techniques":

> With many librarians feeling as busy as ever, some have concluded that the reference service data being collected does not accurately reflect their own level of activity.[1]

It was with this sentiment that Bella Karr Gerlich developed the READ Scale at Carnegie Mellon University. The READ Scale (Reference Effort Assessment Data) is a six-point scale used for recording supplemental qualitative statistics gathered when reference librarians assist users with their inquiries or research-related activities by placing an emphasis on recording the skills, knowledge, techniques, and tools utilized by the librarian during a reference transaction (Figure 1).

**Figure 1: The READ Scale**

**READ Scale - Reference Effort Assessment Data Scale©**
Definitions and examples of numbers rating:
**1 :** Answers that require the least amount of effort and no specialized knowledge skills or expertise. Typically, answers can be given with no consultation of resources. Length of time needed to answer these questions would be less than 5 minutes. Examples: directional inquiries, library or service hours, service point locations, rudimentary machine assistance (locating or using copiers, how to print a document or supplying paper).
**2 :** Answers given which require more effort than the first category, but require only minimal specific knowledge skills or expertise. Answers may need nominal resource consultation. Examples: call number inquiries, item location, minor machine & computer equipment assistance, general library or policy information (how to save to a disk or email records, launching programs or re-booting).
**3 :** Answers in this category require some effort and time. Consultation of ready reference resource materials is needed; minimal instruction of the user may be required. Reference knowledge and skills come into play. Examples: answers that require specific reference resources (encyclopedias or databases); basic instruction on searching the online catalog; direction to relevant subject databases; introduction to web searching for a certain item; how to scan and save images, more complex technical problems (assistance with remote use).
**4 :** In this category, answers or research requests require the consultation of multiple resources. Subject specialists may need to be consulted and more thorough instruction and assistance occurs. Reference knowledge and skills needed. Efforts can be more supportive in nature for the user, or if searching for a finite answer, difficult to find. Exchanges can be more instruction based as staffs teach users more in-depth research skills. Examples: instructing users how to utilize complex search techniques for the online catalog, databases and the web; how to cross-reference resources and track related supporting materials; services outside of reference become utilized (ILL, Tech services, etc), collegial consultation; assisting users in focusing or broadening searches (helping to re-define or clarify a topic).
**5 :** More substantial effort and time spent assisting with research and finding information. On the high end of the scale, subject specialists need to be consulted. Consultation appointments with individuals might be scheduled. Efforts are cooperative in nature, between the user and librarian and or working with colleagues. Multiple resources used. Research, reference knowledge and skills needed. Dialogue between the user and librarian may take on a 'back and forth question' dimension. Examples: False leads, interdisciplinary consultations/research; question evolution; expanding searches/resources beyond those locally available; graduate research; difficult outreach problems (access issues that need to be investigated).
**6 :** The most effort and time expended. Inquiries or requests for information can't be answered on the spot. At this level, staff may be providing in-depth research and services for specific needs of the clients. This category covers 'special library' type research services. Primary (original documents) and secondary resource materials may be used. Examples: creating bibliographies and bibliographic education; in-depth faculty and PhD student research; relaying specific answers and supplying supporting materials for publication, exhibits etc.; working with outside vendors; collaboration and on-going research.

## Testing the Study

Our objective was to test the usefulness of the READ Scale as an additional tool for gathering reference statistics. The READ Scale was launched at Carnegie Mellon with a trial in spring 2003, followed by an academic year study in 2003-2004.

Institutional grants received (2006) enabled the authors to expand the study from nine (9) to fifteen (15) academic libraries in spring of 2007 with the goal of testing the READ Scale as an adaptable tool for gathering qualitative statistical reference data on a national level.

## Timeline

The recruitment of participants and preparation of the study occurred in the summer/fall of 2006. Institutional Review Board (IRB) approval and pre-study exercises took place between December and February 4.

The study duration was pre-determined for a three-week duration: February 4–February 24, 2007. Institutions could also elect to test the Scale for an entire semester. These two options were selected in order to accommodate those libraries that sample reference statistics as well as those who collect data daily. All institutions had to commit to the February data collection period.

## Study Participants

The following parameters were used for seeking participants in the study:

- 9-15 academic libraries
- Diverse geographically
- Diverse enrollment figures, grouped as follows: ≤5,000, >5,000 and ≤10,000, and ≥10,000
- Public and private

The total number of institutions to participate in the study was fourteen (14) well within our target range. There were 170 individual participants total.

Each institution had an on-site coordinator to administer the study and collect data. The GCSU IRB documents were faxed to each on-site coordinator and forwarded to the local IRB officer.

## Shared Test Questions

A list of pre-study test questions was developed for training and normalizing purposes. The on-site coordinators were asked to select some questions from the list and substitute others for those localized to the institution.

Sample questions were distributed by the researchers with the request made that some of these questions in the test phase be used from this list in order to determine base rankings and time elements across all institutions. Each coordinator also added 'local' questions. The on-site coordinator then normalized, as much as possible, the actual rating of effort by individuals at that library.

All participants were asked to answer and rank their effort for each of the sample questions. It was agreed that on-site coordinators would evaluate responses. Across the board, rating effort for transactions at 1, 2, or 6 levels were typically unanimous, while the 3, 4, and 5 ratings revealed some differences between individuals' perceived rankings.

## Data Collection

As all of the institutions had different methodologies in place for recording statistics, researchers developed a common table to compile data by Scale number and approach type.

Because not all institutions deliver chat or IM reference services, all chat and IM statistics recorded by the various institutions were place in the "Walk Up Reference" category for their particular organization.

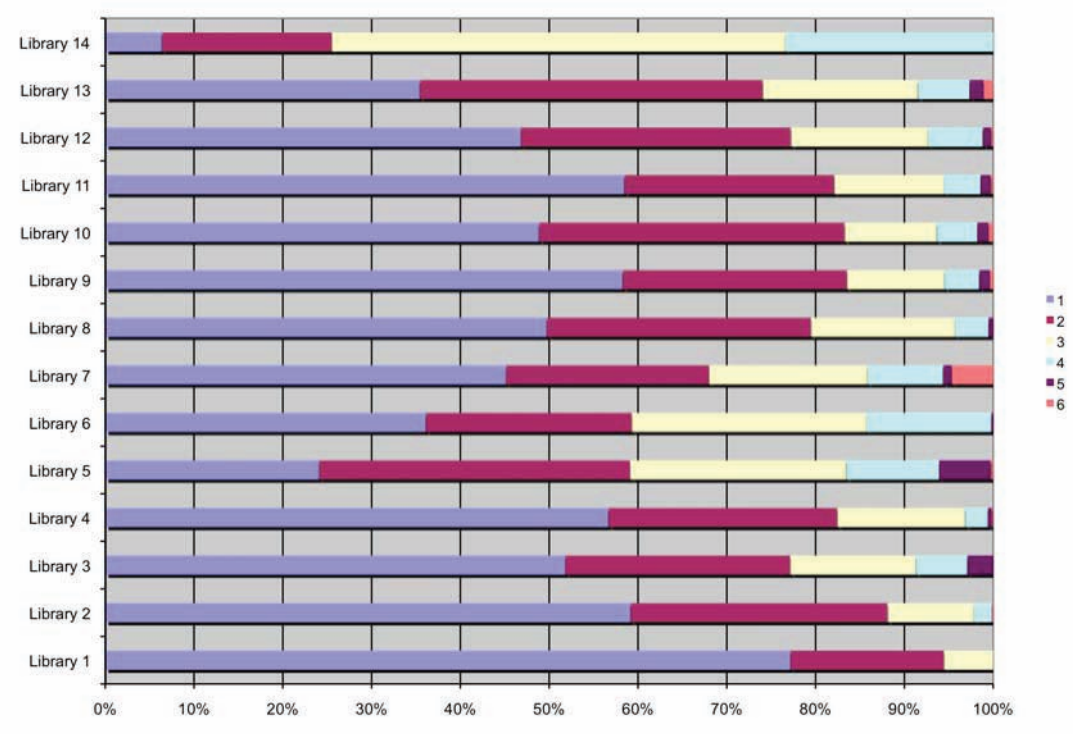
Some institutions had numerous categories that identified inquiry types, such as "equipment," or "database search." These were also placed into the "Walk Up Reference" category for the study.

Reference librarians were asked to conduct the study in their offices during 'off-desk' times. Anecdotal evidence suggests that this is where the majority of higher-level efforts assisting patrons are being spent, especially with those clients in the area of their liaison and subject-specific responsibilities.

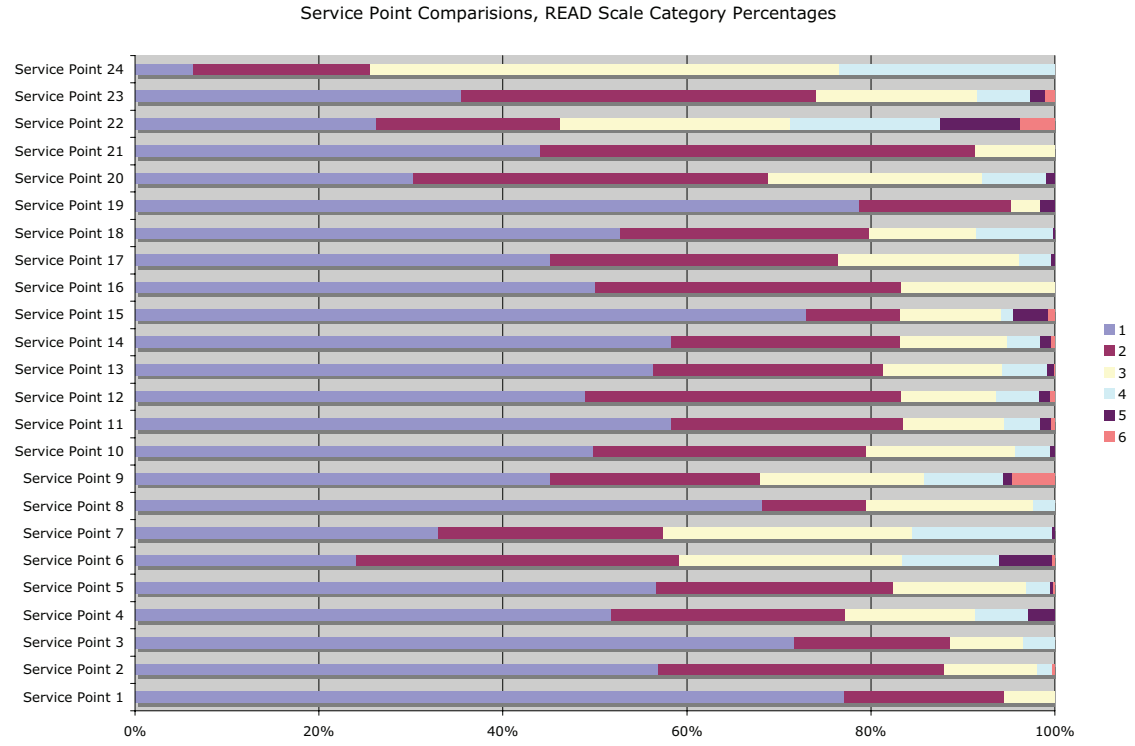
## Data, Three-week Period

Fourteen institutions participated in the READ Scale Study during the spring semester of 2007. There were a total of twenty-four service points and 170 individual participants. All institutions submitted statistics using the READ Scale for the same three-week time period, February 4–February 24, 2007. The cumulative number of transactions, READ Scale category assignment, question and approach type for all public service points and institutions totaled 8,439 transactions during the three-week study period (Figure 2 & 3).

## Figure 2: Three-week data, by institution

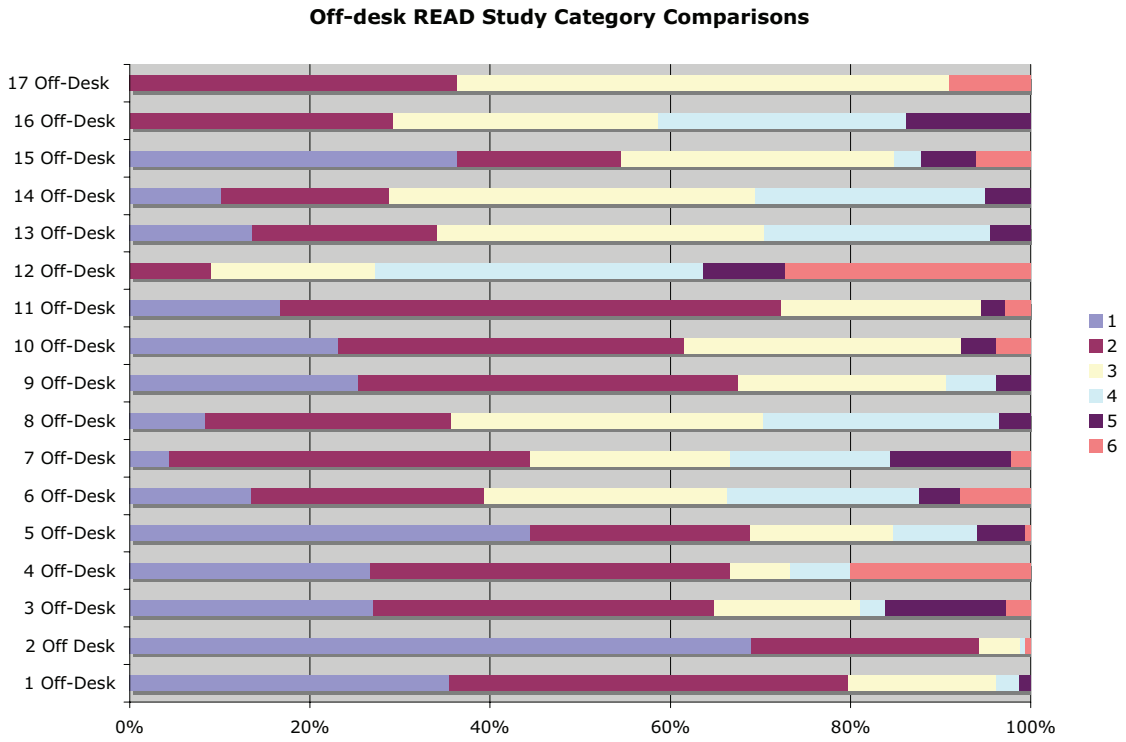



## Figure 3: Three-week data, by service point



Institutions were also encouraged to use the READ Scale for recording off-desk statistics as well. Seventeen (17) individuals across twelve (12) institutions reported off-desk statistics for a total of 1,531 transactions recorded in the three-week period (Figure 4.)

**Figure 4. Three-week off-desk statistics**



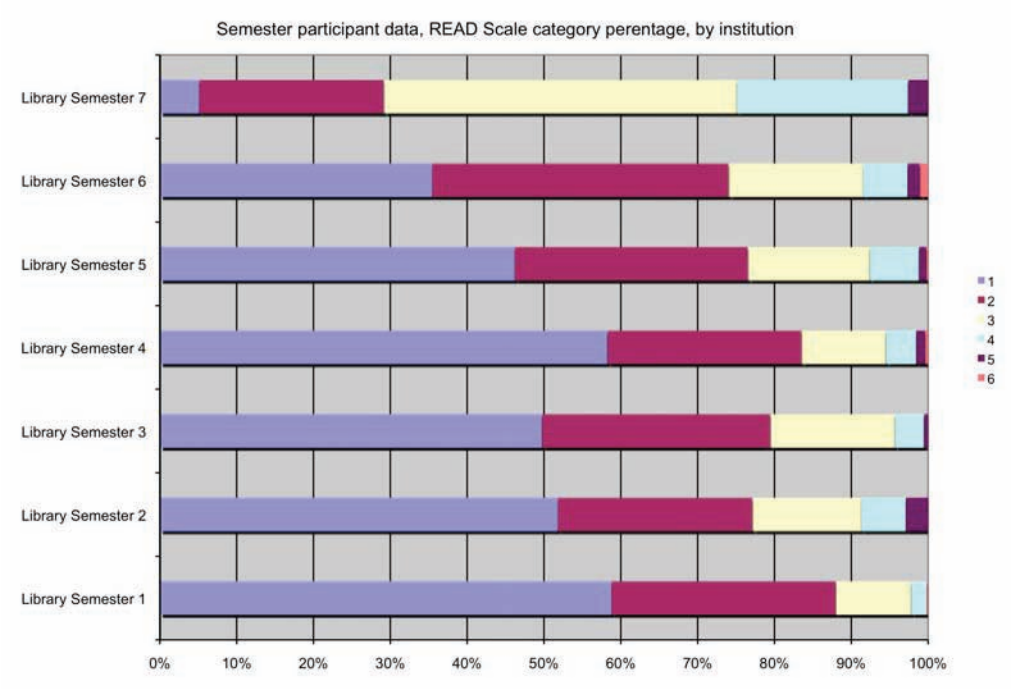

Off-desk comparisons show that the percentage of questions answered off-desk for most of the institutions require a much higher level of effort/knowledge/skills from reference personnel than at the public service point, suggesting that users actively seek out the expertise of particular reference staff.

## Data, Semester-long Sub Set

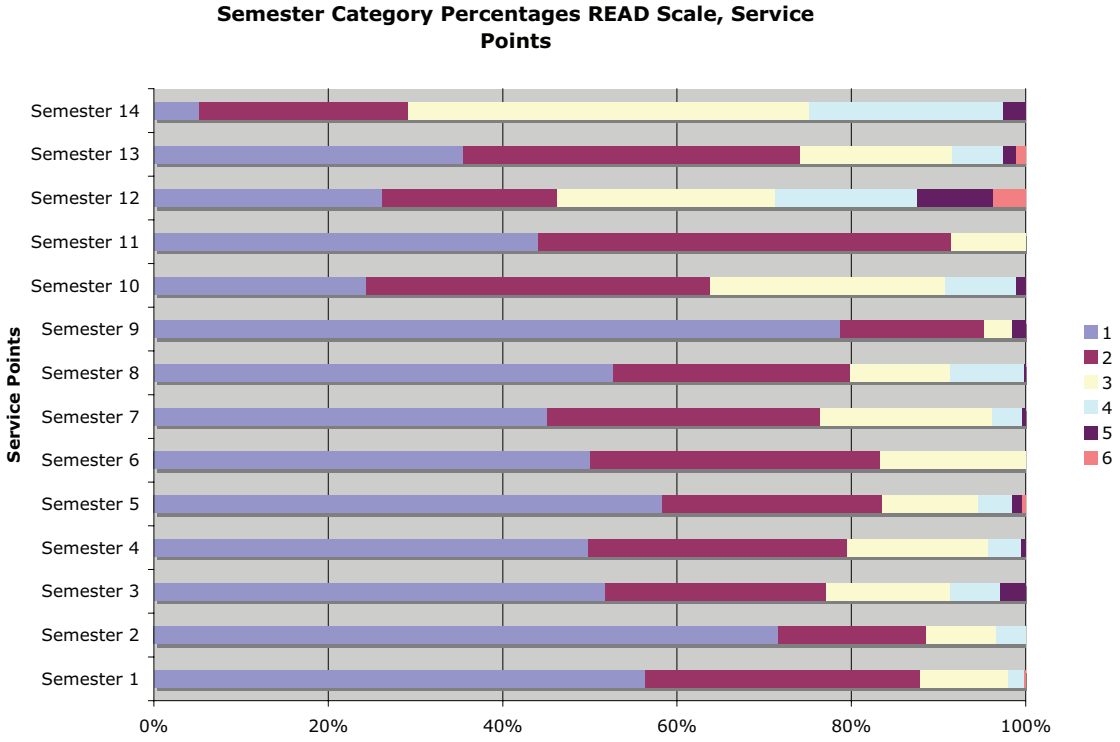
Seven (7) of the institutions elected to continue to use the READ Scale for the duration of their respective semesters.

Comparative data coincides with the three-week data set; the majority of the transactions that occur are at category one (1) of the READ Scale at the service points for all institutions; however, using the Scale for a longer period of time shows a decrease in the percentage of category one (1) and an increase in categories two (2) and three (3). (Figures 5 & 6).

## Figure 5: Semester – long data, by institution

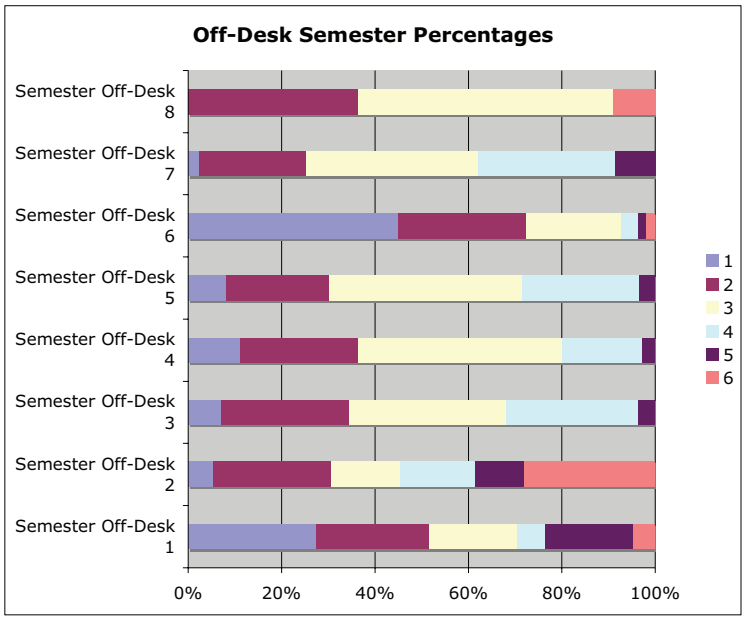



## Figure 6: Semester – long data, by service point




Off-desk comparisons again show a different but consistent pattern (Figure 7). The percentage of questions answered off-desk for the semester long group participants required a much higher level of effort/knowledge/skills from reference personnel than at the public service point.

**Figure 7: Off-desk statistics, semester long participants**




## Online Survey Results

All participants (170) were sent an online survey to complete. The response rate for the survey was high, with 102 total respondents, or 60%.

The majority of participants indicated that using the Scale was 'not difficult' (51%), and 'easy' (38%) to 'moderately easy' (37%) to apply.

When asked to rank perceptions of added value to statistical data gathering, the majority of responses fell in the 'high value added' (46%) and 'moderate value added' (35%) categories respectively.

Some implied difficulty between rank three (3) and four (4) (29%), but participants felt overall 'very comfortable' evaluating their own efforts (50%).

Sixty-seven percent of the study participants indicated they would recommend the READ Scale. A follow up question asked if the study group would like to see the Scale adopted in their library, as is, or with modifications. Fifty percent responded affirmatively, as is, with another 30% who would adopt with modifications.

The survey group was also given an opportunity later in the survey to suggest modifications, and two optional questions asked for specifics about what the study group liked and disliked about the READ Scale. The likes (40% respondents answered) listed by the participants where coded into the six most common reoccurrences: Effort, Value; Approach to Evaluation; Types, Levels; Time; Staffing Levels; Reporting to Administration. Dislikes (37% of the respondents) were coded into the following categories: Difficult to Apply and Subjectivity; Types, Levels; Approach to Evaluating; Knowledge of the Staff; Effort, Value.

A follow up question asked for suggestions to modify the Scale, with only 25 or 27% of the participants opting to respond. These modifications were put into the following categories: Delivery Method/READ Scale Appearance; Time Element; Skill Level Element; Clarity of Categories; Discussion Component; Comments and Observations.

The last question also asked if participants felt their approach to reference changed in any noticeable way during the period they used the READ Scale. The majority (90%) indicated 'no.'

## Using READ Scale Statistics—Practical Approaches

In addition to the value added quality the Scale brings to reference statistics, the researchers propose that there are a number of practical approaches to using the statistical data derived from the READ Scale for both strategic planning and the assessment of reference services. Individual institutions can use READ Scale statistics for staffing, training and continuing education, renewed personal and professional interest, outreach, and reports to administration.

## Conclusion

Reference staffs appear ready to try new methods for recording reference statistics that include qualifying their effort, knowledge, skills and teachable moment. By continuing to gather data from institutions that try the READ Scale for reference services, the researchers can begin to amass a large body of statistics to normalize the Scale even more, with an aim to create a dialogue among professionals.

## Post Study: Libraries' Experience: Using the READ Scale at the University at Albany

**Jean McLaughlin**

### Abstract

The University at Albany, State University of New York, implemented the READ Scale in August, 2007, in preparation for the fall 2007 semester. With an automated software collection system in place for a year prior to that, the Reference Department shifted to a method of data collection that focused on qualitative assessment of reference transactions for staffing purposes.

### Introduction

The University at Albany supports three library locations, with the University and Science libraries on our uptown campus, and the Dewey Library, which supports the graduate schools, on the downtown campus in Albany, NY. Student population consists of approximately 12,400 undergraduates and 5,000 graduate students. Schools and Colleges at the University at Albany include the College of Arts & Sciences, the College of Computing & Information, the College of Public Affairs & Policy, and Schools of Business, Public Health, Criminal Justice, and Social Welfare.

With our two million volume collection of materials, there are three references desks, one at each library. A total of thirty librarians currently use the READ Scale. Our initial introduction to the READ Scale was through a poster presentation at the first Library Assessment Conference in Charlottesville, VA, in 2006. That presentation expanded to the current Web site describing the READ Scale.

In April 2007, the Reference Department, consisting of five reference librarians, started discussions about using the READ Scale to replace our tick sheet for types of resources and reference questions, which was in place at that time. In conversations with the developer, Bella Karr Gerlich, we discovered that a study was in progress with a number of libraries, but we had the go ahead to use the Scale without being part of the study.

### Using the READ Scale

Phase 1 of our efforts involved study of and testing the READ Scale for two weeks with the small group of librarians from the Reference Department only. We recorded every transaction and rated it using READ Scale guidelines from READ 1 through READ 6, the higher number indicating a complex transaction that, perhaps, could not be answered on the spot or may be completed after working on it for a number of hours or days.

Compiling the list of transactions, we selected thirty-five to review and rate as a group. We ensured that the questions covered every range of the scale from READ 1 through READ 6. As we discussed them, and as the scale developers indicated in early comments, we found that ratings varied a bit from person to person, but we agreed on what we thought was the appropriate rating for a reference transaction. Some factors inherent in rating differences included areas of expertise or unexpected difficulty in finding resources, which would indicate a need to rate the transaction higher.

In August 2007, we implemented the Scale for the entire group of librarians who worked at the Reference Desk in the University Library. With a presentation on the background of this Scale, our objectives in using the data collected, guidelines for rating, and the thirty-five sample questions, we trained the entire group of about twenty librarians and kicked off implementation for fall 2007.

The reflection of the complexity of transactions provided a way for us to effectively evaluate the range of questions coming into the Reference Desk. Two differences in the way we implemented the Scale included how we recorded equipment transactions and how we used READ Scale 6. Since we had a new Information Commons, implemented in fall 2007, we wanted to be able to look, specifically, at the number of questions about software, printing, and computer-related issues. More specifically, we wanted to ensure that we could track the decline of questions answered by the reference librarians as our ITS student consultants, new to the Reference Area, began assisting patrons with computer-related questions.

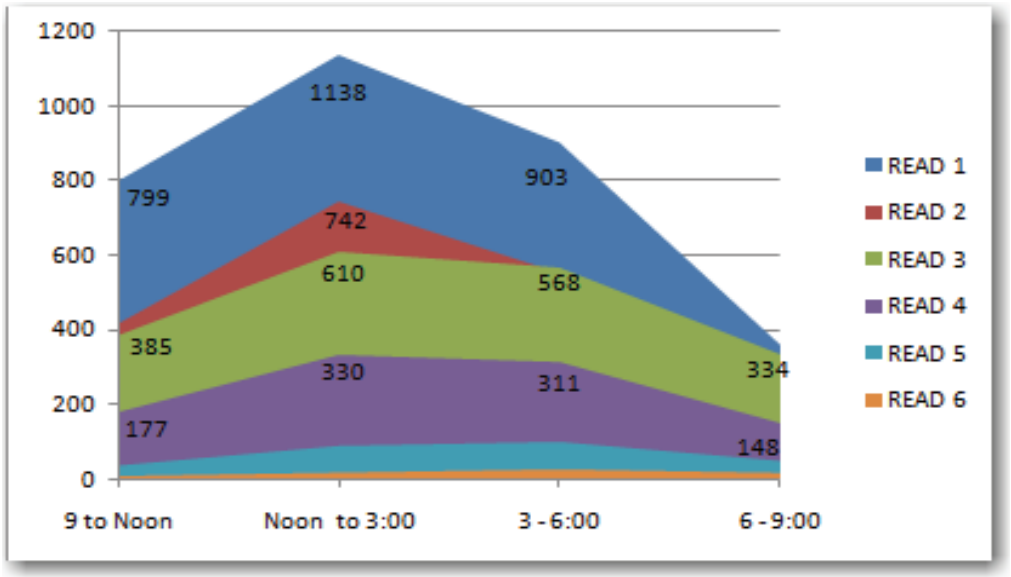
Librarian feedback included comments about the ease of recording transactions, that it was

sometimes difficult to decide on the correct category, and the numbers per READ Scale category enabled them to see the number of real reference transactions versus the number of directional questions encountered at the Reference Desk. After having the system in place for a year, we could look at data for the entire academic year, 2007 to 2008.

Two additional libraries, Science and Dewey, implemented the READ Scale for summer 2008. Some staffing changes were made based on READ Scale numbers, including graduate student staffing only on Saturdays. In conjunction with volume data, staffing for some slower hours, particularly on Thursdays and Fridays, was reduced. In general, it appears that grouping data READ Scale 1 and 2 provides an indication of services required of staff other than professional librarians. Our numbers of READ Scale 3 through 6 indicate a need for professional librarians.

An interesting view of ratings per Reference Desk hours matches our increased staffing mid-day. We will continue to look at graphs such as the one that follows to review the complexity of transactions per semester. Below is a view of transactions for fall 2007 (Figure 8).

**Figure 8: Transactions Fall 2007**




Reference: Gerlich, Bella Karr and G. Lynn Berard. "Introducing the READ Scale: Qualitative Statistics for Reference Services." http://bkarrgerlich.googlepages.com/readscale-referenceeffortassessmentdata/.

## The READ Scale at Clark College

**Sue Leibold**

In October 2006, the Clarke College Library was invited to participate in a graduate research study to better understand how reference statistics are kept. Bella Karr Gerlich conducted this study that included thirteen other colleges besides Clarke. The survey took place during the entire spring 2007 semester with Heather Kues, the Reference Librarian, coordinating logging the statistics on patron interactions. After completion of the study, Heather and the previous Library Director felt it was a worthwhile measuring tool and adopted this scale for use here at the Clarke Library. When I was hired, I continued to use the scale and consider the scale to be quite useful tool for measuring library staff efforts of time, energy and expertise.

Clarke College is a small Catholic Liberal Arts College located in Dubuque, Iowa. We have approximately 1,200 full-time students. In addition to a four year liberal arts degree, we off an MBA, MSN, and a PhD in Physical Therapy. The library staff is small and consists of four full-time positions. Each staff person has a READ Scale sheet they use to record every interaction with a student in the library. Every question is logged, no matter how simple. Work-study staff get training on how to use the scale and to know when to pass a reference question on to a librarian.

Clarke College administrators are interested in measurable results that could be used to assess

student learning and the level of library staff involvement in student learning and information literacy. This scale helped show more clearly that the library was actively involved in these endeavors.

The READ Scale is useful to reference librarians in quantifying time spend with users with their inquiries or search-related activities by placing an emphasis on recording the skills, knowledge, technique, and tools utilized by the librarian/staff person during a reference interaction. For Clarke, this system replaced the simple hash marks made after assisting a student. Hash marks do not give an accurate picture of the skill and knowledge that a reference librarian brings to this interaction.

There are some issues that were encountered as a result of the decision to use the scale on a regular basis. One, staff persons were initially resistant to using the scale and felt it was too complicated and time consuming. As we worked through examples and developed a common language about the scale, this concern lessoned. Library staff became more comfortable as they used the READ scale over a several week period.

The second concern revolved around how effective was the READ Scale in measuring library involvement in student learning. We felt that this scale, while still a work in progress, gave the library a much better picture of our efforts than the traditional "hash" marks. We are continuing to work on other ways we might use the scale to qualify and quantify our work as librarians. We are in the process of revising the sheet we use to track our interactions using the READ Scale.

In addition, we are using the READ Scale to build better programming and tutorials for our library patrons, faculty and staff. We are looking closely at common questions logged using the READ Scale and are developing tutorials to address some of the common questions asked such as accessing databases off campus, using Interlibrary loan, and problem areas in assignments/research.

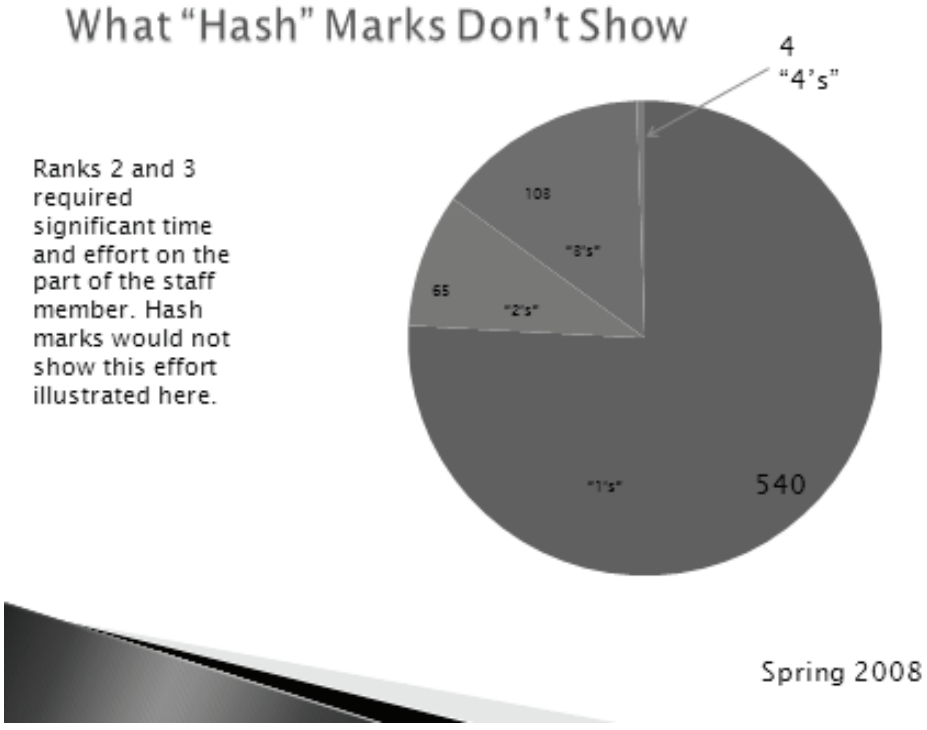
**Results of the READ Scale for the past two semesters:**
(Note: most "1's" were logged by work-study students)

**Fall 2007**

| | |
|---|---|
| Read 1 | 702 |
| Read 2 | 20 |
| Read 3 | 38 |
| Read 4 | 38 |
| Read 5 | 0 |
| Read 6 | 0 |
| **Total** | **798** |

**Spring 2008**

| | |
|---|---|
| Read 1 | 540 |
| Read 2 | 65 |
| Read 3 | 103 |
| Read 4 | 4 |
| Read 5 | 0 |
| Read 6 | 0 |
| **Total** | **712** |



The Clarke College Library has made a commitment to continue to use the READ Scale. Some modifications will be made to the READ Scale tally sheet and we will continue to adapt the Scale as we need to.

## The READ Scale at Seeley G. Mudd Library, Lawrence University

**Gretchen Revie**

### About Lawrence

Lawrence University is a selective private undergraduate college of the liberal arts and sciences with a conservatory of music. Lawrence currently enrolls 1450 students, 98% of whom live on campus; the faculty numbers 170 FTE, and 97% hold the PhD or terminal degree in their field. The academic calendar consists of three 10-week terms meeting in the fall, winter, and spring.

The Seeley G. Mudd Library has a staff of 15.75 FTE (eight MLS librarians and nine support and administrative staff) and employs approximately fifty student workers. Collections include 400,000 book volumes, 1,800 periodical subscriptions, 20,000 audio-visual items, and 14,000 musical scores. During the school year, the reference desk is staffed sisty-eight hours per week by six of the librarians. In the 2007-2008 school year, over 3,820 questions were answered at the reference desk.

### In the Beginning Was the Stroke

Since 1999, the reference librarians had used the traditional tic mark or stroke to record transactions, and the stroke was good (quick and cheap!), but limited. Chief among its drawbacks were its lack of consistency, the fact that it didn't reflect the effort involved in answering a question, that (despite the ease of use at the time of recording) it required quite a lot of time to tabulate the results, and finally that it didn't tell us anything about the questions.

In November 2006 Bella Karr Gerlich, who is a former colleague of our Music Librarian, Antoinette Powell, contacted the Mudd Library about being a part of the READ Scale study. This was a timely coincidence; some of us at Lawrence were already anticipating our upcoming NCA reaccreditation visit. More important, though, is what can only be called the reference zeitgeist at Lawrence. Lawrence prides itself on the individual attention given to our students. At the same time, the librarians were all aware that we were spending significant amounts of time and energy on an activity whose value was being questioned in publications like the Chronicle of Higher Education—what might be called the popular academic press and related titles read on a regular basis by our faculty and administrators.

### First Step: Calibrating the Scale

We began our participation in the READ study by customizing the pre-study test questions received from the researchers. A number of the questions used by other institutions were retained, but more questions related to music and the liberal arts were added, and questions that would be more appropriate to institutions with medical programs were removed. Each librarian answered the pre-test questions, recording sources and process used and amount of time spent, and then assigned a rating from the READ scale. Librarians met in a follow-up meeting and discussed our answers, our process, and our ratings. In addition to calibrating the READ scale for us, this exercise also proved to be a very useful process in terms of staff development.

### The Study: February 2-24, 2007

Staff used a paper form to record ratings only; the tool we used was just like our old form, only in a larger format. We placed a paper copy of the scale at the reference desk on the same clipboard we used for the tally sheets and counted number of digits as though they were strokes to fit into our previous recording scheme.

### Immediately after the Study

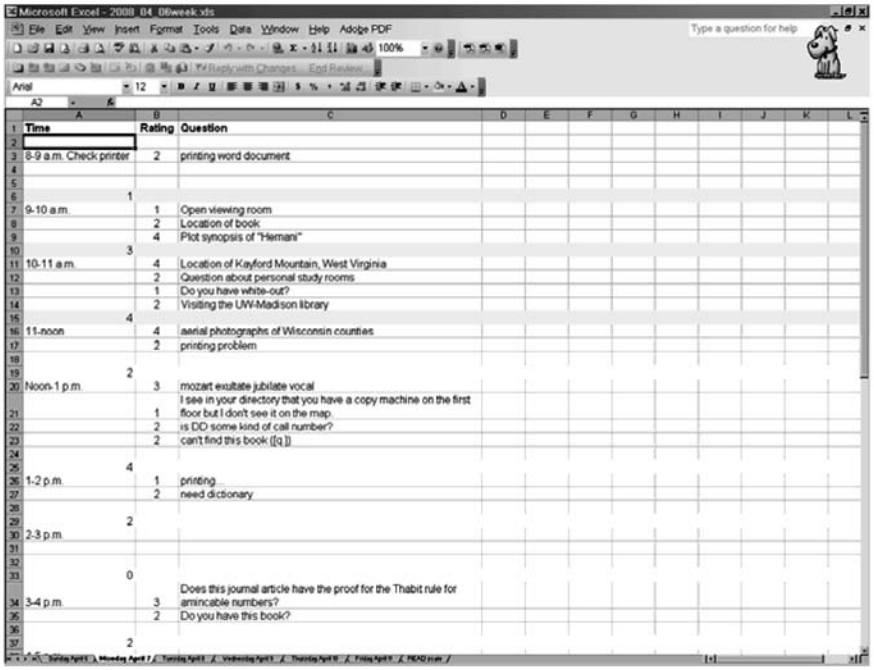
We found that the READ Scale was easy enough to adopt that we continued to use it for the rest of the term, and then for the rest of the year. Use of the Scale helped us value, as well as evaluate, our work at the reference desk. We found we were answering many more complex questions than we assumed.

### Follow-up: Our Adaptations

In the fall of 2007, we started recording questions and READ ratings using Excel spreadsheets saved on a shared file space. Each spreadsheet could be used to record a week of questions hour by hour from Sunday to Friday (the days the reference desk is staffed) with a tab for each day of the week. We included room to record the content of the questions; in very little time we also used this space to record suggestions for answering questions we had a sense would be recurring. We had begun using Moodle the previous fall as a reference work space for posting reference schedules, maintaining a frequently asked questions wiki, providing access

to Circulation and Media public service schedules, and general current awareness; we added the file names for our READ spreadsheets to the reference schedule postings. By spring 2008, the library's administrative assistant had included formulas in the spreadsheet to allow us to automatically total questions as we go. She also included formulas that tally the number of questions at each level of the READ scale.

Our new form:



| Time | Rating | Question |
|---|---|---|
| 8-9 a.m. Check printer | 2 | printing word document |
| | 1 | |
| 9-10 a.m. | 1 | Open viewing room |
| | 2 | Location of book |
| | 4 | Plot synopsis of "Hemani" |
| | 3 | |
| 10-11 a.m. | 4 | Location of Kayford Mountain, West Virginia |
| | 2 | Question about personal study rooms |
| | 1 | Do you have white-out? |
| | 2 | Visiting the UW-Madison library |
| | 4 | |
| 11-noon | 4 | aerial photographs of Wisconsin counties |
| | 2 | printing problem |
| | 2 | |
| Noon-1 p.m. | 3 | mozart exultate jubilate vocal |
| | 1 | I see in your directory that you have a copy machine on the first floor but I don't see it on the map. |
| | 2 | is DD some kind of call number? |
| | 2 | can't find this book ([q]) |
| | 4 | |
| 1-2 p.m. | 1 | printing |
| | 2 | need dictionary |
| | 2 | |
| 2-3 p.m. | | |
| | 0 | |
| 3-4 p.m. | 3 | Does this journal article have the proof for the Thabit rule for amincable numbers? |
| | 2 | Do you have this book? |
| | 2 | |

## Ongoing Challenges

Our first challenge is one that might be termed "ratings drift." We still seem to be underrating our questions, basing our ratings primarily on the time spent to answer them and not on the level of knowledge or expertise used. One response to this problem, besides an awareness of this tendency, has been to include a copy of the scale and definitions as a tab in the spreadsheet for each week's questions.

Our second challenge has to do with our response to the number of questions recorded. As noted earlier, we recorded over 3,820 questions for the 2007-2008 school year. This is an increase over the previous two academic years, but a decrease from 2004-2005. Some of the decrease may be due to the number of reference appointments made with our students and faculty; these have risen from forty-seven in 2004-2005 to 144 in 2007-2008. While we are very glad to see use of reference appointments growing in such a marked way, this only accounts for some of the drop in numbers of questions at the reference desk. We think that a larger portion of the decrease can be attributed to a practice a number of us engaged in prior to using the READ scale; in cases where we answered complicated questions (those that would probably be rated at level 4 or higher on the READ scale) we would often record more than one tic mark.

Our third and final challenge is perhaps our own acceptance and adherence to using the scale. For example, during busier times at the desk we all have to work to remember to record and code our questions; we sometimes hesitate to make a student wait while we record another preceding reference transaction.

## Future Use of the READ Scale

Through our use of the READ scale we have been pleased to see that we answer a large portion of substantial questions at the reference desk. Less than a third of our questions were rated at READ level 1. In the coming year, we will look to see if the level of questions fluctuates from term to term or over the course of a year. We may use the read scale to help us to determine hours or level of staffing. We do find that the numbers recorded using the READ scale help us provide evidence of reference as an activity that fulfills the college's teaching

mission, and plan on using our data in advocacy for the library with our faculty and administration.

—Copyright 2008 Bella Karr Gerlich, G. Lynn Berard, Jean McLaughlin, Sue Leibold, and Gretchen Revie

## Endnote

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# Systematic Quantitative and Qualitative Reference Transaction Assessment: An Approach for Service Improvements

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## Abstract

This paper presents the first-year results of a reference transaction tracking system implemented at Cornell University Library (CUL). We describe how reference transaction data are collected, analyzed, and used to improve services. Prior to 2006, the CUL Public Services Executive Committee faced two major challenges in relation to reference statistics: ensuring consistency across the decentralized library system and more accurately reflecting reference work. In response, CUL staff collaborated with Computer Science students and developed a Web-based Reference Statistics Reporting System (RSRS). Following its inaugural year of use in July 2007, the Director of the Collections, Reference, Instruction, and Outreach Department (CRIO) initiated a project to analyze RSRS data collected at two service points in order to understand better the traffic patterns and the nature of the questions asked at the reference desks. The goals of this analysis were to inform decisions for reference desk staffing and training, assess the performance of RSRS, and identify potential service issues. The two-phase project was conducted by the Research and Assessment Unit (RAU), with close collaboration with the CRIO Director and staff.

## Background

Founded in 1865, Cornell is a private, Ivy League institution and the land-grant university for New York state. It has more than 13,500 undergraduate and 7,000 graduate/professional students, as well as 3,000 faculty and 12,000 staff.

Cornell University Library (CUL) is a distributed system comprised of twenty libraries. It has a staff of 460 and total expenditures of $53.6 million in 2006/2007. The Library has more than 7.8 million print volumes, 88,000 print and electronic serials subscriptions; and provides access to more than 51, 000 full-text electronic journals and 350,000 networked electronic resources.

Prior to 2006, there was little consistency in CUL's reference statistics collection. Some units collected data every day, others used various sampling methods. To bring consistency across the system and, more importantly, to understand better the number and types of reference questions, the CUL Public Services Executive Committee, a body overseeing public services policies and procedures, charged a committee to develop a streamlined mechanism for reference statistics collection and management. The committee collaborated with a group of Cornell Computer Science students to develop a Web-based Reference Statistics Reporting System (RSRS). Under the guidance of a Cornell professor in statistics, a 12-week sampling scheme was developed and adopted. The RSRS was launched in August 2006.

The RSRS (see Fig. 1 and Fig. 2 below) allows CUL units to record the following data about reference transactions: location (library unit), sub-location (service points within a unit); staff type (Librarian, Information Assistant, or Student); transaction category type (Reference, Directional, Equipment Support, or Technical Reference); transaction duration (0-5 minutes, 6-15 minutes, 16 or more minutes, with an option of recording the exact length of the transaction); transaction mode (in-person, chat, phone, e-mail, other; with an option of recording off-desk transactions); and text fields for recording the content of the question and other notes. The latter are optional, except for one sample week a year when all service points record question content. RSRS automatically date and time stamp the transaction when an entry is made but this information can be edited for transactions recorded after the fact.

**Figure 1. Opening Screen of the Reference Statistics Reporting System**

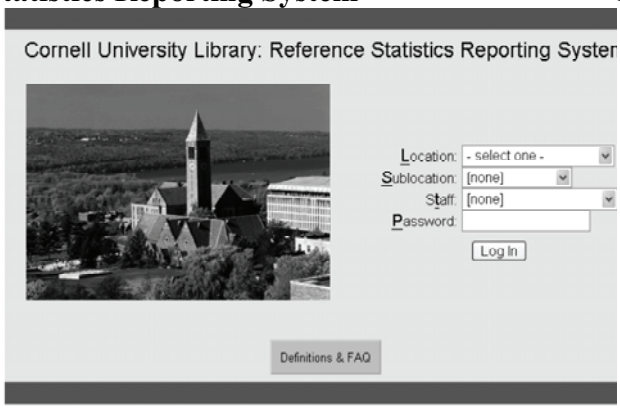
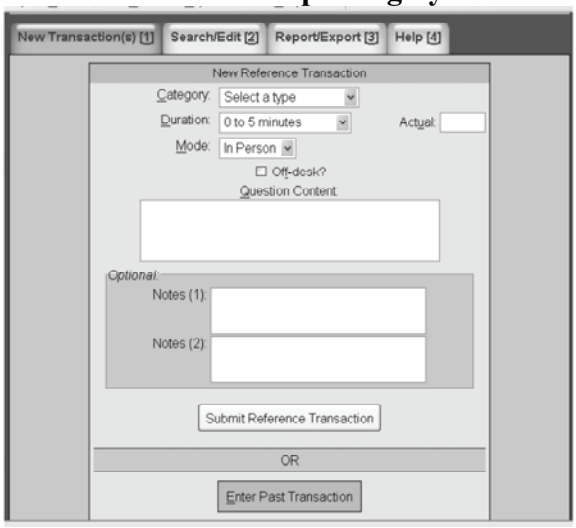



**Figure 2: Data Entry Screen of the Reference Statistics Reporting System.**




## RSRS Assessment

In July 2007, the Director of the Collections, Reference, Instruction, and Outreach Department (CRIO) initiated a project to analyze RSRS data from two service points under her supervision: the Olin and Uris Libraries' reference desks. Olin Library is the largest on-campus library; its research collection supports primarily the humanities and social sciences. Uris Library provides public computers and study spaces, including space that is open 24 hours during the academic year; its collection is much smaller.

The two libraries have very different reference service models and coverage. During the academic year, the Olin reference desk is staffed 90 hrs per week on average by information assistants, librarians, and some students. Uris Library's reference desk is staffed primarily by students; it is open for 35-40 hours per week during the academic year and is mostly closed during the summer and intersession. For both desks, the CRIO Department elected to record all transactions year around, not just during the sampling weeks, and staff were encouraged to record descriptive information about the patrons' questions.

The goal of the RSRS assessment was to provide a better understanding of the reference transactions in order to inform decision-making, optimize reference desk staffing and training, and learn as much as possible about the nature of the reference questions. Specific research question that guided this project included:

- What is the distribution of the traffic at the two reference desks?
- What is the distribution of the duration of the transactions?
- What is the distribution of the 4 transaction type categories (Reference, Directional, Equipment, or Technical Reference)?
- What kinds of questions are asked at the desk?
- How are these questions distributed over the course of the semester?
- How might these data be used as a baseline for future analysis and decision- making?

The project developed in two phases. Phase One focused on quantitative descriptions of traffic patterns, transaction duration, mode, and staff data. Phase Two was a multi-step examination of the kinds of questions patrons brought to the desk.

Cornell University's Institutional Review Board for Human Participants determined that this project doesn't fall into the research categories and thus no review was necessary.

## Phase One: Quantitative Description of the RSRS Data

### Methods

Phase One examined the 27,227 transactions that occurred at the Olin and Uris Libraries' reference desks between July 1, 2006 and June 30, 2007. The variables considered are presented in Table 1. The duration, staff, and date and time variables were the focus; frequency and cross tabulation tables

were generated to summarize the findings. In Phase Two, the transaction type variable and question content data were the focus.

**Table 1. RSRS variable descriptions**

| Variable | Description | Number of transactions |
|---|---|---|
| Duration | The amount of time spent on the transaction: 0-5 minutes, 6-15 minutes, 16 or more minutes. | 27,227 |
| Staff Type | The reference staff who handled the transaction: Reference Librarian, Reference Assistant, or Student. | 27,227 |
| Hour | The hour of the day that the transaction occurred: 00-23 (24-hour format). | 27,227 |
| Weekday | The day of the week that the transaction occurred: Monday-Sunday | 27,227 |
| Week | The calendar week that the transaction occurred: 1-52. | 27,227 |
| Transaction Type | The type of transaction based on internally developed criteria: Reference, Technical Reference, Directional, or Equipment. | 27,227 |
| Question Content Note | A free-form textual description of the reference transaction. "What your visitor's query was about." | 20,633 |

## Results

Olin Library staff recorded 23,996 transactions and Uris Library staff recorded 3,231 transactions. Table 2 shows the distribution by staff type. For both locations, the majority of the transactions were completed in five minutes or less (Table 3).

**Table 2. Frequency of transactions by Staff Type**

| Staff type | Olin Library (*n*=23,996) | Uris Library (*n*=3,231) | Total (*n*=27,227) |
|---|---|---|---|
| Reference librarian | 34.7% | 11.7% | 32.0% |
| Reference assistant | 61.4% | 66.4% | 62.0% |
| Student assistant | 3.9% | 22.0% | 6.0% |

**Table 3. Frequency of transactions by Duration**

| Transaction duration | Olin Library (*n*=23,996) | Uris Library (*n*=3,231) | Total (*n*=27,227) |
|---|---|---|---|
| 0-5 minutes | 75.2% | 76.5% | 75.4% |
| 6-15 minutes | 19.0% | 19.4% | 19.0% |
| 16 or more minutes | 5.8% | 4.1% | 5.6% |

Olin's desk sees the most traffic during the fall and spring semesters (fall more than spring), early in the workweek, and at midday hours. When classes were in session, Olin Library reported an average of 636 transactions per week during the fall semester and 500 transactions per week during the spring semester. As expected, transactions fall off appreciably during weeks when classes are not in session. There were an average of 321 transactions per week during the summer break, 188 transactions per week during the winter break, and a total of 252 transactions during spring break.

Uris Library's desk had similar patterns during the semesters: 107 transactions per week in fall and 92 per week in spring semesters. Traffic is greatest early in the week and midday (notably around 2 pm), but there is a much greater drop off during weeks when classes are not in session because of planned no-service hours.

In Phase One, we also intended to include quantitative description of the Transaction Type variable. However, initial examination of this variable raised concerns, and we decided to incorporate additional examination of this variable in Phase Two.

## Phase Two: The Nature of Reference Desk Questions

The main goal of Phase Two was to a gain better understanding of the nature of the reference questions by analyzing the information recorded in the open-ended Question Content field. We addressed the goal using both qualitative and quantitative techniques, namely: 1) examining the Question Content data for evidence of reliability of the Transaction Type variable distribution; 2) examining the Question Content data using principles of qualitative analysis; and 3) systematic content analysis of the Question Content data.

### 1. Transaction Type Distribution and Inter-Rater Reliability

Initial examination of the Transaction Type data in Phase One led us to question the consistency with which the reference staff categorized the transactions into the four RSRS categories. To gain some insight into the validity and reliability of the Transaction Type data, we conducted a *post hoc* inter-rater reliability analysis.

*Methodology*

Two reference librarians (the "Raters") independently reviewed the Question Content notes in a random sample of 1,020 transactions and assigned the most appropriate category type (Reference, Technical Reference, Directional, or Equipment). If the Rater was less than 90-95% confident about their choice, she could instead assign an "Uncertain" code (this was necessary since the Question Content notes in most cases are extremely brief, subjective, and contain little context).

*Results*

Table 4 presents the distribution of the transaction category types as they were originally recorded in the RSRS system and for each of the two *post hoc* raters. In each case, the majority of the transactions in this dataset were categorized as Reference transactions, followed by Directional, Technical Reference, then Equipment.

**Table 4. Distribution of transaction category type.**

| Transaction Type Category | Original distribution (*n*=27,227) | Rater 1 distribution (*n*=1,019) | Rater 2 distribution (*n*=1,019) |
|---|---|---|---|
| Reference | 61.9% | 56.4% | 54.4% |
| Directional | 24.9% | 18.9% | 24.3% |
| Tech/Ref | 6.9% | 10.4% | 11.9% |
| Equipment | 6.4% | 5.2% | 7.5% |
| Uncertain | n/a | 9.0% | 2.0% |

To measure the degree of agreement, we employed Cohen's Kappa, a standard measure of inter-rater reliability used with categorical data and two raters. The statistic evaluates rater agreement against agreement that could have happened by chance. The two Raters had moderate agreement: Cohen's Kappa = 0.547, or 71.5% agreement in the 1018 transactions that they both rated. Because one Rater demonstrated considerably more uncertainty than the other, we also evaluated agreement with the uncertain cases removed that showed improved agreement: Cohen's Kappa = 0.635, 79.2% of 912 transactions.

The analysis of agreement between Rater 1 and the category that was originally assigned shows similar results with agreement in 79.7% of the transactions (Cohen's Kappa = 0.624, $n = 927$). Rater 2 and the originally assigned category had slightly less agreement at 75.8% of the transactions (Cohen's Kappa = 0.579, $n = 999$).

Finally, we examined the extent to which there was agreement in all three sources (Table 5). The original category, Rater 1, and Rater 2 all agreed in 62.8% of the transactions ($n = 1018$). (Note: Cohen's Kappa cannot be used with more than 2 sources.)

**Table 5. Percentage of transaction category type agreement ($n$= 912, uncertain cases excluded).**

| Transaction Type Category | Rater 1 with original | Rater 2 with original | Rater 1 with Rater 2 | Rater 2 with Rater 1 | All three agree |
|---|---|---|---|---|---|
| Reference | 85.5% | 80.7% | 93.6% | 87.7% | 74.5% |
| Directional | 71.1% | 71.9% | 68.8% | 74.2% | 46.6% |
| Tech/Ref | 68.9% | 67.2% | 58.8% | 57.0% | 39.1% |
| Equipment | 62.5% | 50.0% | 31.6% | 46.2% | 32.4% |

## 2. Qualitative Analysis of the Question Content Notes

Our next step in exploring the nature of the reference questions involved a qualitative analysis of the Question Content data. Qualitative analysis can be very helpful with open-ended, free-form data because themes and patterns can be identified and explored even if they cannot be easily quantified.

### *Methodology*

The qualitative analysis was conducted using principles of the Grounded Theory approach, an inductive process in which the researcher starts with an intensive examination of the data. At this stage, the researcher is open to any concepts and relationships that may be suggested by the data. Themes are iteratively identified, evaluated, and refined. Findings are allowed to emerge from the data, rather than from theories imposed on the data from the top down.

### *Results*

There was a very wide range of questions that patrons ask at the desk and a variety of ways that the staff chose to describe those questions. We explored a functional typology in this analysis and inferred that the patrons appear to view the reference staff as serving one of three broad functions or roles which we have termed: 1) Research-Teaching Assistant; 2) Information Central, and 3) Problem Solver.

#### Research Assistant—Teaching Assistant

In this role, the reference staff seem to function much like an extension of a classroom teaching assistant or a laboratory research assistant. They provide resources to support the substantive content of the patrons' courses; enhance learning by teaching information retrieval and evaluation strategies; and facilitate identification and access to materials and research findings for academic and personal projects.

Patrons frequently seek guidance for finding specific items (books, journal articles, maps, audiovisual materials, etc.) to support their academic work and/or research. They also come looking for information and resources for broadly or narrowly stated topics or subject areas. They also

need a wide range of assistance in finding those materials, including simple "catalog checks," item record interpretations, and extensive instruction in catalog or database searching.

Finally, patrons need help with specific parts of their assignments, including advice for interpreting data and writing help, such as spelling, grammatical rules, and, quite often, citation formatting guidelines.

Not surprisingly, this is the most common function of the references desks and is certainly consistent with traditional conceptions of reference librarian work in an academic setting.

Information Central

However, not all patrons need help for academic or research purposes. Some users approach the reference desk as they might a more general information kiosk. These patrons seem to be looking for a friendly "sign post" and/or a trove of a wide range of information.

A large number of transactions involve giving directions to people, places, and things in the library. Patrons approach the desk looking for offices, specific areas of the collection, facilities, equipment and supplies.

Circulation questions are often directed to the "Information Central," including questions about borrowing privileges and queries about fines, loan length, and book returns. In addition there is a good deal of inquiries about the local community and even more information about the campus.

Finally, a plethora of more "miscellaneous" or "quick questions" are brought to the Information Central desk, such as date, time, hours of operation, lost and found, and campus landmarks and events.

Problem Solver

The reference desk also functions as a place patrons go when they get stuck. Like the two roles discussed above, the Problem Solver role covers a wide range of issues. The Problem Solver helps with computers (stuck flash memory devices, headphone jacks, nonfunctioning mice, etc) as well as technical help with electronic tools and computing applications. Problems with printing and printers abound, such as paper jams and stalled printing queues.

Not all Problem Solver transactions are technical in nature. Some patrons are stuck finding books and library materials; others, for example, come to the reference desk for a quick re-direction or more complicated detective work after having made a unsuccessful trip to locate an item. Patrons also visit the desk when they need supplies, such as paper clips, pencils, and band-aids.

## 3. Content Analysis of the Question Content Notes

The final part of the RSRS project built on the qualitative work described above, but used systematic coding schemes to turn the open-ended data into numerical data for additional quantitative analysis. It was conducted using principles of content analysis, a technique for making inferences by objectively and systematically identifying specified characteristics of the data.

*Methodology*

After an iterative review of the data and consultation with the CRIO reference staff, we developed a set of coding rules to apply to the question content data. Each question content note was reviewed and assigned the one code that best reflected its nature based on the coding rules.

We used *SPSS Text Analysis for Surveys* to facilitate the coding process. The software extracts and categorizes concepts from textual data and including options for building custom dictionaries to handle particular, local terms (e.g., Borrow Direct, Red Rover, etc.) and terms with variant spellings (e.g., Interlibrary Loan, ILL, Inter Lib Loan). After careful and iterative building of a custom RSRS dictionary, the software partly automates the coding process. However, it is not completely or perfectly automated; a good deal of manual coding was still necessary to maximize accuracy.

*Results*

The following final categories, while at times broad and general, provided the best fit for the data (Table 6):

- Library Items, Resources, and Information
- Olin-Uris Library People and Places
- Equipment and Supplies
- Computing
- Printing and Photocopying

**Table 6. Question Content Categories Distribution**

| | | Frequency | Percent |
|---|---|---|---|
| Categories | Library Items, Resources, and Information | 12162 | 44.7 |
| | Olin-Uris People and Places | 2433 | 8.9 |
| | Equipment and Supplies | 1563 | 5.7 |
| | Computing | 1479 | 5.4 |
| | Printing and Photocopying | 2996 | 11.0 |
| | Total | 20633 | 75.8 |
| Missing | Transaction with no question content data | 6594 | 24.2 |
| | Total | 27227 | 100.0 |

Each category was cross-tabulated with the data from Phase One to provide insights about the distribution of the questions types by duration and time periods. A notable finding from this analysis was that the occurrence of each category as a percentage of the total number of transactions was fairly flat over the semester weeks.

A brief overview of the coding rules and category descriptions along with unedited examples of question content data are provided below.

*Library Items, Resources, and Information*

The Library Items, Resources, and Information category is by far the largest category, representing 44.7% of all transactions and nearly 60% of all transactions with question content data.

*Examples:*

- looking for journal at bindery
- contemporary response to Milgram experiment
- How to search for items in Wall street journal using proquest or factiva.
- senior thesis consult, Somalia U.S., refugees
- catalog search for a russian story, in russian
- ordering materials from the annex
- Consultation about Refworks—importing, adding references, changing language settings
- interlibrary loan options (and how to sign up)
- Patron looking for audiobooks
- catalog check

Because this category is so large, we attempted to break it down into smaller, more meaningful subcategories. This proved difficult in many cases; nevertheless, after extensive and iterative review of the data, consultation with reference staff members, and some trial and error, several subcategories that both occurred frequently and appeared amenable to categorization were identified (Table 7).

**Table 7. Library Items, Resources, and Information: Subcategories**

| | Number of transactions | Percent |
|---|---|---|
| Reference and Research | 7278 | 59.8 |
| CUL Services and Tools | 1393 | 11.5 |
| Databases | 314 | 2.6 |
| E-journals | 265 | 2.2 |
| eBooks | 69 | .6 |
| Other e-resources | 114 | .9 |
| AV Items | 417 | 3.4 |
| Catalog Check | 486 | 4.0 |
| Stacks | 621 | 5.1 |
| Circulation | 564 | 4.6 |
| Campus Info | 641 | 5.3 |
| Total | 12162 | 100.0 |

The largest subcategory, **Reference and Research**, includes general or generally worded questions about finding/accessing/using items, resources, and information. It also served as a default category for transactions that were too ambiguous to confidently code into one of the other subcategories including those that covered multiple subcategories. It probably includes many of the more complex transactions: while around half occur in five minutes or less, 35.7% occur in six to fifteen minutes and nearly 14% were completed in "more than 16 minutes." Nearly all of these transactions were given the RSRS transaction type "Reference."

**CUL Services and Tools** transactions include interactions that are about services, such as BorrowDirect, Interlibrary Loan, library instruction, course reserves, etc. Most of these transactions were given the RSRS transaction type "Reference" and most were completed in 0-5 minutes.

**Databases** transactions appear to be primarily about using specific electronic databases. The vast majority of these transactions were assigned the RSRS transaction type "Reference." Around half were completed in 0-5 minutes.

**E-journals** transactions explicitly involve electronic journals. Technical problems with remote access are excluded. This subcategory was often difficult to disambiguate from the Research and Reference subcategory and likely underestimates the number of transaction that involved e-journals. Almost all of these transactions were assigned the RSRS transaction type "Reference." They tended to be of longer duration, over 60% needed more than six minutes to complete.

**eBooks** transactions deal with issues and questions about using eBooks, including using the Ebrary and Netlibrary tools. Similar to e-journals, almost all of these transactions were assigned the RSRS transaction type "Reference." Around half of the transactions took more than six minutes to complete.

**Other e-resources** transactions were about nonspecific e-resources and transactions about other kinds of e-resources. Like e-journals and eBooks, almost all of these transactions were assigned the RSRS transaction type "Reference" and just over half took more than six minutes to complete.

**AV Items** transactions generally involve assistance finding audio-visual items and include catalog checks for audio-visual materials.

**Catalog Check** transactions included a catalog check, plus directions to the stacks. This subcategory was sometimes difficult to disambiguate from the Research and Reference subcategory. Catalog checks for audio-visual items are excluded. Most of these transactions (94.4%) occur in five minutes or less and virtually all were assigned the RSRS transaction type "Reference."

**Stacks** transactions are another frequently occurring form of data. These appear to be simple directions to areas in the stacks or locations of call number ranges, but with little other information.

This subcategory was sometimes difficult to disambiguate from the Catalog Check subcategory. Virtually all of these transactions (99%) occur in five minutes or less and the vast majority of Stacks transactions were given the RSRS transaction type "Directional."

**Circulation** transactions deal with circulation-related issues and borrowing/access privileges. Coding this subcategory was fairly straightforward. The majority of the transactions here were completed in 5 minutes or less; around two-thirds were assigned the transaction type "Reference" and close to one-third were the "Directional" type.

**Campus info** transactions are specific to the Cornell campus and community. Coding this subcategory was also fairly straightforward. Like the Circulation category, the majority of the transactions were completed within five minutes; a little under two-thirds were assigned the transaction type "Reference" and about one-third were the "Directional" type.

## Olin-Uris Library People and Places

The Olin-Uris Library People and Places category includes questions specific to the Olin and Uris complex. Nearly all of these transactions were completed in five minutes or less. Just over half were assigned the RSRS type "Directional" and 38.4% were typed "Reference."

*Examples*:

- Employment in the library? Who do I contact? Where?
- Map of the library?
- Bathrooms?
- RMC hours
- Question about lost flash drive
- How do I reserve the media classroom for a screening?

## Equipment and Supplies

These transactions deal with patrons requesting access to, directions to, and assistance with, equipment and supplies. This category excludes computer workstations, printers, or photocopiers. Nearly all these transactions were completed within five minutes. Just over half were assigned the RSRS transaction type "Directional."

*Examples*:

- Stapler?
- Where can I borrow a projector?
- 3 hole punch?
- Patron looking for scrap paper
- Patron asked to borrow pencil

## Computing

This category includes computing-related transactions, unless they were more appropriately coded in Catalog, CUL services, etc. Most were conducted within five minutes, however, 14.2% took 6 or more minutes. The most common RSRS type for these transactions was "Reference" (37.7%); the least common type was "Equipment" (6.6%).

*Examples:*

- Wireless info?
- Can't connect RedRover..."secure" error message
- Location of electrical outlets in Uris
- Can I check out computers here?
- Wireless setup - in Chinese!
- Strange kerberos message (on Safari browser)
- E-mail?

## Printing and Photocopying

The second-largest category (nearly 3,000 transactions) is broken down into four subcategories (Table 8). Nearly all were completed within fifteen minutes, with 87% completed within five minutes. The transaction type was a mix of Reference, Technical Reference, Direction, and Equipment. Equipment was the most frequently recorded type at 35.5%.

*Examples*:

- How to install netprint on laptop
- Net print toner
- What is a netid? So how do I print?
- Printing theses on special paper?
- Where is Color Netprint 2? (in Uris!)
- Error message when printing: sidecar not running
- Copier question

**Table 8. Number of Printing transactions by subcategory**

| | Number of transactions | Percent |
|---|---|---|
| Printing assistance | 1215 | 40.6 |
| Netprint | 1187 | 39.6 |
| Printing problems | 329 | 11.0 |
| Photocopying | 265 | 8.8 |
| Total | 2996 | 100.0 |

## Outcomes and Next Steps

This multi-step analysis of the RSRS data resulted in several positive outcomes, both for reference services and for RAU, and suggested many potential paths for future analyses.

As a "bonus" outcome, the newly formed Research and Assessment Unit (RAU) of the Library, charged with its mission of conducting research and assessment in support of Cornell Library decisions, "cut its teeth" on this project. It used the experience to develop, assess, and revise workflow, protocols, and documentation mechanisms. Among other things, RAU tested and revised its Project Initiation Dialog, a one-page form that facilitates initial discussions with the project sponsor about the goals and scope of an assessment proposal. RAU also developed a 2-stage feedback form: the sponsor's perception of RAU's interaction with him/her (feedback collected immediately at the project end) and the usefulness of the project deliverables (feedback collected several months after the closing of the project). Lessons learned from the RSRS project included the need to factor in unplanned, project-born tasks and to build in collaborator's time into the total project duration.

From the point of view of reference staff and management, the assessment project has been invaluable. It has documented and interpreted the trends in academic library reference beyond the mere numbers of transactions. The project results have also informed the decision-making process of reference desk coverage. The staffing at the desks was modified by increasing student coverage at Uris Library and reducing double staffing at Olin Library to cover only the hours between 1 and 5 pm. Based on the number of printing, computing and other equipment questions, we reconfigured a vacant staff line and hired a public computing coordinator, who will be implementing a student-staffed computing and printing support program to start in the fall of 2008.

Other results of the study included the fact that since the CRIO staff elected to collect a full year of reference transactions data, we were able to validate the sampling method by comparing the full-year data with the sum extrapolated from the twelve sampling weeks. The findings also promoted design improvements for RSRS to ensure better data accuracy and ease of analysis. The inter-rater reliability study increased our awareness of human error and the value of clear definition of data categories.

There is much more work ahead. This project served as the first systematic exploration of the Question Content data and should serve as a jumping-off point for additional studies. There are much more insights to be gained by doing more analyses; for example, we could qualitatively examine a subset of the data, such as the longer duration transactions. The content analysis presented here would be strengthened with additional coders to provide category validity and reliability checks. The data will also provide an excellent baseline for evaluation of future service improvements and changes, such as an assessment of the impact of introducing a student computer operators' program.

We also came away with a clearer understanding that the RSRS data alone cannot support drastic changes in staffing changes. Additional, multidimensional data, such as patron wait-time tolerance, would be needed. While we reviewed some of the professional literature in the course of this project, a more in-depth and systematic look at the rich body of published studies could help us to avoid "reinventing the wheel" in terms of reference staffing decisions. Finally, we are also reminded that the conclusions from this project should be evaluated and enriched

by linking them with other existing institutional data, such as LibQUAL+® data.

The project results have been and will be further used to inform decisions. Traffic patterns and transaction load will inform and support differentiated staffing and targeted, future introduction of new reference services. Most importantly, the findings provided us with documented user queries, the analysis of which will be indispensable in staff training and resource allocation. In a word, it provided concrete data that will lead to many future user services improvement.

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# Building a Resource for Practical Assessment: Adding Value to Value and Impact

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## Abstract

The aim of this paper is to describe the progress of the Society of College, National and University Libraries of the UK and Ireland (SCONUL)'s Value and Impact Measurement Programme (VAMP) and its main product, the SCONUL Performance Portal.[1] This paper provides a follow-up to one given at the previous Library Assessment Conference on the VAMP programme.[2] The second part of the paper considers the challenge of assessing and measuring 'value' in academic libraries. In particular three brief case studies are presented to offer insight into the context and drivers towards value measurement; how an individual institution responded to these drivers; and how the performance measurement and assessment community might work internationally to provide libraries with a route towards benchmarking in this area.

## Introduction and Context

### The University Context

The future of the academic research library is under some scrutiny at present. The revolution in technology continues to provide questions of role and relevance for us. At the 2006 Library Assessment Conference, the need for clear justification for further investment in and proof of the worth of the University Library was expressed bluntly by the first plenary speaker.[3]

A conclusion reached was that Universities have two "bottom lines"; the first of these being financial (as in any business), and the second being an academic bottom line based largely on reputation, and this itself being focused mainly on research (the priority in "leading" Universities), with teaching (and maybe learning) some way behind. In the UK, this balance may be different due to the demand for and assessment of teaching quality at all Universities at national level.

The bottom lines generate pressures on the academic library for accountability through related measures. The need is therefore to demonstrate the library contribution in these two dimensions:

- Financial, through 'value for money' or related measures
- Impact on research, teaching and learning

This also implies that competitive data will be highly valued.

### The Aim and Role of Universities and Their Libraries: Cautions for Measurement

Should we follow these pressures for accountability to their logical conclusion, and reframe our measurement systems to generate data and evidence which proves or indicates financial value and impact on research?

I believe some words of caution are necessary here. There is danger in the simple minded reductionism which often accompanies the quest for impact and value measurement. While it is legitimate for governments and other paymasters to seek value and impact measures, the net result may be a commodification of education and research, and an overly packaged view of the education and research enterprise. In a business where the whole is greater than the sum of the parts, assessment approaches which only measure easily defined parts can miss the point. For example, impact measurement limited to short term indicators covering a narrow range of objectives may miss the life long, vocational, societal, or transferable benefits which the whole experience bestows.

In the field of research, the trend towards a context-driven "Mode 2" instrumental style[4] seems to be accompanied by a 'mandarinisation' of the process; in the UK research and its support are partly funded through large programmes and bureaucracies with nationally defined goals in mind. The competitive methods developed for allotting funding may be accompanied by measurement systems which do not necessarily encompass broader values. As an example, the potential drawbacks for academic departments in accepting the narrow definitions of research quality

inherent in the UK Research Assessment Exercise (RAE), on which general research funding for Universities is currently based, were noted some time ago[5].

In particular, the role of academic and research libraries is to serve both modes of research, and to reflect a more transcendental perspective on both education and research. There is a danger that libraries will increasingly alter their behaviours to match these contextual trends, and to take up the often simplistic reductionist measurement systems associated with them. The concept of academic and research libraries as connective, collective, and transcendental may be at risk of damage in the process. There might be legitimacy in rejection of measurement systems which do not adequately reflect the enduring values and value of our services.

### SCONUL Member Survey Findings

It is of interest to consider the effect of these accountability pressures on the UK and Irish academic library sector. In the definition phases of the VAMP project, a survey of SCONUL member libraries was undertaken to assess views and requirements on value and impact measures. In summary the findings of this survey were:

- 70% of the sample had undertaken value or impact measurement;
- The main rationales for doing this were advocacy, service improvement, and comparison;
- Half the sample had used in-house methodologies; half had used standard techniques; and
- The main barrier to effective measurement of impact or value was the lack of relevant available tools.

The lack of appropriate tools and techniques meant great effort was being expended locally to create them, generating issues of staff time and capability, and ultimately reducing buy-in within some individual libraries (and amongst the target audience of the measures). The survey confirmed that many members were looking to SCONUL (through its Working Group on Performance Improvement) to offer off-the shelf solutions to these assessment questions.

The Member Survey conclusions were therefore:

- There was a need to demonstrate value and that libraries make a difference;
- Measurement needed to show 'real' value;
- There was a need for measurement systems to link to the University mission;
- Libraries were, and intended to be, ahead of the game in this field; and
- Impact might be difficult or impossible to measure.

All respondents welcomed the VAMP programme, and the prospect of an available toolkit containing robust and simple tools. Further background and details on the survey are available within the Performance Portal[6].

## The VAMP Programme

### VAMP Objectives

The objectives for the VAMP programme were set to provide:

- New missing measurement instruments & frameworks;
- A full coherent framework for performance, improvement and innovation; and
- Persuasive data for University Senior Managers, to prove value, impact, comparability, and worth.

In particular the programme sought to identify or develop methods deemed to be missing from the available portfolio, including:

- An impact tool or tools, for both teaching & learning and research (to be based largely on the experience of the LIRG/SCONUL impact initiative);
- A robust Value for Money/Economic Impact tool;
- Staff measures; and
- Process and operational costing tools.

All of this was intended to deliver the following benefits for members:

- Attainment & retention of Library institutional income;
- Proof of value and impact on education and research;
- Evidence of comparability with peer institutions;
- Justification of a continuing role for libraries and their staff; and

- Meeting national costing requirements for separating spend on teaching and research.

### Communities of Practice

A further aim of the programme was to build a community of practice in performance improvement in UK and Irish academic libraries, and possibly beyond. Wenger defined communities of practice as: "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly."[7]

That such a community could be facilitated by a suitable new technology was also recognised: "New technologies such as the Internet have extended the reach of our interactions beyond the geographical limitations of traditional communities, but the increase in flow of information does not obviate the need for community. In fact, it expands the possibilities for community and calls for new kinds of communities based on shared practice."[8]

This was precisely the aim of VAMP and its product: the use of a new technology to facilitate learning from others about alternative approaches to performance measurement and assessment, and for that community not necessarily to be limited by geography. In a sense, that is also what this conference is about, and the ultimate purpose of the work of both SCONUL and ARL in the field of assessment and new measures—not just the tools themselves but the shared experience of their use developing a "coherence" through this "mutual engagement."[9]

### VAMP Project Structure

The overall structure for the programme was as follows:

- An Analysis phase conducted between March and June 2006;
- A Development phase to commission an impact Tool or tools ending in June 2007;
- A parallel development of the Web site also ending in June 2007, to allow the site to be launched with both new and existing content;
- A second development phase to create a value tool or tools, which is still ongoing; and
- A Community of Practice development, to draw in those engaged and active in performance measurement in UK and Irish academic libraries, and potentially beyond to other UK library sectors and internationally.

In keeping with all SCONUL projects the intent was to ensure an outcome that was sustainable over the longer term. Maintenance was intended to become partly the responsibility of the resulting community of practice, with SCONUL's WGPI as the facilitating agency.

## The Performance Portal

The net product of the programme is the performance portal on the SCONUL Web site. This is a wiki of library performance measurement and assessment, with the capability of allowing the community of practice to build and maintain it. The overall form was to collect tools and techniques (called 'approaches' in the portal) and organize this content, with each approach ideally accompanied by:

- A definition;
- A method or methods;
- Some experience of their use in libraries (or links to this); and
- The opportunity to discuss use.

A number of processes have been built into the product, allowing contributors to submit content, to understand how to do this through a user guide, and a set of communication and discussion tools are provided. The portal is also therefore an experiment in social networking and Web 2.0 technologies.

Following the initial launch at the SCONUL Conference in June 2007, experience to date, and a feedback workshop at the SCONUL Conference in 2008, a further set of developments have been identified. These include the possibility of a visual mind map to represent the content of the portal.

In true library style, there was a debate about how to classify the range of performance measurement and assessment approaches collected within the portal. The conclusion was an 'ontology of performance' defining the organization of the portal and its content through five entry points:

### Frameworks

This is intended to cover coherent systems of performance measurement. So far we have data mounted on the European Framework for Quality Management (EFQM) and Key Performance Indicators (KPIs); subsequently we hope to collect experience on the Balanced Scorecard and Critical Success Factors.

### Impact

In the area of impact the toolkit commissioned from David Streatfield Associates based on the

SCONUL/LIRG Impact Initiative has been mounted. We are seeking experience from libraries that participated in this programme, or on use of the new tool.

### Quality

This area seeks to collect data on use of customer satisfaction tools, and has information on the main survey methods (the SCONUL Survey, LibQUAL+®) in use in the UK, and seeks experience of use of the UK Charter Mark (now Customer Service Excellence) and other quality awards

### Statistics

The portal provides a gateway to the SCONUL Statistics and the related interactive web service, the HELMS statistics, and seeks experience of local use of the statistics within institutions for advocacy.

### Value

The value area is not yet populated with any material, indicating the lack of available relevant tools for academic libraries, and consequently defining this as the immediate priority area in which to invest in the development of new approaches.

## Value

What is value? How do we develop meaningful measures of value for academic libraries in the UK and Ireland?

In the UK context, assessment of value has been sought in the public sector to justify use of public money over several decades. These have often drawn on commercial approaches, and have been applied to different areas of public service in different ways. These have included Best Value (used in Local Government and applied to the UK Public Library service), contingent valuation (used by the British Library), cultural and social value, public value testing, value added measurement, value engineering, value for money assessments, value management, and the concept of value propositions.

In addition, there are longer standing concepts of cost analysis such as cost benefit analysis, cost efficiency or cost-effectiveness measures, return on investment, cost comparison, and financial allocation. In addition, organisations in any sphere of activity tend to be obliged to consider general accountability, and more specifically their financial management processes, and be subject to both internal and external audit processes. University libraries in the UK and no doubt elsewhere are already subject to these demands. Academic libraries have also used resource allocation models for some time to allocate resources across subject divisions, and there are methods for the financial valuation and evaluation of collections and services in use, but there is no overall standard framework for cost and value measurement in general use by academic and research libraries in the UK.

In order to develop a discourse in this field of assessment, I offer below three cases. The first describes the method of cost allocation within UK national higher education as an indicator of a contextual driver which may affect libraries. The second describes the response of an individual academic library to this general context, and the benefits that may accrue from assessment in this area. The third considers the potential responses to the need for international comparison of cost and value.

In all this we should not forget that value theory is not about money, but about what is ultimately valuable in the sense of good or bad. Any framework we develop for 'value' should be based on our 'values,' and those of our parent institutions. In other words, we need some metaphysical assumptions about values on which to base our assessment of value, so that we avoid any absurd reductionism.

### Case 1: TRAC

The main cost analysis driver in UK higher education is the Transparent Approach to Costing (TRAC) initiative.[9] Introducing TRAC was a government requirement and since 2000 has been the standard method for University activity costing. An important positive element within this programme was to recognise the full economic costs of research, and to base future funding of research on this analysis. Within this framework, institutions are supposed to allocate the cost of libraries "using robust methods." Anecdotal evidence suggest that in many institutions this is done on the simple basis of allocating the overall cost of libraries to teaching or research on a notional percentage basis, and that the initiative has not yet generated the extent of analysis (including, for example, staff time recording) in libraries which is now in place within academic departments. However, the existence of TRAC poses questions for academic libraries which we might not find it easy to answer without some collective effort, and

the future may not permit a complacent approach to cost analysis.

### Case 2: the UK Open University Library's Best Value Program

The Open University (OU) is the only UK University solely dedicated to distance learning, operating through supported open learning with approaching 200,000 mainly part-time students.

The Open University Library's Best Value Program[10] was initiated partly in response to cost analysis drivers such as TRAC; but with the main internal library objectives of:

- Increasing the business skills of library managers and staff;
- Developing skills to support customer-focused, cost-efficient management decision making; and
- To develop benchmarking evaluation skills that balance quality, value and cost efficiency.

A number of strands of activity made up the programme, considering business reporting, process costing (with a view to continuous improvement), service planning, and benchmarking. All of this was intended to "generate real accountability" within the organisation.

The business reporting elements generated a set of performance indicators for each area, including cost, quality and customer impact, leading to forecasting and monitoring of subsequent variation and remedial action if necessary. This was successful in improving use of management information, efficiency, prioritisation, and expenditure control.

The process costing analysis included stage breakdowns, skill level inputs, and time measurement for a range of services such as cataloguing, enquiries, e-resources, IT support, document delivery, and counter services. This helped justify staffing levels against activity, allowing redeployment to priority tasks, and also generating process improvements.

Costed service plans were developed for medium term development within a rolling programme, covering some of the areas mentioned above.

The overall benefits of this programme were reported to be in the areas of staff development, where a more cost-conscious approach to decision-making became evident, as well as generally improved business skills. Management information improved, but there was also better clarity about library customers and their use of the library, and consequently improved service quality. The increased ability of the library in advocacy and "selling the benefits" of its services was also noted.

This seems an excellent demonstration of the development of an assessment programme based at the outset on cost and value considerations, but generating significant quality improvement and staff capability enhancement in the process.

### Case 3: Financial Benchmarking

Given the globalisation of the higher education market, there appears to be an increasing desire for data to support international benchmarking initiatives. It is interesting to note that the Open University was able to engage in and lead a benchmarking exercise against other distance education Universities worldwide, and no doubt the previous work described above provided a good foundation for cost comparisons. An international benchmarking study of academic research libraries in 2008 discovered that only one of its eight participating institutions had a comprehensive costing model. Recent anecdotal evidence seems to confirm that this lack of standard costing approaches remains a consistent barrier to in-depth process benchmarking initiatives both within and beyond national contexts.

This has refocused attention on the type of national statistics collected by academic and research libraries in terms of both coverage and comparability. The desire for general statistical convergence amongst research library statistics was voiced this year in a specific request from OCLC/RLG to SCONUL and ARL. As a first step in response the opportunity to bring together some relevant members from ARL, SCONUL and CAUL was taken whilst in York in 2008. The meeting identified some existing work and relevant standards, and undertook an initial comparative analysis of the SCONUL and ARL Statistics in order to identify points of convergence or divergence in approach.[11] It may be optimistic to expect longstanding series of this type to move towards complete convergence, but a mapping exercise to highlight similarities and differences might help those interested in benchmarking. In addition, the type of financial data which might be required in benchmarking exercises tends to be below the level of detail at which these major statistical collection efforts are aimed.

## Future Challenges

It has been beyond the scope of this paper to consider in detail the formidable range of value measurement possibilities from which academic and research librarians could choose to add to their assessment armamentarium. The cases above suggest that a response to the pressures for value measurement can and probably should be translated into action both within institutions and through collaborative initiatives nationally and internationally.

Further investigation is needed to achieve an agreed and comparable approach to value measurement. Work will continue within the VAMP programme in the UK, but the achievement of the ideal of comparable measures for benchmarking will require collaboration on an international basis.

The growing community of practice exemplified by this conference might choose to rise to the particular challenge of finding a common approach to the assessment of the value of academic and research libraries.

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## Endnotes

1. The SCONUL Performance Portal is at http://vamp.diglib.shrivenham.cranfield.ac.uk.

2. S. Town, "Value and Impact Measurement: A UK Perspective and Progress Report on a National Programme (VAMP)," In *Proceedings of the Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, September 26-27, 2006, Charlottesville, Virginia, (Washington, DC: Association of Research Libraries, 2007), 437-447.

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## Acknowledgments

-The VAMP Subgroup of SCONUL WGPI: *Maxine Melling, Philip Payne, Rupert Wood*
-The Cranfield VAMP Team: *Darien Rossiter, Michael Davis, Selena Lock, Heather Regan*
-The Open University: *Ann Davies, Nicky Whitsed*
-Attendees at the statistics meeting at the University of York

# From Data to Action: Setting Goals to Respond to Customer Wants and Needs

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## Abstract

There is evidence that an increasing number of libraries are engaged in some methods of assessing user needs; indeed, over 1,000 libraries have administered the LibQUAL+(R) total market survey. But there are anecdotal reports that indicate there may be a disconnect within libraries between collecting user assessment data and translating this input into achievable action items. While there are a number of potential reasons for the gap between information and action, one area of possible intervention is for libraries to work more rigorously on goal setting. This paper describes the S.M.A.R.T. goal setting method and gives examples of how this technique can translate customer needs data into library action items. S.M.A.R.T. is a handy acronym for the five characteristics of well-designed goals. By using LibQUAL+(R) survey results along with operational data and other user feedback, libraries can develop a targeted set of service goals that are specific, measurable, attainable, relevant, and have a time dimension. This process can assist the library in identifying key areas where incremental improvements can be achieved, and provide a structured framework for measuring progress toward success.

## Introduction

Library assessment is among the most important work library staff can undertake. The overriding goal for any assessment activity is improving library services. How can we make the user's experience better? This work also can be among the most challenging for library staff. It forces us to take a fresh look at our services and operations, and pushes us to utilize skills and methodologies that are new or unfamiliar to many library staff.

In carrying out these responsibilities, library assessment coordinators or administrators of user surveys undertake the tasks of survey selection or design, administration of the survey to users, and data analysis. This work can be time-consuming and seemingly never-ending. At times it seems easy to get lost in a sea of data. Moreover, it is not unusual for staff who are not primarily responsible for conducting and analyzing the user survey to pay limited attention to these processes. Indeed, even when survey data are presented and disseminated widely to staff, there can be a lack of understanding or a reluctance to take action. After investing the collective time and energy of the user community to answer the library's survey, as well as the necessary time and resources of the library to administer the survey, the library has a fundamental responsibility to move from analysis to action. Library decision-makers can take practical steps to determine which issues identified by users can and should be addressed, and develop concrete goals to help the library make progress towards improving these areas.

A library that is serious about this responsibility will prioritize those action items that align with the mission, vision, and goals of the parent institution. A library that is committed to being user-centered will address the users' top priorities—those qualities deemed to be most important to each user group (e.g., faculty or undergraduate students). For example, for libraries administering the LibQUAL+(R) survey, the top priorities will be those items with the highest mean scores for "desired" expectations. Another strategy for determining what to address is to focus on those areas that have been revealed to cause the strongest dissatisfaction for specific user groups (e.g., LibQUAL+(R) items where the library's perceived performance does not meet the users' minimum expectations, that is, items with the lowest mean "adequacy gap" scores). Libraries also may choose to build on areas of strength (e.g., LibQUAL+(R) items with high mean "perceived" scores), assuming that these are areas that truly are important to users (e.g., users have rated these

areas sufficiently high in their scores for "minimum" and "desired" expectations). Once the user survey data analysis reveals a set of important and realistic priorities, the library can initiate a concerted effort on the part of all responsible library staff to develop goals for action. One method for goal setting is the S.M.A.R.T. goal technique.

## S.M.A.R.T. Goals

S.M.A.R.T. is a handy acronym for the five characteristics of well-designed goals that focus on expressing and achieving specific and measurable results. The concept was derived from the work of management guru Peter Drucker who in the 1950s introduced and later popularized the method well known as Management by Objectives (MbO). MbO methods historically have been used in the arena of individual performance management and, while it has declined in popularity from its introduction in the 1970s, many human resource performance appraisal systems still include individual goal setting.

> "MbO is a goal-directed process that relies upon setting clear targets for each employee and reviewing his or her performance against these targets. . . . The objectives should be clearly defined, measurable, and set at a level that is challenging yet attainable."[1]

Drucker underscored the following point about goal-setting in his 1974 book, *Management Tasks, Responsibilities, Practices*:

> "If objectives are only good intentions they are worthless. They must degenerate into work. And work is always specific, always has—or should have—clear, unambiguous, measurable results, a deadline and a specific assignment of accountability."[2]

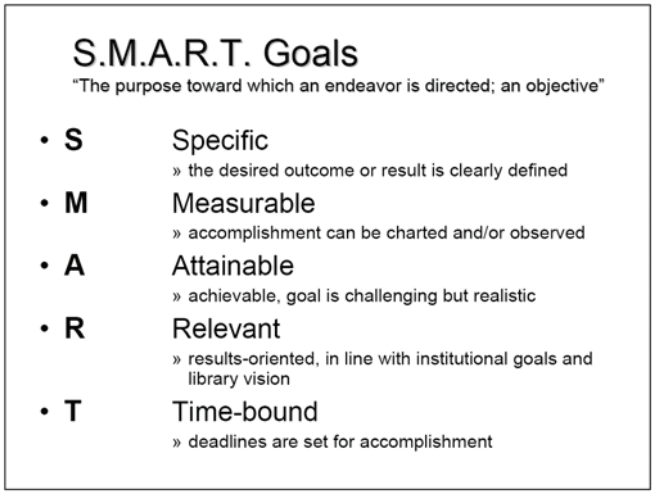
This view has been repeated by many other management experts. By the 1980s, with the evolution of MbO to other management uses aside from individual performance management, one finds the first indications of the unique characteristics of the S.M.A.R.T. goal-setting technique. George T. Doran, management consultant, wrote:

> "Let me suggest . . . that when it comes to writing effective objectives, corporate officers, managers, and supervisors just have to think of the acronym S.M.A.R.T. . . . Ideally speaking, each corporate, department, and section objective should be Specific . . . Measurable . . . Assignable . . . Realistic . . . Time-related."[3]

Another variation on the acronym was promoted by Hersey and Blanchard in supporting their popular "situational leadership" model. According to Hersey and Blanchard, "Good Goals are SMART Goals. SMART is an acronym for the most important factors in setting quality goals . . .Specific . . .Measurable . . . Attainable . . .Relevant . . .Trackable."[4]

While variations on the acronym continue to be seen today, the S.M.A.R.T. goal-setting method is most frequently cited as requiring goals to include five characteristics, as seen in Figure 1.

**Figure 1**



Goals that are *Specific* describe a particular desired accomplishment and indicate a single key result that needs to be achieved. This result is expressed as an outcome, an observable action, behavior, or achievement. A specific goal communicates what one will see happen; it is a visible picture of a tangible result. It is most effective to state goals in clear and unambiguous terms. Tips for writing specific goals include using action verbs and being concrete and concise. When goals are specific, they convey exactly what is expected, when, and how much. The advantage of specific goals is that they help to focus action and have a greater chance of being fully accomplished. When goals are specific, they convey exactly what is expected; alternatively, when goals are vague it is difficult to pinpoint what has been accomplished or if success has been achieved.

Goals that are *Measurable* have solid criteria for monitoring progress and assessing whether or not the objective is being met and to what degree, which reinforces the purposes of library assessment. The key to writing such goals is to include a unit of measure that links the specific action, behavior, or achievement to a quantity, rate, percentage, frequency, etc. Measures can be identified by answering such questions as "how much" or "how many." The benefit of measurable goals is that milestones that indicate progress help to determine that the library is going in the right direction or that adjustments are indicated along the way.

During a plenary session at the 2008 Library Assessment Conference, Shelley Phipps, one of the recipients of the first Library Assessment Career Achievement awards, commented that "We're not just doing things, we're working toward targets." This point underscores the importance of measurable and attainable goals that keep libraries focused on improving services to users.

Goals that are *Attainable* are realistic, feasible, and achievable. They focus on actions that are within the library's control and on things that the library can actually do, given the resources that are available or that can reasonably be acquired. Attainable goals require the library to stretch a bit to achieve them, but they are not so extreme as to be out of reach; there is a likelihood of success, but that does not mean that the endeavor will be easy or simple. Goals that are set too high, or too low, become meaningless and are likely to be ignored. The appeal of attainable goals is that they are motivating.

Goals that are *Relevant* address the activities and outcomes that are likely to have the greatest impact on meeting user wants and needs. They must be significant and important to reaching the library's mission and vision. Indeed, they align with the organization's strategic vision and help to move it forward. The advantage of relevant goals is that they will make a difference.

Finally, goals that are *Time-bound* indicate when the objective should be completed or accomplished. They have a starting point, an ending point, and a fixed duration; in other words, a realistic timeline and deadline with dates that are clearly stated. The benefit of time-bound goals is that they set priorities for the allocation of library staff time, assuring that staff time is used on objectives that really matter. Time frames create a sense of urgency and prompt action whereas a lack of deadlines makes the commitment too vague and reduces the urgency required to execute the tasks since they can begin or end at any time. Time-bound goals are the alternative to the "it takes as long as it takes" approach that can prevail in some libraries.

Some examples of S.M.A.R.T. goals and how they contrast with general goal statements are outlined in Figure 2.

**Figure 2**

| S.M.A.R.T. Goal | vs. General Goal |
|---|---|
| 75% of materials acquired from other libraries are received by users within 7 days of request by January 2009 | Improve ILL turn-around time |
| 50% of new books are on shelf within 5 days after library receipt by December 2008 | Make new materials accessible to users more quickly |
| 80% of Spring 2009 courses utilizing the campus Course Management System include links to library research materials | Link library to instruction |
| The unit cost of each service desk transaction will decrease by 10% from FY08 to FY09 | Decrease staffing budget |

The S.M.A.R.T. goal technique can help a library's assessment efforts by ensuring that the library moves from the stage of data analysis to action and continuous improvement. By using data from LibQUAL+(R) and other user surveys, particularly informed by qualitative data such as user comments or feedback from focus groups, libraries can develop a targeted set of service goals that are specific, measurable, attainable, relevant and have a finite time dimension. This process can assist the library in identifying key areas where incremental improvements can be achieved and S.M.A.R.T. goal-setting can provide a structured framework for implementing action and monitoring progress toward success. During the 2008 Library Assessment Conference, session attendees participated in a group activity to practice the development of S.M.A.R.T. goals using the example provided in Figure 3.

**Figure 3**

Example:
Library X has analyzed its LibQUAL+(R) data to identify possible shortcomings. For undergraduates, the mean adequacy gap (i.e., the difference between the minimum service level needed and the perceived service level provided by Library X) is most deficient for the service issue of "Library space that inspires study and learning." Informed further by LibQUAL+(R) comments from undergraduates, the library staff identified the most appropriate arenas for action that would address this area of user dissatisfaction. Staff then developed several S.M.A.R.T. goals to focus their future actions, for example:

*Add task lighting to 75% of the study carrels on the north side of the library building by November 2008.*

*Reorganize Library space to provide 8 group study areas with flexible furniture and equipment (such as smart boards, plugs, wireless, etc.) by September 2010.*

A handy worksheet is provided below in Appendix 1 to assist staff in developing S.M.A.R.T. goals. The worksheet (based on a similar tool developed by Pi Beta Phi Fraternity for Women in 2007) includes a "check box" approach to enable staff to be sure that each of the S.M.A.R.T. elements is included in the goal statement.

Of course, as Peter Drucker admonishes, the act of goal setting is a means, not an end.

> "One final step remains: to convert objectives into doing. Action rather than knowledge is the purpose of asking, 'What IS our business, what WILL it be, what SHOULD it be?' and of thinking through objectives. The aim is to

> focus the energies and resources of the organization on the right results. The end product of business analysis, therefore, is a work program and specific and concrete work assignments with defined goals, with deadlines, and with clear accountability. Unless objectives are converted into action, they are not objectives, they are dreams."[5]

Another practical tool can help libraries take the next step from data to action. The matrix in Appendix 2, "Identifying Library Departments with Contribution or Impact on LibQUAL+® Questions," is a device that libraries can use to help build and share ownership across library departments for improvements as measured by LibQUAL+(R) scores. Such a tool can be used before, during, or after the administration of a user survey to identify the areas of continuous improvement for which each department, unit or staff member might be responsible, should the user feedback warrant attention. Once staff receive the reports of survey data, they can easily pinpoint those survey items to which they should pay particular attention and for which they can begin to brainstorm about potential future action. Used in conjunction with the S.M.A.R.T. goal setting technique, all staff throughout the library can be encouraged to participate in the library's assessment initiatives and, more importantly, to engage in continuous improvement for library users.

Much is available on the Web and in the professional literature on the development and use of S.M.A.R.T. goals in various settings. Some resources that the authors found particularly useful included:

- ACRL Instruction Section Web page on "Writing Measurable Objectives" http://www.ala.org/ala/acrlbucket/is/organizationacrl/planningacrl/smartobjectives/writingmeasurable.cfm
- Pi Beta Phi Fraternity for Women "Goal Worksheet"(2007) http://www.pibetaphi.org/pibetaphi/WorkArea/showcontent.aspx?id=3048
- RapidBI web page on "How to Write SMART objectives and SMARTer Objectives" http://www.rapidbi.com/created/WriteSMARTobjectives.html.

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## Endnotes

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**Appendix 1 (page 1 of 2)**

*Library Assessment Conference, Seattle, August 6, 2008*

# From Data to Action: Goal Setting Work Sheet

Describe areas to target for improvement or growth:

Present **GOALS** that will enable improvement or growth. Give each goal the S.M.A.R.T. check [Specific – Measurable – Attainable – Relevant – Time-bound]:

| | | S | M | A | R | T |
|---|---|---|---|---|---|---|
| 1 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4 | | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5 | | ☐ | ☐ | ☐ | ☐ | ☐ |

*Checklist based on worksheet developed by Pi Beta Phi*

## Appendix 1 (page 2 of 2)

List specific **TASKS** that will help you achieve these goals and assign a deadline to each:

| | Task | Target Date | Date Completed |
|---|---|---|---|
| A | | | |
| B | | | |
| C | | | |
| D | | | |
| E | | | |
| F | | | |
| G | | | |
| H | | | |
| I | | | |
| J | | | |

## Appendix 2




### Identifying Library Departments with Contribution or Impact on LibQUAL+® Questions

**Directions:** Ask Library departments to rate the impact or contribution their department can make to the specific aspects of satisfaction, user needs, and outcomes defined by LibQUAL+®.

*1= Little contribution/impact; 2= Some contribution/impact; 3= Substantial contribution/impact*

| | | Dept. 1 | Dept. 2 | Dept. 3 | Dept. 4 | Dept. 5 |
|---|---|---|---|---|---|---|
| **Overall Satisfaction** | | | | | | |
| SAT-1 | In general, I am satisfied with the way in which I am treated at the library. | | | | | |
| SAT-2 | In general, I am satisfied with library support for my learning, research, and/or teaching needs. | | | | | |
| SAT-3 | How would you rate the overall quality of the service provided by the library? | | | | | |
| **Information Control** | | | | | | |
| IC-1 | Making electronic resources accessible from my home or office | | | | | |
| IC-2 | A library Web site enabling me to locate information on my own | | | | | |
| IC-3 | The printed library materials I need for my work | | | | | |
| IC-4 | The electronic information resources I need | | | | | |
| IC-5 | Modern equipment that lets me easily access needed information | | | | | |
| IC-6 | Easy-to-use access tools that allow me to find things on my own | | | | | |
| IC-7 | Making information easily accessible for independent use | | | | | |
| IC-8 | Print and/or electronic journal collections I require for my work | | | | | |
| **Library as Place** | | | | | | |
| LP-1 | Library space that inspires study and learning | | | | | |
| LP-2 | Quiet space for individual activities | | | | | |
| LP-3 | A comfortable and inviting location | | | | | |
| LP-4 | A getaway for study, learning, or research | | | | | |
| LP-5 | Community space for group learning and group study | | | | | |

Worksheet for: Preparing to Work Effectively with LibQUAL+® Survey Results Workshop. Developed by Rayna Bowlby and Martha Kyrillidou, Association of Research Libraries, Washington, DC, 2007, with acknowledgement of Dan O'Mahony and staff at the Brown University Library.

## Appendix 2 (continued)

| | | Dept. 1 | Dept. 2 | Dept. 3 | Dept. 4 | Dept. 5 |
|---|---|---|---|---|---|---|
| **Affect of Service** | | | | | | |
| AS-1 | Employees who instill confidence in users | | | | | |
| AS-2 | Giving users individual attention | | | | | |
| AS-3 | Employees who are consistently courteous | | | | | |
| AS-4 | Readiness to respond to users' questions | | | | | |
| AS-5 | Employees who have the knowledge to answer user questions | | | | | |
| AS-6 | Employees who deal with users in a caring fashion | | | | | |
| AS-7 | Employees who understand the needs of their users | | | | | |
| AS-8 | Willingness to help users | | | | | |
| AS-9 | Dependability in handling users' service problems | | | | | |
| **Optional (local) Questions** | | | | | | |
| OP-1 | | | | | | |
| OP-2 | | | | | | |
| OP-3 | | | | | | |
| OP-4 | | | | | | |
| OP-5 | | | | | | |
| **Information Literacy Outcomes** | | | | | | |
| OUTC-1 | The library helps me stay abreast of developments in my field(s) of interest. | | | | | |
| OUTC-2 | The library aids my advancement in my academic discipline. | | | | | |
| OUTC-3 | The library enables me to be more efficient in my academic pursuits. | | | | | |
| OUTC-4 | The library helps me distinguish between trustworthy and untrustworthy information. | | | | | |
| OUTC-5 | The library provides me with the information skills I need in my work or study. | | | | | |

Worksheet for: Preparing to Work Effectively with LibQUAL+® Survey Results Workshop. Developed by Raynna Bowlby and Martha Kyrillidou, Association of Research Libraries, Washington, DC, 2007, with acknowledgement of Dan O'Mahony and staff at the Brown University Library.

# Integrating Assessment and Planning: A Path to Improved Library Effectiveness

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## Abstract
This paper explores the effect of integrating assessment and strategic planning at a library serving a medium-sized university with a few fledgling doctoral programs and limited resources. At the 7th Northumbria Conference in 2007, Dole et al.[1] presented a paper that compared and contrasted the processes and results of integrating assessment and strategic planning at the Ottenheimer Library (the University of Arkansas at Little Rock, UALR) and a library serving a large doctoral research extensive university (Kansas State University). This paper builds on the research presented at Northumbria and traces the history and development of the integrated approach at UALR.

Keywords: Strategic Planning, Assessment, Performance Measures, Organizational Change

## Introduction
Many institutions conduct strategic planning before adopting an assessment program. The University of Arkansas at Little Rock (UALR) has been experimenting with the process of integrating strategic planning and assessment from the beginning. In fact, the strategic planning task forces agreed unanimously not to implement any critical strategies until the library had begun assessment and obtained data on user needs and preferences.

In striving for improved effectiveness, libraries are often challenged by staffing and budget needs. An integrated approach can avoid duplication of effort and accelerate positive change, leading to more efficient use of available staff and funds. This paper explores the effects of such an approach at one institution.

## Literature Review
A scan of the literature shows frequent examinations of the use of strategic planning and assessment as separate tools. Research combining the two in application occurs less frequently; case studies combining strategic planning, assessment, and organizational change are even less frequent.

Dole et al.[2] reviewed the literature tracing the development of strategic planning in libraries from its introduction in libraries and higher education in the late 1970s. They suggested that, although there are numerous definitions of strategic planning, most contain similar elements and underlying philosophy. Strategic Planning should link the library's priorities to the priorities of the parent institution, the needs of the library users, and the allocation of library resources. Matthews[3] defined it as "a continuous and systematic process in which the members of an organization involved in planning make decisions about its future, ensure that procedures and operational policies are designed to achieve the future and determine how success is to be measured."

Butler and Davis[4] suggested that "perhaps the greatest strength of strategic planning is that it provides a process whereby library administration and staff can analyze their environment and relate the results of their analysis to organizational goals, objectives, and future plans." Participants discuss the effects (positive and negative) of critical issues and of constant change on their ability to achieve the vision they set.

Dole et al.,[5] Blixrud and Dole,[6] Kyrillidou,[7] Blixrud[8] and others also trace the development of library assessment from descriptive statistics (input and output measures) to assessment of outcomes and added value. They link the development of outcomes measurement to increased demand for accountability from parent institutions and governmental agencies and the transition from the traditional model of the library as storehouse to that of the library as portal.

A literature review identifies few articles describing an integrated approach to assessment and planning. More than ten years ago Lakos and Phipps[9] introduced the concept of a "culture of assessment" in which planning and policy are based on facts, research, and analysis of users' needs. Some libraries are actively trying to build such a culture where assessment precedes and provides the basis for planning. Lakos,[10] Hiller and

Self,[11] Franklin,[12] and Beck[13] described attempts to link assessment with strategic planning at ARL libraries. Dole, Hurych and Liebst[14] described similar attempts at Carnegie MA I libraries. Several studies[15] report the integration of a specific assessment tool (LibQUAL+®) and strategic planning.

## Organizational Change

We are living in times of rapid technological, social and economic change. The role, services, and organizational structure of libraries are under scrutiny. There is pressure for libraries to become user-centered, but the shift from librarian-centered or collection-centered to user- or learner-centered is a major change. Covey[16] suggests that such a change requires the conscious redesign of the infrastructure and frame of reference that define appropriate and inappropriate values, expectations, and activities. Strategic planning is one way to introduce this conscious redesign. The strategic planning process forces participants to examine individual vision, values, expectations and activities, and; after discussion and negotiation, come to a consensus regarding institutional vision, values, expectations, and activities. Moving from discussion to implementation, however, is a major challenge.

## Integrating Assessment and Planning: First-Hand Observations at UALR

The University of Arkansas at Little Rock (UALR) is a unique institution at a pivotal point in its developmental cycle. Established in 1927 as a junior college, the University awarded its first doctoral degree in 1990 and in 2000 was classified as a Carnegie DRU (doctoral university/research intensive institution). UALR offers a wide range of undergraduate, graduate, and professional programs through the doctorate in humanities, social sciences, sciences, business, education, and professional studies. The University currently enrolls almost 12,000 full- and part-time students: 9,494 undergraduates in 78 majors and 2,641 graduate and professional students in more than 49 programs. There are over 800 full- and part-time faculty. Major units include the colleges of Arts/Humanities/Social Sciences, Business, Education, Science and Mathematics, Law and Information Science, and Systems Engineering. UALR is also a public, metropolitan university with a diverse student population. Forty seven percent of the students are in the traditional 18 -24 year old age group; 45 percent attend part-time.

The UALR Ottenheimer Library has a staff of 13 librarians and 25 support staff. There is a separately administered Law Library. Librarians have faculty status. The collection includes almost 400,000 volumes and over 48,000 serials, many in electronic format. The overall operating budget is nearly $4.8 million. The University, the State, and the Library have histories of making do with limited resources. The UALR Ottenheimer Library staff recognizes that its strategic planning and assessment efforts may serve as a model for other libraries striving to overcome similar obstacles.

In the past, the Ottenheimer Library conducted some traditional strategic planning. During the 1970s, 80s, and 90s, library planning consisted mainly of brainstorming sessions which did little more than produce planning documents. Three main reasons for limited success in implementing previous strategic plans were: top-down planning, lack of structured approach, and failure to identify user needs.

In July 2006, formal strategic planning began with the appointment of a new Library Dean. Work began immediately with a retreat for all library employees. Mission and vision statements, which a working group later revised and edited, emerged from brainstorming sessions at the retreat. In September of that year, the Library Dean approved the statements and distributed them to the Library staff.

From October 2006 to July 2007, different groups worked on developing goals, objectives, and strategies based on the mission and vision statements. Changes in the composition of working groups helped to bring new ideas to the table and involved as many people as possible in planning. A steering committee, appointed for the duration of the plan (2006-2009) and chaired by the Dean, provides oversight. The second retreat, July 2007, resulted in a revised strategic planning document, a mandate to form new working groups and to initiate an assessment process. These strategic working groups agreed unanimously not to implement any strategies until the Library had begun assessment and obtained data on user needs and preferences. There are pros and cons to this approach. What worked? The strategic planners didn't initiate actions because they "knew what the users wanted." What didn't work? The Collections, Facilities and Training Task Force were unable to embark on major projects; as a result some task

force members may have become disenchanted and the task forces themselves may have lost momentum. Advocating patience was difficult. Making sure that decisions were based on user needs and perceptions was also difficult.

Initial assessment initiatives included focus groups (fall 2007) and LibQUAL+® (spring 2008). The results of these assessment initiatives were shared with the entire library staff at the third retreat, July 2008, and with department heads and Strategic Planning task force chairs in additional meetings.

Both LibQUAL+® and focus group respondents ranked the Library as barely adequate in the following areas:

FACILITIES: Provision of space that inspires study and learning, a comfortable and inviting location, a getaway for study, learning or research.

ACCESS: Electronic resources accessible from home or office. Library Web site enables users to locate information on their own. Easy-to-use tools that allow users to find things on their own. Modern equipment that lets users easily access needed information.

COLLECTIONS: Print and electronic collections need for teaching, learning, and research.

SERVICES: Employees who are consistently courteous. Employees who understand the needs of their users. Employees who are willing to help users. Employees who are dependable in handling users' service problems. Employees who have the knowledge to answer user questions.

To respond to the concerns expressed by users and address deficiencies, the Library is developing the following action plans:

FACILITIES: Facilities will be a Strategic Planning priority for 2008-2009. The Facilities Task Force will conduct user studies to identify the best place for services and collections. New furniture has been ordered to create comfortable and inviting areas for study and learning. Large plasma screen TVs have been added to all floors of the Library to provide public service and safety announcements, library and university information. and access to news broadcasts.

ACCESS: The Library partnered with University Computing Services to expand the number of computers and hours of services in the student computing lab located in the Library. The Library will partner with the office of the University Web Services Coordinator to conduct Web usability studies before redesigning the Library Web site. Redesign of the Web site is a priority for 2008-2009.

COLLECTIONS: The Library will conduct the ARL Collection Analysis Project to identify and implement an efficient model that meets the teaching, learning, and research needs of the users. The library liaison program will be examined and improved.

SERVICES: The Library will respond to the red flags raised by assessment responses and make the development of a user-centered, service culture a priority.

The Ottenheimer Library is poised for radical change in how it plans for and provides effective services. Business as usual based on what library staff members think users need will be discarded as a non-workable model. The strategic planning process is fostering a change in how library staff thinks about ways to improve the Library. There is a growing recognition that effective planning must include assessment data and the staff appears to be eager to begin the process. Library employees, particularly support staff, are empowered by their inclusion in the planning process, but keeping them enthusiastic about the process and motivates requires constant attention.

This change in thinking is a significant one for an organization like the Ottenheimer Library, which has not previously enjoyed this level of participation in planning. The Library is gearing up for substantial changes in organization, and adding new faculty who will be immersed in this process.

## Conclusions

Many writers examine only one facet—assessment OR a specific performance measurement instrument OR strategic planning OR the organizational change. This paper examined the effect of an integrated approach and delaying action plans until assessment provided data on user needs. This decision may have slowed the development and implementation of action plans—or it may have prevented costly mistakes and unnecessary actions. Time will tell.

The authors suggest that the integration of assessment and strategic planning needs more

study. They ask whether this combination is a new approach to planning or merely an example of the Culture of Assessment advocated by Lakos, Phipps, and others. They hope that this publication will encourage further research in the examination of the integrated approach.

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# Making a Difference: From Strategic Plan to Business Plan

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## Abstract

With the arrival of a new Vice Provost and Director of Libraries in August 2006, the Emory Libraries began and soon completed work on a revised strategic plan. What is different this time around? The focus has been on two key questions:

- How do we keep the plan active in the life of the organization?
- How do we align strategic planning and operational decision making?

Through the combined efforts of an external consultant and members of the staff, the library has developed a business plan that includes a set of activities, processes, and tools to report progress on accomplishing the goals of the plan to staff members in an ongoing, systematic way. The strategic plan has been enlivened through a set of practices designed to keep the organization moving forward, track progress toward achieving goals and initiatives, and align resource allocation and decision-making with strategic vision.

The Emory Libraries business plan process and tools will be useful to others who are charged to align strategic planning and operational decision making while demonstrating accountability to both internal and external constituencies.

Keys to the Emory strategy include:

- Creation of a business plan for each strategic and operating unit in the library (Business Plan Workbook; development and sharing of action plans);
- Creation of a performance reporting and tracking process that requires accountability and transparency (monthly strategic plan reporting meetings: POPs [Project On a Page], change requests, issues management); and
- Assignment of roles and responsibilities for moving the process forward and for following up and managing the ongoing work (including a continuous feedback cycle of frequent checks of process performance combined with ongoing adjustments).

Challenges and efforts to address them:

- Lack of experience in action planning, project management, and development of metrics;
- Lack of experience among library leaders in developing and publicly presenting crisp, succinct updates on progress as measured against an existing, detailed, approved plan; and
- Difficulty adapting to the discipline of using a common framework for evaluating and reporting.

## Literature Review

Strategic planning is ubiquitous in public and private organizational settings[1] (corporate entities, governmental organizations, not-for-profit groups/institutions),[2] but has only recently begun to gain prominence in (academic) library environments. Riggs' *Strategic Planning for Library Managers* created some stir back in the mid 1980s as one of the first major works to deal exclusively with the application of strategic planning to the library context.[3] However, as Matthews has noted, even twenty years after the publication of Riggs' work, the strategic planning and management library science literature has remained relatively minimal. Brown and Blake-Gonzalez provide one of the most useful literature reviews of strategic planning from its early origins in the 1940s through its more contemporary library-specific manifestations.[4] The authors describe the positive and negative impacts of strategic planning on academic libraries including more rigorous research methods and political pressures. They further argue that "until empirical evidence of the strategic planning process in libraries is shared," managers must look to case studies and literature reviews as the means to understand the utility of the strategic planning process.[5]

Matthews argues that despite the scant attention devoted to strategic management and strategic planning, "the importance of strategies . . . within any library cannot be overstated."[6] In the 1990s, Johnson and Butler and Davis both offer

persuasive arguments for libraries to engage in strategic planning as a "catalyst" for examining policies, procedures, and processes in information provision and delivery.[7] In 1997, Riggs made another call for the vital need for strategic planning in the academic library environment. Riggs notes that "unlike traditional planning, strategic planning is ongoing and iterative, involves the development of cognition, and is a learning process."[8] Riggs goes on to argue that strategic planning requires libraries to be agile, flexible, and engaged, and is one of the only means by which libraries can adapt to inevitable transformation and change in the provision of information resources and facilities. Johnson makes a similar argument for the fundamental need for strategic planning to ensure efficient library services.[9]

Challenges of technical and organizational change have fueled a number of important works on library management. For example, Prentice's *Managing in the Information Age*, presents a discussion of the contemporary library setting grounded within broader organizational and management theories and concepts.[10] The third part of the book is the most relevant for strategic planning and offers some practical advice on implementation and evaluation.

The how-to of strategic planning, particularly in regards to its implementation, dissemination and evaluation through the organization has received less substantial attention than strategic planning as a concept. Some recent works have attempted to bridge this gap between the planning concept and its actual application. Prentice, for example, provides some illustrations of the more conceptual features of strategic planning (and management, more generally). Brown and Blake-Gonzalez also outline some of the major steps, with a few examples thrown in for good measure. Johnson also provides a number of interesting illustrations in her discussion of strategic planning. Matthews's *Strategic Planning for Library Managers*, which serves as sort of an updated sequel to Riggs' landmark work *Strategic Planning for Library Managers,* provides an excellent adaptation of strategic planning concepts and empirical applications. Matthews focuses not only on the "abstracts" of strategic planning but also on the actual process and implementation. For example, he devotes an entire chapter to assessment and revisions to the strategic planning process in order to ensure its viability and longevity in the organization. Numerous illustrations are provided throughout the work. Schwartz et al. also provide a number of real-life examples of organizational and planning challenges that libraries have encountered.[11]

Many library managers and administrators would benefit from more actual examples of strategic planning and the various permutations it can take within the library organization. For example, how did (does) the organization actually measure progress on objectives? At what level is (was) strategic planning introduced? Are there specific forms and documents employed for strategic plans? What has been the reaction of managers to these new processes, e.g., is there notable resistance or passive acceptance?

As outlined earlier, we strive in this paper to provide concrete examples for how the Emory Libraries have attempted to incorporate and integrate strategic business planning and assessment into our everyday processes.

## Strategic Planning Journey

The Emory Libraries began laying out "Strategic Directions" in documents in the late 1990s. These included:

- Be a leader in electronic resources and services through innovative programs, projects, and partnerships;
- Build distinctive special and archival collections in English-language modern literature and African American Studies;
- Support teaching and research programs in alignment with University mission and priorities; and
- Develop and maintain inviting and functional facilities conducive to learning.

These principles have persisted from the first comprehensive strategic plan issued in 2005 through today's iteration of the plan. However, the similarities end there. The strategic directions were aspirational statements, evidence that the organization had a vision of the kind of library it wanted to be. The vision was framed from the perspective of the libraries and librarians, not from that of the customer. In addition, the narrative of the plan presented so many recommendations that there was no clear focus or direction, essentially no roadmap to achieve the goals.

Emory University began a serious strategic planning initiative in 2004 under the leadership of then new President James W. Wagner. The libraries' planning was in alignment with that process, and

the 2005 document was the first result. In 2005 and 2006, the plan was revised and updated, primarily as an annual task for campus reporting. Then, things changed.

In August 2006, Rick Luce arrived from Los Alamos National Laboratory Research Library as the new Vice Provost and Director of Libraries. His vision for the Emory Libraries included development of a more customer focused, process oriented, and data driven organization. Among his goals also was to revise the strategic plan and to establish processes that would keep the work of strategic planning alive in the organization. In late 2006, the library strategic plan was revised to reflect the vision that Luce had for taking strategic planning at Emory Libraries to the next level and shifting the libraries' paradigm from supplier to customer focus.

The revised strategic plan was developed in consultation with an external consultant, Jude Heimel of Jude Heimel & Associates. Luce and Heimel had worked together during his tenure at Los Alamos, and it was to be part of Heimel's role to develop processes and practices that would carry the plan from just a document that described a narrative wish state, to a plan that was enlivened and active through an organizationally implemented business planning process. The strategic plan was crafted so that it could be divided into different components, and that segmentation was key to enabling its translation into business plans.

The 2006 revision of the strategic plan included a library vision aligned with campus vision, an environmental assessment or SWOT (strengths, weaknesses, opportunities, threats) analysis, and three goal areas, with multiple initiative areas within each of the goals:

- Digital Innovations (initiatives: Institute for Digital Scholarship; and Informatics);
- Special Collections (initiatives: Signature MARBL Facility; and Distinctive Research Collections); and
- Customer-centered Library (initiatives: Branch Library; NextGen & Digital Library Services; Bridge to 21st Century Library; and Transformation of Library Spaces and Services).

## Year One: Process

The first year business planning process was a big first step. While the libraries had planned within the strategic planning process, the operations and implementation planning had not been very well aligned, consistent or thorough. With the help of consultant Heimel, a group of five library staffers, dubbed the Core Team, developed an initial business plan template. This template was based on the general business plan outline used by start-up companies and corporations. The group tailored the business plan outline for more specific needs within the libraries. The process required operating teams and initiative groups to discuss and review their customers, processes, alignments with strategic initiatives, and staff effort toward the work of the unit and initiatives. Teams and groups also described their funding needs above the current level of support.

Each operating team and initiative group had several months to work with the business plan document in order to hold discussions in developing their plans, gain agreements with other teams they would interface with, develop tactics and milestones, create a timeline, and document resource needs. Once the plans were complete, the Core Team met with the leaders of the initiatives and operating units to discuss their plan and recommend revisions. After the revisions were completed, the complete business plan was posted for all library staff to view.

Once the plans were completed, the initiatives were reviewed and either "turned on" or put on hold. Those that were turned on were considered active initiatives to be pursued by the units. Monthly reporting meetings were arranged for reporting on progress status, and bringing to light issues deterring progress. These meetings were open to all staff members, but the primary audience was the Director. A concise reporting template, the POP (Project On a Page), was provided along with very strict time limitations of 10 minutes for presenting and 10 minutes to answer questions. Initiatives reported quarterly while operating units reported twice a year.

## Year One: People

The Core Team members, with Jude Heimel, were the primary authors of the business planning process and documents. The Vice Provost and Director of Libraries provided overall guidance and recommendations. Each operating unit leader and initiative leader was expected to include their entire team in the planning process. With broad participation, the plans were more widely accepted, understood, and owned. This also allowed all library staff to be able to speak to the strategic plan and future goals of the library. The Core Team's

primary responsibility included: preparing templates and documentation; communicating requirements to the staff; tracking progress and issues with the process, managing the reporting meetings; tracking issues deterring progress; and ensuring follow-up with issues or challenges.

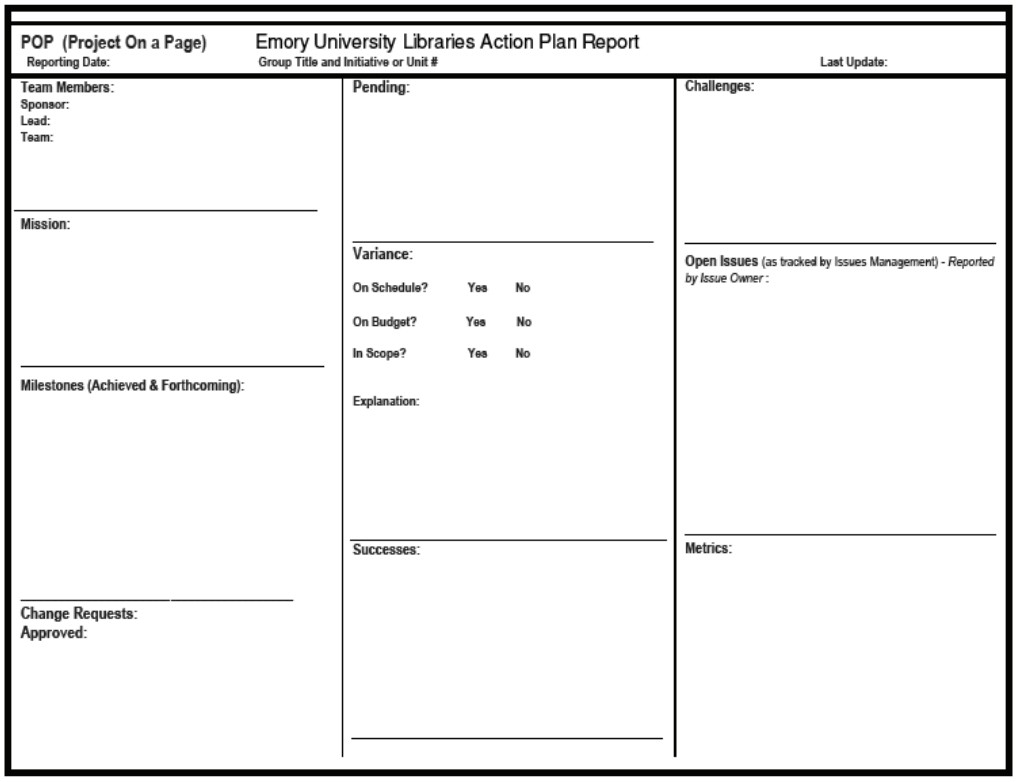
## Year One: Documents

Documentation of planning and processes has been critical to the success of this effort. Not only are all business plans, report-outs, and changes documented, the process itself is documented by the Core Team. The documents are archived in a domain on the Web accessible to all library staff. A staff member can retrieve a business plan for a unit or initiative at any time. The issues are also posted publicly on the site with information about the parties involved with the issue, how the issue will be addressed, and the timeline for resolution. Each issue has an issue owner who is accountable for working through the issue.

The Core Team is also responsible for documenting the process, taking suggestions for improvements, and modifying the process after discussing feedback. All documentation is publicly available to staff members posted in one location on the Web.

## Year One: Performance Reporting and Tracking—the POP

Perhaps the most visible and tangible representation of the first year process is the POP, or Project On a Page, as it was adapted for library use.



**POP (Project On a Page)** Emory University Libraries Action Plan Report

Reporting Date: | Group Title and Initiative or Unit # | Last Update:

**Team Members:**
**Sponsor:**
**Lead:**
**Team:**

**Mission:**

**Milestones (Achieved & Forthcoming):**

**Change Requests:**
**Approved:**

**Pending:**

**Variance:**

On Schedule? Yes No

On Budget? Yes No

In Scope? Yes No

Explanation:

**Successes:**

**Challenges:**

**Open Issues** (as tracked by Issues Management) - *Reported by Issue Owner* :

**Metrics:**

Each initiative and operating unit was required to report according to the established reporting schedule. The POP represents many of the key elements of the business planning process:

- Unit action plan progress report;
- Change request process to update action plan;
- Place to raise cross-cutting issues that cannot be resolved by a single unit;
- Continued engagement with the Business Plan Workbook, which takes the planner through a variety of questions about mission, customers, resources prior to action plan development; and
- Public reporting of progress to the organization, presented at open forum meeting, with some units reporting each month.

This disciplined approach to planning and the accountability it required was new for the library staff. The first reporting meetings were challenging both for those who were reporting and for those attending the meetings and hearing the reports, not the least of these being the Vice Provost. Many of the reports fell short of expectations in the nature of the information they contained and in the ability of reporters to succinctly convey required information.

As the year progressed, POPs contributed to peoples' ability to think about their reports in a more meaningful way, to look at the reporting meetings as an opportunity to update others on their progress, and to hear about and connect to the work taking place throughout the libraries.

From the time the year one plan was developed and planning for year two began, other work continued in the organization around the strategic and business planning processes. There were monthly reporting meetings, made up of unit reports, often generating discussions that led to identification of organization-wide issues. Change requests, as noted on the POP template, were expected whenever a plan developer needed to make a substantive revision to their FY 08 action plan. Many change requests came through and were reviewed for approval or further action. Issues that were identified in reporting meetings were being tracked by the Core Team and reported on at the monthly meetings. Additional work continued under the guidance of Heimel, including development of an Assessment Framework document and adoption of a set of Research Assumptions. Throughout the year, the Core Team met to discuss documentation, process, meeting effectiveness, and a host of other items to continuously improve and refine the process and its usefulness. Staff members who attended the meetings provided useful feedback and suggestions for improvement. Much of what was learned was then folded back into planning for the second year.

Overall, the first year witnessed a large change in planning and documenting work, customers, processes, and timelines. This effort has allowed the library to refine its reporting and introduce a new level of detailed planning in year two.

## Year Two Changes (Planning for FY09)

The second year of business planning introduced several new elements to the process. Additional tools were incorporated that strengthened the focus on customer perspective, and again proved challenging to library staff. Below, we outline these changes, their purpose, and their consequences (some of which it is undoubtedly still too early to predict).

1. **Process Map:** The purpose of the process map was to outline high-level processes within operational units and operational components of strategic initiatives. The process map furthers examining and measuring an observable chain of tasks from inputs to output to the customer (the value added), and mechanisms to measure whether the customer has received what they need (our ongoing work with metrics and customer requirements). Further, the process map highlights handoffs between library departments thus providing a detached, objective mechanism for discussions between departments about what they receive from and hand off to each other. The level of granularity was kept to a minimum. The process map follows a rather strict rubric of "the process begins with . . ." and the "process ends with . . .". Nestled between the beginning and end points are the actual steps with the groups/units involved. The principal objective of the process map is to better understand who is involved in the process, in what manner, and to what extent. The process map can assist managers in locating potential problems or inefficiencies in the process chain. The most significant challenge for the process map involved limiting the level of granularity and eliminating micro-processes in favor of more macro-level processes.
2. **Customer Segmentation:** The customer matrix required units to provide an overview of their customer base or "clientele" (external and/or internal). For some characteristics, there is a focus on the needs and motivations of the individuals or groups, particularly in relation to their use of and/or need for library services and facilities, while other characteristics describe customers without regard to their need for library services. Whenever possible, the customer matrix should include quantitative or qualitative data of customer characteristics. Matrix construction proved to be a challenge for a number of planners, as it required planners to more deeply understand, both qualitatively and quantitatively, incentives and motivations for customer engagement with the library as well as more numeric measures (e.g.,

the number of graduate students, percentage of science students who use e-journals).

3. **Metrics:** The concept of metrics was not entirely new this year. However, the construction and development of metrics became more rigorous. In other words, more guidance was provided in understanding what metrics are, which metrics are actually valuable (in the first place), and how they can be used to measure progress against the action plan. Planners were required to identify two or three "key" measures for the upcoming fiscal year.

Because of the expectations and tools incorporated into business planning for year two, there were several opportunities for plan developers to meet with Heimel and the Core Team as they began to develop the year two plans and attempted to use the new tools effectively. There were meetings with individual plan developers, divisions, cluster groups, and others as needed to assist plan developers in refining their plans, updating their vision, checking for inclusion of all appropriate collaborators, and developing a workable, meaningful, aligned plan. Plan developers received thorough feedback on their Business Plan Workbook, high-level process map, customer segmentation matrix, and metrics.

## Conclusion

As of this writing, late August 2008, plans are still being reviewed and possibly revised as resource allocation information becomes known; a work in progress. The Assessment Coordinator continues to collect proposed metrics for evaluation of their alignment with organizational strategy and goals. The libraries' focus on metrics is in keeping with University directions, where unit scoreboards or dashboards are being mandated for later this year.

Continuous improvement has been a key component in the work that has been underway in the Emory Libraries since the business planning process began. Whether it is the business plan reporting meetings, documentation of the process, the workbook and tools, or the process of developing the FY 09 plans, each discussion of "what comes next" has an element of improving both the process and the skill levels of the staff involved in the process. So the meetings with staff at the pre-development stage of the new plans aided in the development of the new plans and helped the Core Team improve the process by gaining understanding of the most critical staff development needs, and identifying ways to address those needs.

There have been and continue to be enormous challenges for us in this process. While there are a few staff members with project management expertise and experience, this experience is not widely held in the organization. We have used tools that have the smallest learning curve, but which therefore have more limited functionality. Only a few people are using project management software to try to manage their action plans, while most plans are developed and revised in Excel templates. While this medium may change in time, we believed it was more important to work with the concepts than to become fixated on learning a tool. Creating an action plan for a year's work, reporting the plan's progress, changing the plan when needed, and doing that on a regular quarterly or semi-annual basis, has been a new way of life for us. The time it takes to develop our Business Plan Workbooks and accompanying materials seems excessive to us, because of our current lack of skill and inefficiency in planning. Practice and experience should reduce this perceived excessive time commitment.

In addition, no matter how good the plan and the execution, we also need to be able to communicate effectively, succinctly, and with visual representations, the key points and essential activities as we update others on our efforts. While most library leaders have experience making presentations at meetings and conferences, that experience did not readily translate to the kind of presentations required in the strategic plan reporting meetings. These meetings help to inform all library staff, but they are particularly important for giving the Vice Provost the information he needs for managing, and providing a dashboard type of report that gives him a snapshot of key unit/initiative activities during the specified time period.

Development of metrics is another area in which our previous experience does not provide a direct trajectory toward our desired destination. Librarians are good at counting transactions and volumes, but many of us lack experience at thinking through our work processes, viewing our work from our customer's perspective, and developing meaningful measures of impact and success. As a cross-collaborative organization, we still struggle with clarity of ownership in decision making. Using a common framework for managing, evaluating, and reporting on our work may help

improve clarity and the quality of decision making.

The Emory Libraries' process as it has so far evolved has these characteristics and components:

1. A strategic plan for the library that is in alignment with the University's strategic plan;
2. A strategic plan that was revised from a general narrative plan to one that was structured to enable the translation of the strategic plan into multiple business plans;
3. Business plans that flowed from strategic initiatives, and plans for operating units that demonstrate contribution to the accomplishment of the initiatives and achievement of the goals of the overall plan;
4. Processes to support and manage to the plans, including monthly reporting meetings that help keep the strategic plan alive and create accountability and transparency of the process and a Core Team charged with oversight and continuous improvement of the process and documentation;
5. An annual business planning cycle that is progressively raising the bar for planning, process understanding and improvement, and development of plans that will demonstrate increasing sophistication over time. The process includes increasing focus on understanding customers, characteristics of who they are and the world they live in, with the goal to better understand them;
6. Commitment to the process from the Vice Provost, who demonstrates patience and consistency to enable the organization to move from basic compliance mode to a culture of creative problem solving.

As Riggs states, "The heart of strategic thinking and planning is the creation of a set of initiatives allowing an organization to maintain stability or win a new position amidst a blizzard of discontinuities, unprecedented threats, and surprising changes. . . . Real strategic change in libraries requires inventing new ways of doing things, not simply rearranging existing things."[12]

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## Endnotes

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# Analyzing LibQUAL+® Comments Using Excel: An Accessible Tool for Engaging Discussion and Action

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## Abstract

LibQUAL+® comments are a valuable source of information for strategic planning, organizational development, and marketing. However, the cost of acquiring and learning a purpose-specific software package may be a barrier to comment analysis. This paper discusses how the LibQUAL+® dimensions and questions were used as a framework to code comments, and Excel's database sort function was then used to sort the comments by LibQUAL+® dimension, question, and theme. The tallied results were used to (1) facilitate discussion of specific adequacy and superiority gaps; (2) prioritize top respondent-identified issues for action; (3) identify quotes to use as part of a noise-reduction PR campaign, (4) advocate for acquisition of Web of Science; and (5) inform development of the relationship between subject selectors and their academic departments.

## Introduction

**Background.** A significant percentage of LibQUAL+® respondents augment their quantitative responses with comments. These comments offer a rich source of feedback to the library, and can yield valuable information for strategic planning, personnel management and staff development, and marketing. This was the case during Northeastern University's (NU) 2004 and 2007 administrations of LibQUAL+®. In 2004, 52%, or 134 of the 260 respondents, chose to comment. In 2007, the percentage was 40%, with 637 comments from the 1608 respondents.

**Why Analyze the Comments?** While simply reading the comments is interesting and may reveal broad themes, analyzing the comments to identifying clusters of themes, and then associating those themes with specific user groups allows targeted follow-up actions. Associating these themes with specific LibQUAL+® questions has the additional benefit of providing insight into the reasons for gaps between minimum or desired service levels and the observed service level in specific service areas, among specific groups of respondents. In essence, it can serve as a partial stand-in for a follow-up focus group or survey, by answering (or providing clues to) what respondents were thinking when they gave us a particular score, and what we have to do to come closer to their ideal level of service.

**Challenges.** Analyzing the comments may pose a practical challenge. Acquiring and finding time to learn a purpose-designed software package, such as ATLAS.ti, may be a barrier for some libraries. This was the case when I was tasked with coordinating Northeastern's administration of LibQUAL+®. The University's Office of Institutional Research was an invaluable source of expertise on obtaining a representative response and other technical aspects of survey administration; however, no other library staff were available to assist in survey administration or analysis, and release time was not available. It was not possible to attend ARL's Service Quality Evaluation Academy (which includes training on ATLAS.ti), and acquiring and learning a new software package seemed like an insurmountable barrier.

Reading through the survey results, it was clear there was a rich pool of information that library users had taken the time and effort to share with us. Many of the responses were brief: "great job!," "love the library!"; but many more demonstrated considerable thought and reflection about the library overall, its services, collections, staff, facilities, support, purposes.

At the same time, there was some frustration within the NU Library about what to do with the LibQUAL+® results. Although the gap scores identified areas where different user groups felt the library didn't meet their expectations, the scores themselves didn't identify specific action items that could be addressed. Broad themes floated to the surface upon reading the comments, but I was convinced that much more, and more specific and usable information, could be extracted, and I also

felt we owed it to our respondents to take the next step in determining how we could use their comments to make the Library better meet their expectations.

## Framework for Analysis

**Using Excel.** As the Library's budget, personnel, and facilities officer, I frequently use Excel to track and analyze data, and in other contexts have used its ability to make flat databases. Though this may be a case of 'if you have a hammer, everything looks like a nail,' the wide availability of Excel, and the ease of using this approach, makes it an accessible alternative for those who, like me, may not have the time or money to learn a purpose-specific tool. As I hope to show, this approach yields useful information that can engage discussion and identify easily implemented action items that will make a difference in the perception of the library's overall quality.

Using Excel does pose an important technical challenge. Excel 'databases' are flat—they're more like sortable spreadsheets. Unlike a true relational database, you cannot directly associate one comment with multiple dimensions. However, individual LibQUAL+® comments often contain multiple ideas, and it is obviously important to associate each idea with the respondent's demographic information and the full original comment, to retain the context. I thought it would be relatively easy to get around this limitation by making multiple copies of a comment and its associated demographics, then bolding the portion of the comment being analyzed. This is a somewhat labor intensive approach, in that it requires lots of copying (which can get pretty tedious if you have a lot of comments), but its great advantage is that it is also very easy to do.

**LibQUAL+® Questions as a Framework for Analysis.** A second practical challenge was identifying a useful framework into which to sort the comments. During NU's first administration of LibQUAL+® in 2004, I selected groups based on inspection of the comments. This approach allowed me to group together like-themed comments, and was valuable. But, it didn't really illuminate the reasons for specific gaps, and was ultimately not very satisfying.

When NU did its second administration in 2007, I decided to use the LibQUAL+® dimensions, Affect of Service (AS), Information Control (IC), and Library as Place (LP), and the questions within each dimension as a hierarchical framework.

Within each dimension/question, I then identified individual ideas expressed in the comments, and added sub-ideas as needed. In some instances, I also added a positive/negative qualifier. My thinking was that this would help us better understand why we scored the way we did.

A portion of the final list looked like this:

| | |
|---|---|
| **LIBRARY AS PLACE (LP)** | |
| **LP-1** | **Library space that inspires study and learning** |
| | Negative |
| | cybercafe-lighting |
| | Lighting |
| | General |
| | Positive |
| | General |
| **LP-2** | **Quiet space for individual activities** |
| | Cybercafe - negative-too crowded |
| | Individual space |
| | negative - need more/better |
| | Positive |
| | Noise & lack of enforcement |
| | Negative |
| | noise |
| | noise & crowding |
| | Quiet areas - positive! |

## Coding Comments

To show how this worked, I'll work through two sample comments.

**Example 1.** First, here's the raw comment:

> "The library overall has a relaxing feeling to it, especially when it comes to finding the right place to study. With the size of its inventory the resources are infinite. There is barely any interaction with the staff though. This may be because students already have a sense of what they need/are doing before they go to the library." (2007-#101)

Reading the comment, there are three distinct thoughts. The first sentence is about the feel of the Library and its suitability for study: "The library overall has a relaxing feel to it, especially when it comes to finding the right place to study. " I assigned this to Library as Place (LP), and within that LibQUAL+® dimension, to LP-1, "library space that inspires study and learning."

The second thought is: "With the size of its inventory the resources are infinite." This relates to the library's collections, which fall within the Information Control (IC) dimension of LibQUAL+®. From the specific word "inventory" the respondent chose, I judged he was thinking about physical collections rather than electronic, and assigned this comment to IC-3, "the print collections I need to do my work."

The last thought reads: "There is barely any interaction with the staff though. This may be because students have a sense of what they need/are doing before they go to the library." This one is clearly about staff, which is within LibQUAL+®'s Affect of Service (AS) dimension, but it's a little hard to pin down. One gets the sense that the respondent starts off vaguely dissatisfied, but then reconsiders and thinks that maybe the locus of responsibility for low student-staff interaction rests with students rather than staff. It turned out there were a number of responses that were similarly vague—it feels like the respondent feels obligated to try to say something meaningful, and doesn't quite have the mental vocabulary to form the thought completely. When I couldn't relate the idea expressed to a specific LibQUAL+® question, I labeled comments as 'general,' so this one is IC – general.

When completely coded, comment 2007-#101 looked like this (nb: for ease in coding, I used mnemonics as stand-ins for specific LibQUAL+® question numbers; e.g., "LP insp" meant LP-1, "library space that inspires study and learning"):

| | | | |
|---|---|---|---|
| The library overall has a relaxing feeling to it, especially when it comes to finding the right place to study. With the size of its inventory the resources are infinite. **There is barely any interaction with the staff though. This may be because students already have a sense of what they need/are doing before they go to the library** | AS | gen | |
| The library overall has a relaxing feeling to it, especially when it comes to finding the right place to study. **With the size of its inventory the resources are infinite.** There is barely any interaction with the staff though. This may be because students already have a sense of what they need/are doing before they go to the library | IC | print | pos |
| **The library overall has a relaxing feeling to it, especially when it comes to finding the right place to study.** With the size of its inventory the resources are infinite. There is barely any interaction with the staff though. This may be because students already have a sense of what they need/are doing before they go to the library | LP | insp | pos |

**Example 2.** Density of ideas was independent of comment length. For instance, this brief comment had four ideas:

> "A well-run library that has lacked adequate financial support from the administration. More needed in electronic journals as well as books for our students." (2007-#13)

| | | | |
|---|---|---|---|
| **A well-run library** that has lacked adequate financial support from the administration. More needed in electronic journals as well as books for our students. | gen | | |
| A well-run library **that has lacked adequate financial support from the administration.** More needed in electronic journals as well as books for our students. | gen | funding | |
| A well-run library that has lacked adequate financial support from the administration. **More needed in electronic journals** as well as books for our students. | IC | e-jour | neg |
| A well-run library that has lacked adequate financial support from the administration. More needed in electronic journals **as well as books for our students.** | IC | print | neg |

This comment also illustrates some of the difficulties of using just the LibQUAL+® framework to analyze comments in that not all the comments fit this framework. For instance, what do you do with comments on funding? Or on how well the library is run? My solution was to create a limited number of non-LibQUAL+® categories to capture these thoughts.

| |
|---|
| TUTORING |
| General – Funding |
| General |
| INFOCOMMONS |
| N/A |
| SURVEY |

It is also worth acknowledging the limitation of working solo on coding. It's not good practice, because one's own mindset can introduce unconscious biases. It would have been preferable to have at least one other person independently reviewing the comments and coding them. However, this wasn't an option. I did do the coding over a number of sessions, and reviewed my own work, changing the original coding in a number of instances.

## Analysis by Sorting

Once the comments were completely coded, it became possible to sort them using Excel's data sort function, which allows nested sorting. Several sorting schemes provided particularly useful information. Sorting by LibQUAL+® dimension, question, theme, and subtheme, and then summarizing the results illuminated what respondents might have had in mind when they assigned a specific rating to their perceived service experience. For instance, the reason for an unexpected gap between perceived and desired service levels on LP-2 became quite clear when the number of comments related to this question were tallied:

| **LP-2** | **Quiet space for individual activities** | | **83** |
|---|---|---|---|
| | Cybercafe - negative-too crowded | 2 | |
| | Individual space | | |
| | negative - need more/better | 4 | |
| | Positive | 1 | |
| | Noise & lack of enforcement | | |
| | Negative | | |
| | Noise | 70 | |
| | Noise & crowding | | |
| | Quiet areas - positive! | 4 | |

The summaries were then arranged to show those aspects of library service had been most frequently comments upon. The top positive comments were fairly general in nature:

| | **Positive** |
|---|---|
| 88 | I love the library |
| 32 | staff are willing to help |
| 25 | inspirational space |
| 15 | good place to study |
| 11 | staff are knowledgeable |

However, the top negative comments provided a rich trove of feedback on actionable items:

| | Negative |
|---|---|
| 70 | too much noise & lack of enforcement |
| 56 | need longer hours |
| 47 | website is hard to use |
| 43 | more e-journals |
| 32 | more collections (general) |
| 27 | more print collections |
| 21 | more easily accessible information |
| 19 | more electronic resources |
| 19 | better/more access tools (databases) |
| 17 | more journals (general) |
| 17 | need more group study rooms |
| 13 | lack of consistent courtesy |
| 13 | uncomfortable chairs |
| 11 | building is too cold |

This list of 'top comments' answered the desire to take action to improve the Library's perceived service quality, by providing a very specific list. Furthermore, the structure of the Excel 'database' made it easy to pull out the comments in each category. For instance, here is a selection of the comments by undergraduates which I coded as LP-2 (quiet space for individual activities) – Noise – Negative.

| |
|---|
| I wish the library would be more strict on the 3rd and 4th floors. People still talk loudly and yet that's those 2 floors are the most quietest place to study in the library. |
| It is helpful to have different floors dedicated to different noise levels-the forth floor is consistently quiet and helps me to focus on my work when I need to. Group study rooms are also helpful although rarely are supplied with markers and the smaller ones get very crowded-the chairs are too big. |
| The quiet study floors are never quiet anymore. Maybe signs should be bigger letting people know about the third and fourth floor? |
| Cell phones on the quiet study floors = BAD |
| Groups often come in and are loud, it would be nice to see the library staff actively make an effort to direct the groups to the cafe section or remind them others around them came to the library for quiet study. |
| NO CONVERSATIONS ON 3rd OR 4th FLOOR SHOULD BE ENFORCED! |

## Engaging Discussion and Taking Action

### The Top Three Low-Cost Actions

After a presentation to the Library's Management Team (comprised of Library department heads and senior administration), then-Dean Ed Warro decided the Library would act on the top three items which could be improved without additional funding.

Excessive noise was the clear winner. Longer hours and more collections would take more money, which would involve lobbying the University administration. Improving the Web site and making information more easily accessible, though, were areas we could improve, as was improving the consistency of staff courtesy.

*Noise.* We library staff had been annoyed by students talking, and there had been scattered complaints in the Library suggestion box, but the depth of STUDENT concern about this caught us by surprise. With spring semester finals approaching, Dean Warro made responding to this an urgent priority, and the Library's programming and communications committee developed the brilliant idea of quoting students' own comments (anonymously) on posters which were prominently displayed at the entrance to the building, in stairwells, and at the entrances to study areas.

The day after the posters went up, the Library was very noticeably quieter, and Suggestion Box complaints about noise virtually disappeared.

*Web site.* The library Web site was the second area targeted for improvement. Reference desk staff had reported ongoing complaints about the Web site, but the number and intensity of comments on LibQUAL+® got the attention of senior management. The comments showed that respondents perceived linking to journals as a particular problem. A committee was formed with the short-term charge of identifying and making immediate improvements in the display of e-journal holdings, and a second committee was formed to identify alternatives and recommend a replacement for the Library's e-journal management product.

*Consistent Staff Courtesy.* The Library had long prided itself on the excellence of its customer service. In the 2004 administration of LibQUAL+®, we had been surprised by the number of comments concerning lack of staff courtesy, and, with the support of the Administrative Team, the Staff Development Committee conducted a series of workshops to raise awareness of customer perceptions and to equip staff with specific customer service skills. After diligently trying to address this issue, continued negative comments on the 2007 LibQUAL+® really surprised us. Closer analysis showed the comments focused on staff at two specific service counters. Because of the specificity of the comments, it was decided that instead of more training for the staff in general, the managers concerned should work with specific groups of employees, and in some instances with specific employees. To assist in this process, the relevant comments were extracted and forwarded to those managers.

### Other Uses

In addition to the priorities identified by Dean Warro and the Management Team, the ability to sort LibQUAL+® comments was used in two other ways. First, to help advocate for the funding to acquire a key electronic resource, and secondly to inform the liaison relationship between research and instruction librarians and their academic departments.

*Funding Advocacy.* Although the Library's requests for additional collection funding had generally not been able to compete successfully with other University priorities, analysis of the LibQUAL+® comments revealed a small but significant number of science faculty complaints on the lack of Web of Science. These comments were uniformly brief, and limited to this single issue: the LibQUAL+® equivalent of bullet voting. Being able to quote the faculty members' own pointed language communicated their intensity on this issue, and helped the library successfully lobby the Provost's Office for the additional funding to finally acquire this key resource and backfiles.

*Developing Department Liaison Relationships.* The NU Library has been trying for some time to increase the quantity and quality of interaction between the Library's subject selectors and the University's academic departments. At Northeastern, each academic department is assigned to an individual selector, with each selector responsible for liaison with several departments. Liaison activity takes several forms. Most academic departments designate a faculty member as their liaison with the library, and this person serves as the selector's primary contact.

However, selectors are also responsible for sending department faculty general library announcements about new services and resources, and providing the first-line response to requests, comments, and complaints.

Some academic departments are more receptive to library communication than others, and it seemed reasonable to think that equipping selectors with more detailed knowledge of perceptions of library service by students and faculty in their departments would help fine tune the approaches they made to departments' faculty and library liaisons, as well as informing their selection of material for the collections.

In the 2004 administration of LibQUAL+®, I didn't pay adequate attention to this potential use, and failed to question accepting the default broad subject areas provided in LibQUAL+®. Upon analyzing the 2004 comments, it became apparent that it would have been very helpful to know the department in which specific comments originated.

For the 2007 administration, I wrestled with a way to collect this important demographic data without it being onerous to respondents. Northeastern University has a number of colleges, each comprised of multiple departments. My first call was to the wonderful folks at ARL's LibQUAL+® group to see whether it would be possible to have nested pull-down menus—if someone identified themselves as a member of the College of Arts and Science, then they would be presented with a list of Arts and Sciences departments to choose from. When this option proved unavailable, I opted for the clunky but easily understandable approach of concatenating the College + Department, e.g., Arts & Sciences–Physics, or Engineering–Mechanical & Industrial Engineering.

With this demographic data, comments could be sorted by college & academic department, and then by respondent status (faculty, grad student, undergrad). The 'Great Wall of LibQUAL+®' was created by posting a department-specific "radar (or Antarctica) chart" for each academic department, which shows the gaps between respondents' minimum acceptable, perceived, and desired levels of service for each LibQUAL+® dimension and question, gap summaries in tabular form, aggregate demographic data on respondents who identified themselves as affiliated with that department, and those respondents' comments (with demographic data). This rather large array was prominently displayed two long walls in the selectors' home department.

I wish I could say that this information lead to breakthroughs in the library's relationship with individual departments, but although the impact has been more muted, I have heard individual selectors reference LibQUAL+® comments in making decisions about specific purchases. And at least one radar chart was decorated with librarian graffiti, so at least I know that people were looking at them(!).

## Conclusions

Overall, I found that using Excel was an effective method to analyze the LibQUAL+® comments without a significant investment of money to acquire and time to learn a new software package. By taking this route, we were instead able to focus on figuring out what our users were saying, and where we could get the best return in improved perception of service through investments of time and effort—the reason we undertook LibQUAL+® in the first place.

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# Are They Really That Different?: Identifying Needs and Priorities across User Groups and Disciplines at the University of Notre Dame through LibQUAL+® User Comments

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## Abstract

The University Libraries of Notre Dame used the LibQUAL+® survey instrument developed by the Association of Research Libraries (ARL) to measure library user's perceptions of the quality of service and to identify the most important areas needing improvement. The Libraries participated in LibQUAL+® in spring 2002 and in 2006. This study's focus was on the 2006 data.

The survey contains twenty-two core questions that relate to three dimensions of library service quality: Affect of Service, Library as a Place, and Information Control. Libraries participating in the survey are given the option to add five "local" questions. All survey participants are invited to add written comments at the end of the LibQUAL+® survey. The comments are collected by ARL and delivered to each participating institution as text files, providing institutions with another valuable source of data. Over 1000 Notre Dame faculty and students provided written comments on the 2006 survey.

Each comment was analyzed sentence by sentence and mapped to one of the twenty-two core questions or five local questions and to one of the three service dimensions. Mapping each observation allowed for easy identification of those issues most important to users among the three primary user groups and across the various disciplines, and also allowed us to compare the results with the quantitative analysis.

Evaluating both the quantitative and qualitative results of the LibQUAL+® survey has resulted in a better understanding of Notre Dame library user's needs and has provided a clearer picture of where attention should be focused for service improvements. Several of the user-identified issues stemming from the LibQUAL+® have been addressed by the library and are highlighted in this paper.

## Background

### University of Notre Dame

The University of Notre Dame, located near South Bend, Indiana, is an independent, national Catholic university. Demographic data for 2006 included 11,417 students and 1586 faculty. The University is composed of four undergraduate colleges (Arts and Letters, Business, Engineering, and Science), the School of Architecture, the Graduate School, the Law School, ten major research institutes, and over forty centers and special programs.[1] The Graduate School has forty-three master's and twenty-two doctoral degree programs in thirty university departments and institutes.[2] The Hesburgh Libraries of the University of Notre Dame (hereafter, Library) serve the entire campus, with the exception of the Law School. The Library is a member of the Association of Research Libraries, a group of 123 research libraries from comprehensive, research-extensive institutions in the United States and Canada.

### LibQUAL+®

The Library utilized the LibQUAL+® survey in 2002 and again in 2006. Both the 2002 and 2006 survey targeted the three major user groups—teaching and research faculty, graduate students, and undergraduates. The focus of this paper is on the 2006 data.

According the Association of Research Libraries' Web site, "LibQUAL+® is a suite of services that libraries use to solicit, track, understand, and act upon users' opinions of service quality. These services are offered to the library community by the Association of Research Libraries (ARL). The program's centerpiece is a rigorously tested Web-based survey bundled with training that helps libraries assess and improve library services, change organizational culture, and market the library."[3]

The LibQUAL+® survey contains twenty-two questions relating to three dimensions of library service quality: Affect of Service, Library as a Place, and Information Control. The eight questions on Information Control (IC) include ease of navigation, modern equipment, scope, timeliness, convenience and self-reliance, and measure how users would like to interact with the modern library. Affect of Service (AS) includes nine questions designed to evaluate responsiveness, assurance, reliability, and empathy of library employees; whereas Library as Place (LP) has five questions measuring the symbolic value of the library, usefulness of space, and the library as a refuge for work or study. Libraries participating in the survey were also given the option to add five "local" questions selected by local survey administrators from a pool of more than 100 additional questions provided by LibQUAL+® administrators. See Figure 1.

**Figure 1: University of Notre Dame 2006 LibQUAL+® Survey: Core and Optional Questions**

| Affect of Service (AS) | Information Control (IC) | Library as Place (LP) |
|---|---|---|
| Employees who instill confidence in users (AS-1) | Making electronic resources accessible from my home or office (IC-1) | Library space that inspires study and learning (LP-1) |
| Giving users individual attention (AS-2) | A library Web site enabling me to locate information on my own (IC-2) | Quiet space for individual activities (LP-2) |
| Employees who are consistently courteous (AS-3) | Printed library materials I need for my work (IC-3) | A comfortable and inviting location (LP-3) |
| Readiness to respond to users' questions (AS-4) | The electronic information resources I need (IC-4) | A getaway for study, learning, or research (LP-4) |
| Employees who have the knowledge to answer user questions (AS-5) | Modern equipment that lets me easily access needed information (IC-5) | Community space for group learning and group study (LP-5) |
| Employees who deal with users in a caring fashion (AS-6) | Easy-to-use access tools that allow me to find things on my own (IC-6) | |
| Employees who understand the needs of their users (AS-7) | Making information easily accessible for independent use (IC-7) | |
| Willingness to help users (AS-8) | Print and/or electronic journal collections I require for my work (IC-8) | |
| Dependability in handling users' service problems (AS-9) | | |
| University of Notre Dame Local Questions from LibQUAL+® Pool of 100+ | | |
| Library Orientation/Instruction Sessions | | |
| Making me aware of library resources and services | | |
| Accuracy in catalog, borrowing, and overdue records | | |
| Timely document delivery/interlibrary loan | | |
| Adequate Hours of Service | | |

For each question, respondents were asked, using a scale of 1-9 (9 being the most positive rating) to indicate their minimum acceptable service level, their desired service level, and their perception of actual service provided by the library. The survey also asked three questions regarding library usage, three questions relating to general satisfaction, and five questions related to information literacy, in addition to the twenty-two core questions and five local questions. Brief

demographic data, which includes status, discipline, sex, and age group, was collected. Lastly, respondents were welcome to add written comments at the end of the survey.

## Literature Review

Many studies have been conducted on user differences as evidenced by LibQUAL+® survey results and other measures. This study's findings mirrored what others have found, that academic library users' needs and their expectations of the library vary amongst subgroups. Such a result is not surprising based on the differing demands being made on faculty, graduate students, and undergraduate students.

Brown University conducted user studies utilizing focus groups. As Eric Shoaf indicated in his article, library usage findings were similar at Brown, in that faculty were less inclined to visit the library than graduate students.[4] At the University of Iowa, Carlette Washington-Hoagland and Leo Clougherty found that faculty wanted more print books and journals, in addition to an increase in electronic journals and remote access to the collection.[5]

A University of Washington user survey, reported by Steve Hiller, found some similarities among graduate students and faculty in the following areas: use of the library remotely from an office, the importance of print journals, satisfaction in general, and, the value of libraries. He also found the following significant difference, "Faculty and graduate students in the sciences-engineering and health sciences were more likely to use the library remotely rather than visit, view desktop delivery as the highest priority for library support, and value journals (print and electronic) far higher than other resources such as books, archival resources etc."[6]

Ellen Hitchingham and Donald Kenney, in their study of LibQUAL+® survey results at Virginia Tech, observed that "undergraduates, graduate students, and faculty constituents cannot be considered together to create one homogeneous entity called 'our users' because their perceptions of some library services are very alike but very different for other services.[7]

Kayongo and Jones, in their study on Notre Dame faculty LibQUAL+® survey results, found that Notre Dame faculty were similarly positioned with other ARL institution faculty in their dissatisfaction on the Information Control element of library services. The strongest correlation they found for faculty, both at Notre Dame and at other ARL institutions, was between total library expenditures and the adequacy gap scores.[8]

Maria Anna Jankowska et al. discovered that "[g]raduate students and faculty have high minimal levels of acceptable service and desired service in the information control dimension" and "undergraduates have the highest levels of both minimal acceptable service and desired service in the library as place dimension."[9]

Jeff Gatten, describing OhioLINK LibQUAL+® results, found that their graduate students were the least satisfied group in terms of "their perceptions of service quality in relation to minimum expectations, especially on access and collection content issues as reflected in the "access to information" dimension and the five OhioLINK questions."[10]

## Notre Dame LibQUAL+® Overall Results

In the spring semester of 2006, all Notre Dame students and faculty were invited, via e-mail, to take the LibQUAL+® survey. 2737 people completed the survey—1850 undergraduates, 553 graduate students, and 229 faculty. Additionally, over 1000 participants provided written comments at the end of the survey. The response rate was 22.50%, and the results were representative, with the respondent percentages by user group very closely mirroring campus demographics.

Two scores in particular were analyzed: the service adequacy gap and the desired service level. The service adequacy gap score indicates the extent to which libraries are meeting their users' minimum expectations. A negative service adequacy gap score shows that the users' perceived level of service quality is below his/her minimum level of service and can be used by libraries to identify areas of service needing improvement. It is calculated by subtracting each question's minimum score from its perceived score.

The top three areas needing improvement at Notre Dame, based on service adequacy gap measures for each user group, were in the area of "Information Control" and are shown in Figure 2.

**Figure 2: Top Service Areas Needing Improvement Based on Service Adequacy Gap Scores**

| User Group | Area Needing Improvement | Service Dimension |
|---|---|---|
| Undergraduate | Modern equipment that lets me easily access needed information (IC-5) | Information Control |
| | Print and/or electronic journal collections I require for my work (IC-8) | Information Control |
| | Easy to use access tools that allow me to find things on my own (IC-6) | Information Control |
| Graduate Students | Print and/or electronic journal collections I require for my work (IC-8) | Information Control |
| | The electronic information resources I need (IC-4) | Information Control |
| | A library web site enabling me to locate information on my own (IC-2) | Information Control |
| Faculty | Print and/or electronic journal collections I require for my work (IC-8) | Information Control |
| | Printed library material I need for my work (IC-3) | Information Control |
| | A library web site enabling me to locate information on my own. (IC-2) | Information Control |

LibQUAL+® also measures which services are most important to library users. The desired service level indicates how important various dimensions of service, measured through LibQUAL+®, are from a user's perspective.

In terms of desired level of service, the top three scores all came from the Information Control (IC) dimension and were the following:

- making electronic resources accessible from my home or office;
- print and/or electronic journal collections I require for my work; and
- library Web site enabling me to locate information on my own.[11]

Mean average scores for the "desired" level of service, as illustrated below, showed the five most important services for graduate students and faculty at Notre Dame. It was very obvious that issues related to information control were most important to these two user groups. These were also the areas that caused them the most dissatisfaction (as evidenced by the service adequacy gap scores described previously).

Most important services for undergraduate students:

1. Making electronic resources accessible from my home or office (IC-1);
2. Modern equipment that lets me easily access needed information (IC-5);
3. Adequate hours of service (Local question);
4. A library web site enabling me to locate information on my own (IC-2); and
5. Print and/or electronic journal collections I require for my work (IC-8).

Most important services for graduate students:

1. Print and/or electronic journal collections I require for my work (IC-8);
2. A library web site enabling me to locate information on my own (IC-2);

3. The electronic information resources I need (IC-4);
4. Making electronic resources accessible from my home or office (IC-1); and
5. Easy to use access tools that allow me to find things on my own (IC-6).

Most important services for faculty:
1. Print and/or electronic journal collections I require for my work (IC-8);
2. A library web site enabling me to locate information on my own (IC-2);
3. Timely interlibrary loan/document delivery (Local question);
4. The electronic information resources I need (IC-4); and
5. Easy to use access tools that allow me to find things on my own (IC-6)

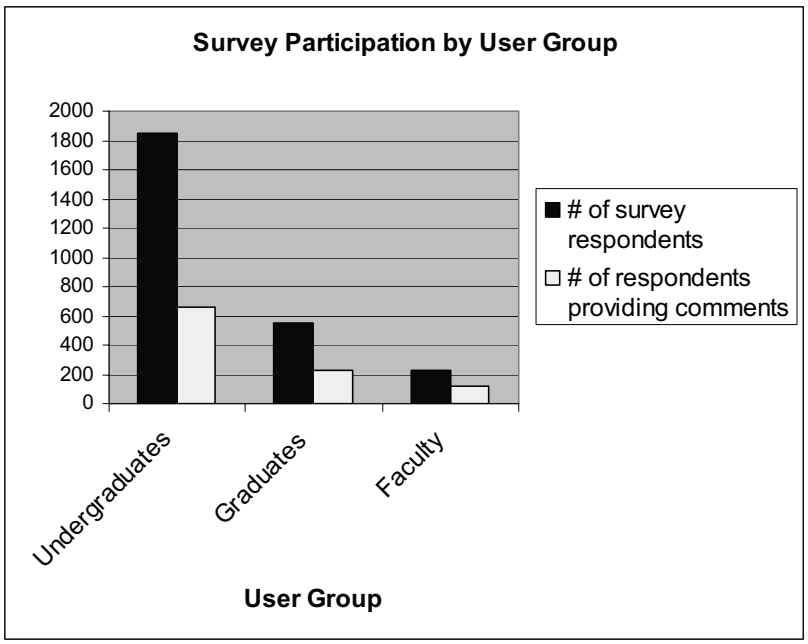
## Analysis of the Written Comments

An important feature of LibQUAL+® is the opportunity for respondents to provide open-ended comments. Notre Dame users took advantage of the opportunity to provide comments, as indicated by the 1000+ comments received. These comments collected at the end of the survey and the qualitative information gleaned from these comments constitute some of the more specific and valuable data gathered from participating in LibQUAL+®.

The analysis of qualitative data informs the understanding of quantitative data. As Jankowska et. al., pointed out in their study of graduate student comments, "Qualitative data . . . drawn from survey comments . . . provide richness and context that add life to the numbers and meat to the bones of the quantitative data." The authors go on to say it is important to analyze the comments because the effort in providing written comments "indicates a certain amount of enthusiasm or frustration" on the user's part.[12]

More than 1000 Notre Dame faculty and students, one in three participants, supplied written comments, specifically: 661 (35.7%) of the 1850 undergraduates, 231 of the 553 graduate students (41.7%), and over half of the faculty (118 out of 229, or 51.5%). Figure 3 shows the number of comments received from each user group, compared to the number of people completing the survey.

**Figure 3: University of Notre Dame 2006 LibQUAL+® Survey: Participation by User Group**




In order to best make use of this wealth of information, the authors reviewed the comments. Initially, each member individually read each of the 1000+ comments and identified what she thought

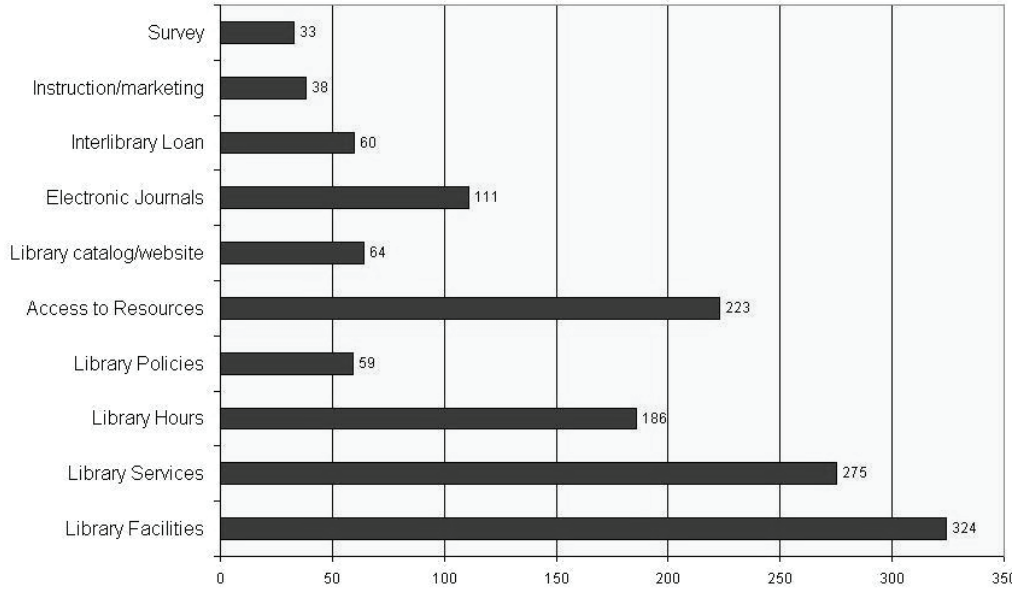
were the top fifteen issues. After reviewing the comments individually, results were compared. There were ten major themes easily identified in the in the comments:

- Faculty and students alike wanted stronger enforcement of the library's recall policy;
- Students wanted longer opening hours and maybe even 24/7 access;
- Students wanted more comfortable, attractive, study space, similar to what was in the newly renovated lower level, and better lighting;
- Users wanted more books and journal subscriptions, including more full text articles;
- Students wanted better enforcement of quiet in study areas;
- Users wanted more opportunities to learn about library resources and services;
- Users had difficulty using the web site to find articles;
- Students wanted a relaxation of the library policy on food and drink and/or a specially designated place where eating was allowed, e.g., a café;
- Users expressed concern about misshelved or otherwise missing materials; and
- Students wanted greater access to audiovisual materials, either through extended service hours or through circulating materials.

### Categorizing the Comments

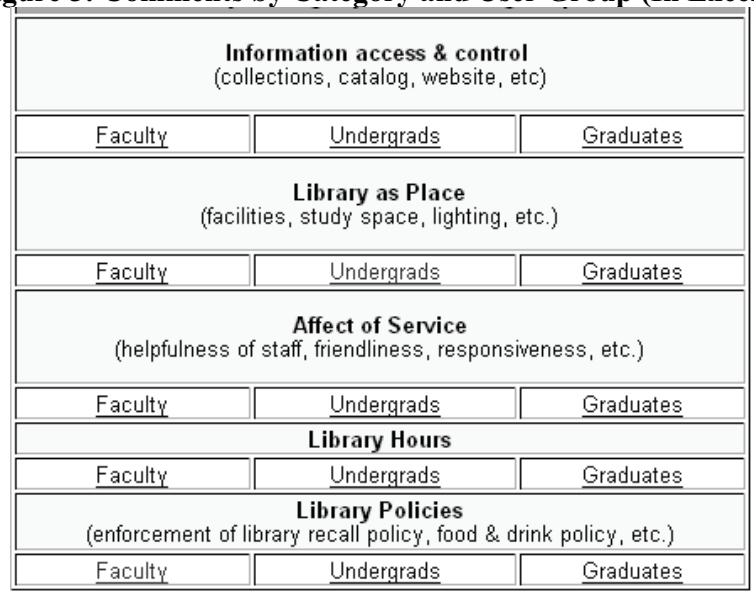
The authors then reviewed a sample of the comments together in order to identify broad categories. After reading a sample of several hundred comments, a fixed list of categories and subcategories was agreed upon and used to initially code all 1000+ comments. Figure 4 below shows a breakdown of the number of comments received by broad category.

**Figure 4: Number of Survey Comments by Category**




At this stage, the comments were shared with users, even though further analysis was planned. After collapsing the categories above into even broader categories, all 1000+ user comments were posted on the library's Web site by category and by user group. The major categories posted on the Web site closely paralleled the structure of the LibQUAL+® survey and its three dimensions of service.

**Figure 5: Comments by Category and User Group (In Excel)**



| | | |
|---|---|---|
| **Information access & control** (collections, catalog, website, etc) | | |
| Faculty | Undergrads | Graduates |
| **Library as Place** (facilities, study space, lighting, etc.) | | |
| Faculty | Undergrads | Graduates |
| **Affect of Service** (helpfulness of staff, friendliness, responsiveness, etc.) | | |
| Faculty | Undergrads | Graduates |
| **Library Hours** | | |
| Faculty | Undergrads | Graduates |
| **Library Policies** (enforcement of library recall policy, food & drink policy, etc.) | | |
| Faculty | Undergrads | Graduates |

.

### Mapping the Comments

To get a better understanding of the issues of greatest concern for users, a more systematic approach for analyzing the comments was employed. Each comment was mapped to one of the twenty-two core questions or five local questions and to one of the three service dimensions. For this analysis, the five local questions were included in the Information Control dimension, although arguably some could fit in the other dimensions as well. Mapping each comment to one of the LibQUAL+® survey questions would allow for identification of those issues most important to users, and for a comparison of qualitative results and quantitative results

All the user comments, provided by LibQUAL+® in a text file, were imported into Excel and coded first by user group and discipline. Each comment was read and then mapped to one of the twenty-two core questions or five local questions.

Many of the comments included several different observations or concepts. Because of this phenomenon, many of the comments were mapped to more than one question. For example, one comment might address the library's Web site and then also refer to the library's hours of operation. In that instance, the comment would be mapped twice, first to question IC-2, *"A library website enabling me to locate information on my own,"* and also to the local question, *"Adequate hours of service."* So, the comment would appear twice in the Excel database and would be counted twice.

Analysis of the 1010 comments resulted in 1133 discrete observations or concepts, which were mapped to one of the twenty-seven questions. 118 comments were either too broad or not specific enough (these comments expressed general satisfaction with the library or included ambiguous expressions of thanks) to map to a specific survey question. In addition, thirty comments were about the survey instrument and were excluded from analysis.

## Results

763 of the 1133 observations (67%) fell in the area of "Information Control," 237 fell in the area of "Affect of Service," and 133 comments related to "Library as a Place." These numbers support the results from the quantitative analysis and confirm the importance, for Notre Dame users, regarding issues of "information control," including scope of the collection, ease of use, access, and timeliness, etc.

**Figure 6: Number of Comments by User Group and Library Service Dimension**

| Service Dimension | Undergraduates | Graduate Students | Faculty | Totals |
|---|---|---|---|---|
| Information Control | 416 | 225 | 122 | 763 |
| Library as Place | 89 | 32 | 12 | 133 |
| Affect of Service | 136 | 58 | 43 | 237 |
| Totals | 641 | 315 | 177 | 1133 |

### Issues of Greatest Concern for Undergraduates

The distribution of written comments for undergraduates is shown in the table below. Undergraduates provided 641 observations about the library. The Information Control questions drew the largest number of comments (416 out of 641), followed by "Affect of Service," and "Library as a Place." Nearly one-fourth of the comments dealt specifically with the local question concerning "library hours of service." Clearly, ubiquity and ease of access to the library was important to undergraduates, who wanted the library to be open more hours, many wanting twenty-four hour access. While some undergraduates indicated that they needed longer hours in order to access specialized service points, for instance, to be able to watch videos in our Audio-Visual Center, or to check out books from the Reserve Book Room, most of the students wanted longer hours of operation for studying.

This is a representative comment from the undergraduate population: *"My biggest, and crucial, complaint is that at least part of the library really needs to be open later than 2 am—preferably 24 hours. There is a SERIOUS LACK of 24 hour study space on campus, especially for off-campus dwellers, let alone space that is quiet and well lit. Having even a single floor remain open all hours would be a HUGE help."*

Analysis of the written comments also confirmed the importance of library as place to undergraduates. Expanded library hours would provide them with quiet space not readily available elsewhere on campus. One undergraduate wrote that "*I would love to use the Hesburgh Library as my primary place of study. However, I have never felt it was especially conducive to individual study. My biggest problem is the lighting in the library. The current lighting is poor to say the least . . . Last semester I stayed at the Hesburgh Library until closing many times. I haven't yet this semester, but I do think that being open 24 hours would be nice. I love the renovation to the basement, and its popularity with students reading suggests to me, at least, that more students would prefer a quiet space with comfortable furniture and nice atmosphere*."

**Figure 7: University of Notre Dame 2006 LibQUAL+® Survey: Distribution of Comments by Undergraduate Students**

| Question | Number of Comments |
|---|---|
| Adequate hours of service (Local Question 5) | 160 |
| Willingness to help users (AS-8) | 62 |
| Printed library materials I need for my work (IC-3) | 57 |
| A Comfortable and inviting location (LP-3) | 35 |
| Print and/or electronic journal collections I require for my work (IC-8) | 34 |
| Making information easily accessible for independent use (IC-7) | 34 |
| Easy to use access tools that allow me to find things on my own (IC-6) | 29 |
| Employees who deal with users in a caring fashion (AS-6) | 24 |
| Quiet Space for Individual Activities (LP-2) | 21 |
| Modern equipment that lets me easily access needed information (IC-5) | 20 |
| Community space for group learning and group study (LP-5) | 19 |
| Library orientation/instruction sessions (Local Question 1) | 18 |
| Timely document delivery/interlibrary loan (Local Question 4) | 17 |
| Employees who are consistently courteous (AS-3) | 16 |
| The electronic information resources I need (IC-4) | 14 |
| Accuracy in catalog, borrowing and overdue records (Local Question 3) | 13 |
| Employees who have the knowledge to answer user questions (AS-5) | 13 |
| A library web site enabling me to locate information on my own (IC-2) | 12 |
| Dependability in handling users' service problems (AS-9) | 10 |
| Library Space that inspires study and learning (LP-1) | 8 |
| Making me aware of library resources and services (Local Question 2) | 6 |
| A getaway for study, learning, or research (LP-4) | 6 |
| Giving users individual attention (AS-2) | 5 |
| Readiness to respond to users questions (As-4) | 3 |
| Employees who understand the needs of their users (AS-7) | 3 |
| Making electronic resources accessible from my home or office (IC-1) | 2 |
| Employees who instill confidence in users (AS-1) | 0 |
| | 641 |

**Issues of Greatest Concern to Graduate Students**

The distribution of comments for graduate students is shown below. Graduate students provided 315 observations about the library. The Information Control questions drew the largest number of comments (225 out of 315), followed by "Affect of Service," and "Library as a Place."

Over the past several years, the Library has invested a great deal of money in electronic resources; nonetheless, graduate students were asking for even more electronic access to journals. One graduate student wrote, *"I think the problem with the library is not the service personnel, but the access to online journals. In the sciences, these journals are our lifeline, and quite often I have run into the problem that I find a fantastic article, but I can't access it because we don't have that particular subscription."* Another graduate student echoed similar concerns in this statement: *"Please increase the availability of electronic journals because that is the future of my academic field and many others . . . printed materials will become less and less important as we head into the future. I hope the library is ready for this very difficult challenge."*

While undergraduates want nicer facilities, this is not a priority for graduate students, as reflected in the comment by one graduate student that "*the decreasing number of academic journals that Notre*

*Dame is willing to purchase is a serious concern that needs to be addressed. We do not need fancy facilities, but we do need access to resources in order to be able to conduct serious academic research."*

Graduate students also expressed concern over the lack of enforcement of the library's recall policy, one of the more surprising observations gleaned from the analysis of the written comments. One graduate student in the humanities wrote, *"My biggest concern/complaint with library services relates to the lack of enforcement/penalties for overdue books. It has sometimes taken months for recalled books to come in. This has been a major inconvenience to me. Other institutions I have attended have strictly enforced a 1 or 2 dollar daily fine for recalled overdue material. Also, it would seem useful to send out a reminder notice on the day/day after a recalled book is supposed to be returned, to help out any absentminded staff or students."*

**Figure 8: University of Notre Dame 2006 LibQUAL+® Survey: Distribution of Comments by Graduate Students**

| Questions | Number of comments |
|---|---|
| Print and/or electronic journal collections I require for my work (IC-8) | 52 |
| Printed library materials I need for my work (IC-3) | 31 |
| Willingness to help users (AS-8) | 25 |
| Making information easily accessible for independent use (IC-7) | 24 |
| Timely document delivery/interlibrary loan (Local Question 4) | 24 |
| Adequate hours of service (Local Question 5) | 18 |
| Easy to use access tools that allow me to find things on my own (IC-6) | 17 |
| A Comfortable and inviting location (LP-3) | 17 |
| Modern equipment that lets me easily access needed information (IC-5) | 14 |
| Accuracy in catalog, borrowing and overdue records (Local Question 3) | 12 |
| Employees who deal with users in a caring fashion (AS-6) | 12 |
| A library web site enabling me to locate information on my own (IC-2) | 11 |
| Employees who have the knowledge to answer user questions (AS-5) | 10 |
| The electronic information resources I need (IC-4) | 9 |
| Quiet Space for Individual Activities (LP-2) | 9 |
| Making electronic resources accessible from my home or office (IC-1) | 7 |
| Employees who are consistently courteous (AS-3) | 4 |
| Library orientation/instruction sessions (Local Question 1) | 3 |
| Making me aware of library resources and services (Local Question 2) | 3 |
| Library Space that inspires study and learning (LP-1) | 3 |
| Community space for group learning and group study (LP-5) | 3 |
| Readiness to respond to users questions (As-4) | 2 |
| Employees who understand the needs of their users (AS-7) | 2 |
| Dependability in handling users' service problems (AS-9) | 2 |
| Giving users individual attention (AS-2) | 1 |
| A getaway for study, learning, or research (LP-4) | 0 |
| Employees who instill confidence in users (AS-1) | 0 |
| | 315 |

### Issues of Greatest Concern to Faculty

The distribution of written comments for faculty is shown in the table below. Over half of the faculty (118 out of 229) completing the survey included written comments. Within these 118 comments there were 177 distinct observations or concepts. Much like the graduate students, faculty member's primary complaints lay in the area of Information Control, with more than two thirds of the comments falling into this area. Results for faculty mirrored those of graduate students in the first two areas of greatest concern *"Print and/or electronic journal collections I require for my work"* (IC-8), and "*Printed Library materials I need for my work"* (IC-3).

Faculty members were quite dissatisfied with the collection and were particularly vocal. One faculty member described the university as being in a *"crisis with respect to having adequate research support for journals and technical books*." Another described the lack of subscriptions to high-impact scientific journals as "disgraceful." Faculty recognized the Library's budgetary woes, but nevertheless voiced their dissatisfaction with the size and scope of the collection. A faculty member wrote, *"I realize that the library at Notre Dame, like all university libraries, is under tremendous financial pressure. However, I am regularly disappointed in the shallowness of Notre Dame's collection."*

Like the graduate students, faculty also expressed frustration over the library's recall policy. One faculty member expressed the problem clearly when she wrote *"You might also audit the recall process. I often recall books and then wait weeks, even months (at least so it seems) for stuff to come in. I realize that I on occasion have sinned similarly, keeping too long books recalled from me. The penalty for non-compliance would seem too slight to make prompt return of recalled books a common enough practice."*

**Figure 9: University of Notre Dame 2006 LibQUAL+® Survey: Distribution of Comments by Faculty**

| Questions | Number of Comments |
|---|---|
| Print and/or electronic journal collections I require for my work (IC-8) | 29 |
| Printed library materials I need for my work (IC-3) | 26 |
| Timely document delivery/interlibrary loan (Local Question 4) | 18 |
| Willingness to help users (AS-8) | 16 |
| The electronic information resources I need (IC-4) | 11 |
| A library web site enabling me to locate information on my own (IC-2) | 10 |
| Employees who have the knowledge to answer user questions (AS-5) | 8 |
| Making information easily accessible for independent use (IC-7) | 7 |
| Modern equipment that lets me easily access needed information (IC-5) | 6 |
| A Comfortable and inviting location (LP-3) | 6 |
| Employees who are consistently courteous (AS-3) | 5 |
| Employees who deal with users in a caring fashion (AS-6) | 5 |
| Adequate hours of service (Local Question 5) | 4 |
| Easy to use access tools that allow me to find things on my own (IC-6) | 4 |
| Quiet Space for Individual Activities (LP-2) | 4 |
| Employees who understand the needs of their users (AS-7) | 3 |
| Dependability in handling users' service problems (AS-9) | 3 |
| Accuracy in catalog, borrowing and overdue records (Local Question 3) | 2 |
| Library orientation/instruction sessions (Local Question 1) | 2 |
| Making electronic resources accessible from my home or office (IC-1) | 2 |
| Library Space that inspires study and learning (LP-1) | 2 |
| Readiness to respond to users questions (As-4) | 2 |
| Making me aware of library resources and services (Local Question 2) | 1 |
| Giving users individual attention (AS-2) | 1 |
| A getaway for study, learning, or research (LP-4) | 0 |
| Community space for group learning and group study (LP-5) | 0 |
| Employees who instill confidence in users (AS-1) | 0 |
| | 177 |

## Summary Findings for User Group Comparison

Issues of information control were equally important to undergraduates, graduate students, and faculty, although their priorities differed. For example, interlibrary loan seemed to be more important to faculty and graduate students than it was to undergraduates, while undergraduates wanted adequate hours of service, an issue not as important to faculty and graduate students. The results also show that the library as a place is more important to undergraduates than it is to faculty and graduate students.

An examination of the most important services as indicated by the written comments revealed that two of the top five were the same across all three user groups: "*Printed library materials I need for my work*" and "*Willingness to help users*." While it was expected that "*Printed library materials I need for my work*" would rank highly on the list of services users valued the most, the fact that "*Willingness to help users*" appeared in the top five most important services for each of the three users groups was surprising and suggested that this was one area of service quality that was more important to users than the quantitative results alone would indicate.

### Comparison by Discipline

Do all graduates students and faculty have the same priorities or do they differ by discipline? A comparison of the written comments, submitted by

faculty and graduate students among three broad disciplines (Arts & Humanities; Science & Engineering, and Social Sciences & Business) was done to see whether differences existed. Undergraduate students were excluded from this analysis because the authors felt that no additional analysis was needed—the undergraduates made it pretty clear that they want more hours and better facilities.

As shown in the table below, most of the comments, across disciplines, were in the area of Information Control.

**Figure 10: Distribution of Comments by Discipline**
**Faculty and Graduate Students Only**

| Broad Discipline | Dimension | Total |
|---|---|---|
| Arts & Humanities | AS | 66 |
| | IC | 165 |
| | LP | 29 |
| | | 260 |
| Science & Engineering | AS | 14 |
| | IC | 124 |
| | LP | 4 |
| | | 142 |
| Social Sciences & Business | AS | 21 |
| | IC | 58 |
| | LP | 11 |
| | | 90 |
| Grand Total | | 492 |

For each of the three disciplines, the top services identified through the analysis of the written comments was compared to the top services identified through the desired rating scores obtained from the quantitative analysis.

The tables below show the most important services as indicated by the number of written comments (qualitative data) compared to those identified by the desired rating scores (quantitative data) for faculty and graduate students in each of the three broad disciplines. Services appearing in the top ten in either grouping appear in bold.

### Arts & Humanities

For the Arts & Humanities group, the qualitative data indicated that their top concern was in having "Printed library materials I need for my work"; however, the quantitative data showed them wanting "Print and/or electronic journal collections I require for my work." Although not mirrored exactly, the following items were in the top ten in both the qualitative and quantitative results: "Making information easily accessible for independent use," "Modern equipment that lets me easily access needed information," "Printed library materials I need for my work," "Accuracy in catalog, borrowing and overdue records," "Employees who have the knowledge to answer user questions," and "Print and/or electronic journals collections I require for my work."

**Figure 11: Most Important Services: Arts & Humanities Faculty and Graduate Students**

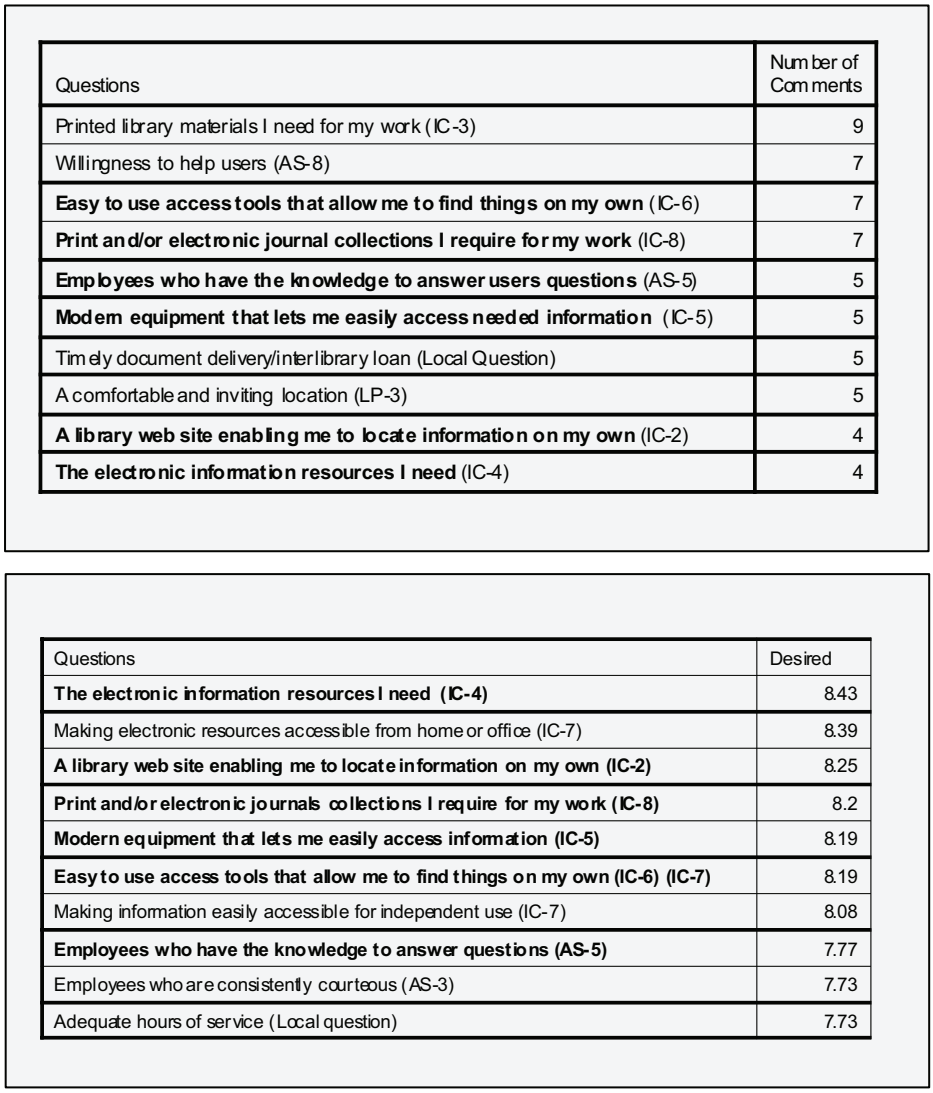
| Questions | # Comm. |
|---|---|
| **Printed library materials I need for my work** (IC-3) | 40 |
| Willingness to help users (AS-8) | 30 |
| Timely document delivery/inter-library loan (Local Question 4) | 25 |
| **Making information easily accessible for independent use** (IC-7) | 20 |
| **Print and/or electronic journal collections I require for my work** (IC-8) | 16 |
| A Comfortable and inviting location (LP-3) | 16 |
| **Modern equipment that lets me easily access needed information** (IC-5) | 12 |
| **Employees who have the knowledge to answer user questions** (AS-5) | 11 |
| **Accuracy in catalog, borrowing and overdue records** (Local Question 3) | 11 |

| Questions | Desired |
|---|---|
| **Print and/or electronic journals collections I require for my work (IC-8)** | 8.58 |
| A library web site enabling me to locate information on my own (IC-2) | 8.41 |
| Easy to use access tools that allow me to find things on my own (IC-6) | 8.37 |
| The electronic information resources I need (IC-4) | 8.35 |
| **Making information easily accessible for independent use (IC-7)** | 8.33 |
| Making electronic resources accessible from home or office (IC-1) | 8.29 |
| **Modern equipment that lets me easily access information (IC-5)** | 8.28 |
| **Printed library materials I need for my work (IC-3)** | 8.26 |
| **Accuracy in the catalog borrowing, and overdue records (Local Question)** | 8.22 |
| **Employees who have the knowledge to answer questions (AS-5)** | 8 |

## Social Sciences and Business

The Social Sciences & Business results, like the Arts & Humanities ones, also did not exactly match in terms of priority, but like the Arts & Humanities results, did have several of the same issues arise the top ten. The full distribution is shown in detail below, and those common to the top ten in both sets of data were as follows: "The electronic information resources I need," "A library web site enabling me to locate information on my own," "Print and/or electronic journal collections I require for my work," "Modern equipment that lets me easily access needed information," "Easy to use access tools that allow me to find things on my own," and "Employees who have the knowledge to answer user questions."

**Figure 12: Most Important Services: Social Sciences & Business Faculty & Graduate Students**



| Questions | Number of Comments |
|---|---|
| Printed library materials I need for my work (IC-3) | 9 |
| Willingness to help users (AS-8) | 7 |
| **Easy to use access tools that allow me to find things on my own** (IC-6) | 7 |
| **Print and/or electronic journal collections I require for my work** (IC-8) | 7 |
| **Employees who have the knowledge to answer users questions** (AS-5) | 5 |
| **Modern equipment that lets me easily access needed information** (IC-5) | 5 |
| Timely document delivery/interlibrary loan (Local Question) | 5 |
| A comfortable and inviting location (LP-3) | 5 |
| **A library web site enabling me to locate information on my own** (IC-2) | 4 |
| **The electronic information resources I need** (IC-4) | 4 |

| Questions | Desired |
|---|---|
| **The electronic information resources I need (IC-4)** | 8.43 |
| Making electronic resources accessible from home or office (IC-7) | 8.39 |
| **A library web site enabling me to locate information on my own (IC-2)** | 8.25 |
| **Print and/or electronic journals collections I require for my work (IC-8)** | 8.2 |
| **Modern equipment that lets me easily access information (IC-5)** | 8.19 |
| **Easy to use access tools that allow me to find things on my own (IC-6) (IC-7)** | 8.19 |
| Making information easily accessible for independent use (IC-7) | 8.08 |
| **Employees who have the knowledge to answer questions (AS-5)** | 7.77 |
| Employees who are consistently courteous (AS-3) | 7.73 |
| Adequate hours of service (Local question) | 7.73 |

## Science and Engineering

Here again, although not an exact match, many of the same issues were identified as being in the top ten on both the quantitative and qualitative results lists. The distributions are shown below and the commonalities in the top ten were as follows: "Print and/or electronic journal collections I require for my work," "A library web site enabling me to locate information on my own," "Making information easily accessible for independent use," "Adequate hours of service," "The electronic information resources I need," and "Easy to use access tools that allow me to find things on my own."

**Figure 13: Most Important Services: Science and Engineering Faculty**

| Questions | Number of Comments |
|---|---|
| **Print and/or electronic journal collections I require for my work** (IC-8) | 58 |
| Timely document delivery/interlibrary loan (Local question) | 12 |
| **A library web site enabling me to locate information on my own** (IC-2) | 9 |
| Printed library materials I need for my work (IC-3) | 8 |
| **Making information easily accessible for independent use** (IC-7) | 8 |
| **Adequate hours of service** (Local question) | 7 |
| Employees who deal with users in a caring fashion (AS-6) | 6 |
| **The electronic information resources I need** (IC-4) | 6 |
| **Easy to use access tools that allow me to find things on my own** (IC-6) | 6 |
| Willingness to help users (AS-8) | 4 |

| Questions | Desired |
|---|---|
| **The electronic information resources I need (IC-4)** | 8.54 |
| **A library web site enabling me to locate information on my own (IC-2)** | 8.5 |
| **Print and/or electronic journals collections I require for my work (IC-8)** | 8.42 |
| Making electronic resources accessible from home or office ((IC-1) | 8.37 |
| **Easy to use access tools that allow me to find things on my own (IC-6)** | 8.03 |
| **Making information easily accessible for independent use (IC-7)** | 7.88 |
| Modern equipment that lets me easily access information (IC-5) | 7.71 |
| Employees who are consistently courteous (AS-3) | 7.63 |
| **Adequate hours of service (Local question)** | 7.58 |
| Employees who understand the needs of their users ((AS-7) | 7.47 |

## Outcomes and Conclusion

In all, the majority of the top issues identified in both the qualitative and quantitative analysis fell into the information control dimension. Consequently, a number of services and programs have been initiated to improve services in this area, including the implementation of a new recall policy (IC-3), a redesign of the library Web site (IC-2), and enhancements to our Quick Search and Find Text services (IC-6). Other services implemented include:

- Personal research consultation service (Local question1);
- Creation of a Marking and Outreach Committee (Local Question 2);
- Hiring an outreach/marketing librarian (Local Question 2);
- Enhancements to interlibrary loan and document delivery (Local question 4 and IC-3);
- Purchase of Primo (IC-6); and
- Creation of a searchable FAQ database (IC-7).

To conclude, an evaluation of both the quantitative and qualitative results of the LibQUAL+® survey has resulted in a better understanding of Notre Dame library users' needs and priorities. Findings from the qualitative analysis of the written comments supported the findings from quantitative data and provided a clear picture of where attention ought to be directed in improving service. Many of the issues identified

by users via LibQUAL+® have been addressed by the Library and plans are to continue to assess user needs and to improve services in this informed manner.

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## Endnotes

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2. University of Notre Dame, "The Graduate School," http://graduateschool.nd.edu/.

3. Association of Research Libraries, "LibQUAL+®: Charting Library Service Quality," ARL, http://www.libqual.org.

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6. Steve Hiller, "How Different are They?: A Comparison by Academic Area of Library Use, Priorities, and Information Needs at the University of Washington," *Issues in Science & Technology Librarianship* 33 (2002).

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8. Jessica Kayongo and Sherri Jones, "Faculty Perception of Information Control Using LibQUAL+® Indicators," *The Journal of Academic Librarianship* 34, no. 2 (2008): 130-138.

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# Examining the Overlooked: Open-ended Comments from 6,108 Invalid 2007 LibQUAL+® Survey Responses

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## Abstract
Protocols for determining overall appropriateness of LibQUAL+® survey responses in the spring 2007 round included a completeness requirement and validity check for the scripted questions. The excessive use of "N/A" or illogical responses (i.e., minimum level of service is greater than the desired level) in the scripted questions invalidate a survey response, and it is excluded from further analyses. This paper presents just one analysis of the open-ended comments from the spring 2007 *invalid* responses.

After examining these responses and sorting them into workable categories, the author found what he believes to be a number of related themes running through the respondents' comments. The comments are generally focused and articulate and indicate the respondents care deeply about their libraries. In general, they appreciate access to digital resources, but want more access to more materials, digital as well as print, monographs as well a journal literature. Criticism of the survey instrument was pointed and suggestions were made for its improvement.

## Introduction
LibQUAL+® is a self-administered, Web-based survey of users' expectations of services from his/her academic library and her/his perception of service levels actually received. Scripted questions focus on various library services. The survey also includes several demographic questions so that librarians may understand variations among categories within their clientele. At the end of the survey, optional, open-ended comments are also solicited from respondents. Protocols for determining overall appropriateness of LibQUAL+® survey responses in the spring 2007 round included a completeness requirement and a validity check for the scripted questions. The excessive use of "N/A" or illogical responses (i.e., minimum level of service is greater than the desired level) in the scripted questions invalidate a survey response, and it is excluded from further analyses. This paper presents just one analysis of the open-ended comments from the spring 2007 invalid responses. The data were supplied by ARL with support from the LibQUAL+® Steering Committee. To preserve the privacy and confidentiality of responses, the body of comments is treated without disaggregating them by participating library or by user group. Despite this precaution, the text of many comments reveals the respondents status, and in some cases the library to which they refer. In the latter case, institutional names have been deleted when citing the text of the comment.

## Examining the Data
### Brief responses and problematic responses
First, the whole body of data was divided into two categories: brief, single-issue comments; and more complex, multiple-issue comments. Single-issue comments typically included: "no comment(s);" unclear comments (e.g., "there is no petient in the stuff."); respondents who indicated they did not use the library; and respondents who were not properly part of the sampling frame despite their appearance in the survey sample (e.g., potential enrollees who apparently had been assigned institutional e-mail addresses as part of an early acceptance program, but had not yet matriculated). Additional brief responses were clustered around issues that are not helpful to improvement of service quality. This category primarily consisted of very short (single-issue) responses, frequently vague, at other times lacking in specifics that would permit action. These included many positive statements about the library, staff, or services (e.g., "The staff is great."). Negative comments were very few (e.g., "It's hard to get books."). Interestingly, there were only five really rude comments. The brief comments indicate a response group that is generally civil and well disposed toward libraries and staff.

| Overview of Single-focus Comments | |
|---|---|
| Short negative comments | 19 |
| Short positive comments | 524 |
| Comments related to survey | 694 |
| Don't use the Library | 381 |
| Online user | 113 |
| Unclear comments | 341 |
| Errors | 31 |
| Rude responses | 5 |

There were also 539 responses in languages other than English. In this latter category, French language responses predominated, accounting for 372 of the total; then Spanish with 93 responses, and last, Swedish, which accounted for 64 responses. It would be interesting to know if the issues raised in these responses were distributed in a manner similar to the English language responses, or, whether cultural, linguistic, or geographical influences were apparent. Unfortunately, translation is not within the scope of resources devoted to this analysis.

394 responses indicated the respondent did not use the library (e.g., "I've never used it but hear it is nice," "I never used any service from library," and "I do not use the library facilities."). Within this group, numerous responses indicated geographic issues (commuter students, distance education enrollees, etc.) while other responses indicated graduation in the past and perplexity at being surveyed at this point in time. 113 responses indicated on-line rather than physical use of the library, with some level of frustration that the questions did not fit their situation (e.g., "Many of the statements were not applicable to my situation because I am strictly an online student. I really do not understand how some of the electronic databases operate."). Some indicated they were distance education students for whom the physical library was not relevant to their situation (e.g., "Many of the statements were not applicable to my situation because I am strictly an online student. I really do not understand how some of the electronic databases operate.)"

One in every three of the short responses (694) objected to various aspects of the survey instrument: its length, redundancy, scoring complexity, and use of a complex construct. Specifically, these respondents had great difficulty with the idea of a minimum level of acceptable service (e.g., "I didn't participate in this survey the first 3 times you asked me because I think the first 27 questions are stupid. Could you make this survey any more confusing? I have no idea what you mean by Minimum -- the number that represents the minimum level of service that you would find acceptable . . .").

### Lengthy and more complex responses

3,814 responses addressed more than one issue. Over 9,000 individual comments were registered in these responses. In descending order of frequency, the issues most often noted are: resources, staff, services, environment, the survey instrument, and facilities.

| Overview of Multi-focus Comments | |
|---|---|
| Resources | 2,369 |
| Staff | 2,230 |
| Services | 1,908 |
| Environment | 1,906 |
| Facilities | 427 |
| Survey questionnaire | 185 |

In the word count of multiple responses, the term "library resources" (and its constituent components) were used 2,369 times. The majority of comments note, with a range of emotion (anger, sorrow, resignation), that resources are not adequate to user needs. Electronic access is broadly embraced, but seen as needing improvement (e.g., "I appreciate the ability to be able to access library resources from my home/office. I am disappointed in the availability of journals, both print and electronic for my discipline. Invariably when I get a list of resources from MLA or other databases, I find "not held locally" attached to virtually every item."). Judging from the text of their comments, both student and faculty share this outlook. Respondents used multiple terms (articles, journals, periodicals, and subscriptions) to indicate where they felt the library was not meeting their teaching and research needs for basic information. Print journals and books fail to meet both users' needs and expectations. The constant plea was for more! (e.g., "Research cannot rely on electronic sources alone. The library lacks so many books that my research has actually been hindered and slowed down by your libraries and inter-library loan is not enough. This survey neglected the question of books entirely. . . . The library should purchase more COPIES of BOOKS for those in high demand. It is shameful. I don't even bother looking at our libraries for books anymore . . . I want more books. Search engines, databases and electronic journals are great, but seriously . . . you guys have neglected books so much it's embarassing (*sic*).").

Staff (and cognates: workers, librarians, attendants, etc.) as a term was used only slightly fewer times (2,230) than resources. Overwhelmingly, these comments were positive and appreciative; "Great staff, very helpful" was reiterated in many variant wordings. Many respondents simply said "Thank you" and numerous other responses referred to staff as wonderful, helpful, awesome, pleasant and great. Users generally are very appreciative of the people who serve them in these libraries. In only a very few instances, particular staff were identified (name, description, service point, etc.) as rude and disrespectful. In general, the staff has great rapport with this group of respondents.

Library services were commented upon 1,908 times. Interlibrary Loan was mentioned almost exclusively in praiseworthy terms. These users do understand that ILL is a lifeline for those whose field of study or research project is not fully supported by their library's collections. The following respondent wanted to comment on ILL so much that s/he responded to the scripted parts of the survey when s/he would have preferred not to! "Questions 28 - 34 were N/A; however, this survey required they be answered in order to complete the survey. I use the interloan library services (*sic*) and am very pleased with the service I receive. It is a wonderful program and I am so glad to have access." A few negative comments noted that ILL is an inadequate strategy for supplying the basic materials needed in the respondent's field, but not a single response was unqualifiedly negative about this service.

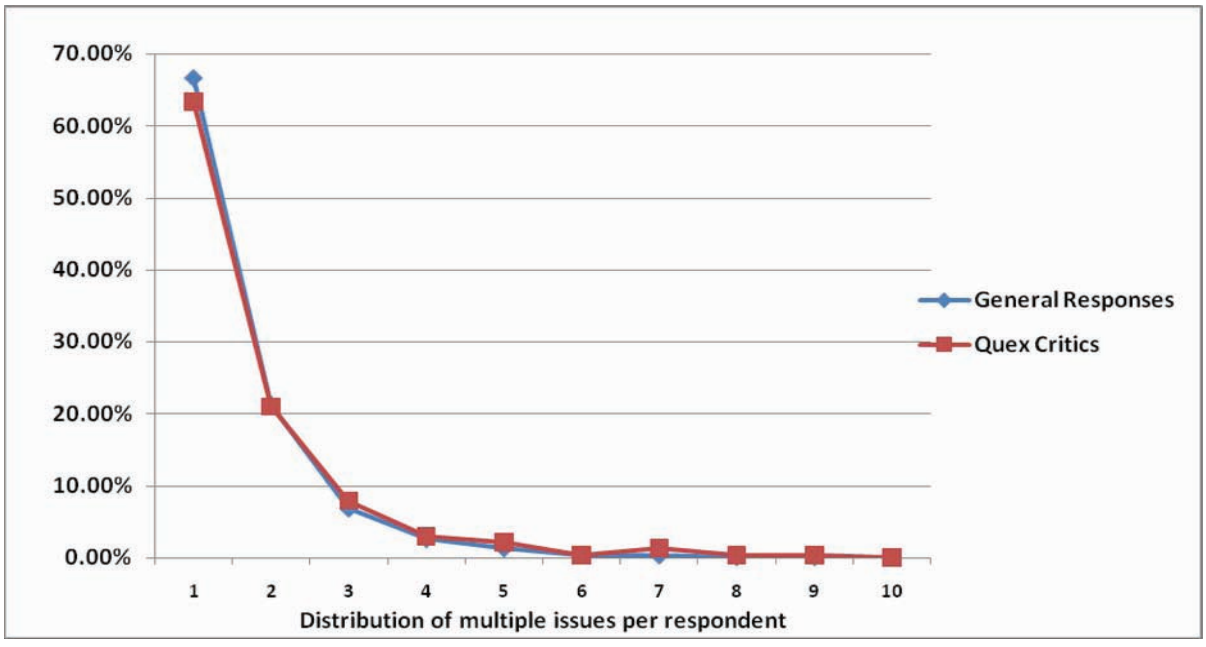
Photocopying is a major source of concern for the examined responses. Poor quality copies, too few machines and inconvenient locations, and cost were the most often cited complaints (e.g., ". . . Also, why move the Copy Center to the Union and call it a service? NO ONE, I repeat NO ONE is going to want to check out a book/periodical and go clear over to the Union especially in inclement weather (hot or cold) just to copy a few pages. This is a dis-service!! What about books/other materials that cannot leave the building? . . . BRING THE COPY CENTER BACK!!!" and "I just want to reiterate a view that has been expressed many times: printing should be free in a library for students who pay 45K a year to attend this university. It is completely unacceptable to charge for this basic university resource, now more crucial than ever with more and more class readings being placed on Telesis. Also, this doesn't exactly regard library services, but this survey is not designed very well."

Library hours are of great concern to respondents. Few called for 24/7 access, but many complained about the weekend and evening hours. They want the library to stay open later on Friday and Saturdays, open earlier on Sundays. One example: "Operating hours are too short. Students need to stay at libraly for study espacially (*sic*) before exams. In fact, some universities' and colleges' library will open 24 hours during exam week."

Not surprisingly, the library environment was as much a concern as services. Users want a quieter, more distraction-free and comfortable place to study. Complaints about noise were common (e.g., "its always too loud in our library . . . people are always socializing and talking loudly to others and on their cell phones. this makes it hard to work." Both chatter and cell phone conversations were

irritating; and the most frequent complaint about library staff was either their refusal to set/enforce rules about noise, or that staff were part of the problem! (e.g., "the workers talk too loud and too much." HVAC issues were a frequent complaint, indicating the library was either too hot or too cold. Given that specific libraries were named, it would be a mistake to write off these observations as unimportant or contradictory in nature. Lighting was frequently criticized, specifically noting the problems with fluorescent fixtures. The layout of study areas is a concern; some of it related to separating group study from individual study as a strategy for reducing noise and distraction to the latter individuals. Other concerns relate to the lack of group study spaces, lack of adequate outlets and network jacks for laptops, and the desire for a coffee shop on premises for late hour studying. Insufficient comfortable seating is a frequently noted complaint. As separate issues, the library environment and facilities seem to blend easily into each other. Facilities, and their substandard condition, were the focus of 714 comments. Dirty restrooms, uncomfortable chairs, inadequate seating arrangements (too few group study spaces or too many), insufficient electric outlets for laptops, and not enough Wi-Fi zones were most commonly voiced. As with some other comments, if institutional identity were available it might explain some comments that in the whole appear to be contradictory with regard to both environment and facilities.

185 comments from multiple-issue respondents relate to the survey instrument. In general, these users were unable or unwilling to complete the survey as requested. Comments from the brief responses and from the multi-issue responses led to speculation about the distribution of survey complaints. These comments raised the question of whether particular respondents were obsessed with criticizing the instrument, or, was displeasure with the survey part of a broader palate of responses? The following figure illustrates that critics of the instrument are virtually identical with the remaining population of invalid responses regarding the number of issues they raised:




## Conclusions

After spending considerable time with these comments, I strongly urge that they be shared with LibQUAL+® client libraries as a normal part of the data reporting process. The comment from invalid survey responses needs to be heard by the respective libraries. Why? For the following reasons: The language used by these survey respondents is not distant and hypothetical; it is explicit and personal. The word count revealed almost 13,500 uses of I/me/my and less than 1,000 occurrences of "you." These comments leave the impression they were made by users who value

and appreciate the library, and want to see improvements.

The most valuable result gleaned from this group of responses is recognition that they care deeply about books, libraries, and the people who staff them and the services they provide. Similar to comments from valid surveys at University of Massachusetts Amherst (the only valid comments to which I have access), they combine to give an unfiltered sense of what is on the collective minds of the clientele. The result is emphasized because it concerns the priorities of the user and is stated in their own words without forced choices as to topic and metric. Every LibQUAL+® participating library should mine these qualitative statements, as well as those from the valid surveys. This is apparent from the many comments in the invalid surveys which fail the validity test simply because respondents could not or would not put up with the annoyance of what they see as an overly complex and confusing survey instrument. Despite being annoyed by the survey format, these users made the effort to express their opinions.

Almost 900 negative comments (including both brief and complex categories) regarding the survey were made in the overall total of 6,108 respondents. Many indicated they are familiar with the techniques of effective questionnaire construction and query formulation. Even some who didn't critique the instrument in scholarly terms did find it intuitively irksome. The underlying theory behind the development of SERVQUAL/LibQUAL+® is not known to many people.[1] I found this response memorable:

> "1. First of all, this is the worst survey ever, what [. . .] do u mean by (Minimum service level, My Desired Service Level Is, Perceived Service Performance Is) This is by far the worst survey I have ever seen taking in consideration that I've attended four different undegraduate universities and now i'm a graduate students, and I've never seen such a bad survey. No one has the time or effort to think of what you need, and if you mean by asking (My Desired Service Level Is) means that what do I hope the service to be, then what do you think? Definitely I want it to be perfect, such a silly question. 2. The guards that assumable are protecting the library are extremely annoying, I support and appreciate them when they try to make people calm in QUIET FLOORS (9,10, 6). But I can't understand nor have I've seen any rule in any library all around the world not only "[library name]" that is against sleeping or having a quick nap. I am not saying that I should go to the library and bring pillows and sleep but when I'm studying for more than 3 days with no break in library and cafeteria and try to take a rest for few minutes, nothing wrong with that. And you should learn from bigger universities, McMaster, UofT, McGill all UNIVERSITIES IN CANADA, don't have anything against people taking few quick naps. 3. I appreciate the online resources but you can still have ASME (american society of engineering) publications and others to the online sources. 4. When you make a survey it should be like number (28 to 35) either agree or disagree not like the first ones (1 to 28) because it's silly (please see my number 1 comment and you'll understand what I mean). 5. As any university that is expanding (which [library name] is the case) the future plans should "hopefully" be to expand the current library and building a bigger library that would have more books and more copies of the already existing ones. [I] hope this helps and truly improve the future of one of the soon leading universities in Canada."

This respondent above is clearly aggravated by the instrument, as well as irritated by other aspects of his library's services, but after venting displeasure, goes ahead to make several additional points for improving the library and its services from his/her perspective. It is important for librarians who manage the LibQUAL+® survey to be familiar with the underlying theoretical frameworks so they can knowledgeably respond to comments like the above.

Additionally, with regard to users, all categories (judging from the variety of articulateness employed) want more print books and journals, as well as more access to digital resources, and more technological infrastructure both within the library and available through the internet to their place of residence. In many institutions it appears that the trade-off of print items for digital resources either has not been communicated very well, or, substantial numbers of users are not in agreement. Some of the most assertive voices express a need for print subscriptions and for more, and newer, printed books.

There also are indications that the intended sample and the pool from which the sample is extracted are not well synchronized. Former students, some long graduated, and early acceptance students still in high school are apparently included in some institutional lists being used as sample pools. If sample pools are significantly divergent from the intended sample frame, lower response rates are more likely and sample results less reliable.

Finally, comments from respondents submitting these invalid surveys indicate the survey would also benefit from inclusion of a branching option. This strategy would let those who exclusively use digital resources move to a set of questions that focus on resources and services they use and exclude issues of the physical library with which they have little interest of experience. Branching could also provide an opportunity to get input from non-library users in the sample as to why they are not using the services and facilities.

I also urge an exploration of strategies to increase response rates to this instrument, as these comments generally have yielded useful insights into the minds of library clientele. We can only profit from increasing the yield of information that is otherwise hidden from our view.

Also presented at this conference (and included in this volume), was a paper on a new platform being developed by LibQUAL+®: LibQUAL+® Lite. LibQUAL+® Lite is a survey methodology in which (a) all users answer a few, selected survey questions (i.e., three core items), but (b) the remaining survey questions are answered ONLY by a randomly-selected subsample of the users. Additionally, in this new platform, ALL comments will be made available to the participants, as well as other major improvements.[2]

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## Endnotes

1. "Defining, Assessing, and Measuring Service Quality: A Conceptual Overview," DVD Presentation by A. "Parsu" Parasuraman, available free of charge from LibQUAL+®, http://www.formspring.com/forms/?53482-2whxHpKO9N.

2. Bruce Thompson, Martha Kyrillidou, and Colleen Cook, "Item Sampling in Service Quality Assessment Surveys toImprove Response Rates and Reduce Respondent Burden: The "LibQUAL+® Lite" Example," Presented at the 2008 Library Assessment Conference, August 4-7, 2008, Seattle, WA, see this volume.

# Applying ATLAS.ti and Nesstar WebView to the LibQUAL+® Results at UBC Library: Getting Started

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## Abstract

We asked survey respondents: *How can the UBC Library serve you better? Please tell us!*

The respondents replied: *By making it easier to FIND resources, people, places, and help.*

The University of British Columbia (UBC) Library participated in the LibQUAL+® survey for the first time in January/February 2007. The preliminary quantitative data from ARL (notebooks, including radar charts; LibQUAL+® Analytics-Institution Explorer; other worksheets and templates, etc.) were used and shared with over 200 library staff in open sessions. To get started with the qualitative analysis and to enhance the quantitative data, we used two analytical tools: ATLAS.ti and Nesstar WebView. We downloaded the "comments" from LibQUAL+® to ATLAS.ti and the SPSS files to Nesstar WebView. These tools enabled us to analyze the qualitative and quantitative data systematically, to expose and explore relationships between the qualitative and quantitative data, and to focus the results of the survey on specific user groups, places and services.

## Introduction: The Environment

The University of British Columbia Vancouver campus sprawls over an area of 993 acres (402 hectares), encompasses 12 faculties, enrolls nearly 45,000 students at its Vancouver campus and nearly 5,000 at its Okanagan campus. Of the nearly 50,000 students, 9,000 are graduate students and 6,000 are international students. Over 3,500 faculty and 300 FTE library staff work at UBC.

The library system is highly decentralized, with nine libraries on the Vancouver Point Grey site, four libraries off-site in Vancouver and one library at the UBC-Okanagan campus in Kelowna. UBC-O Library conducted its own LibQUAL+® survey in 2007, the results of which are not discussed in this paper.

The two largest libraries are the Koerner Library (Humanities & Social Sciences, including government publications, maps, microforms, circulation) and The Irving K. Barber Learning Centre (Barber).

Barber was in a state of being re-constructed during the 2007 survey period. At the time of the survey, it housed Art+Architecture+Planning, Science and Engineering, Rare Books & Special Collections, University Archives, the Automated Storage Retrieval System, and Circulation. In spring 2008, the newly renovated heritage core and a new wing were opened, including the Learning Commons, meeting rooms, multi-purpose classrooms, social spaces, café, and more.

Other branch libraries are Asian, David Lam (management), Education, Law, Music, Robson Square, Woodward (life sciences), Xwi7xwa (First Nations) and three off-site hospital libraries: Biomedical Branch, Hamber, St. Paul's.

## A. General LibQUAL+® Results

The preliminary quantitative data revealed that, in general, undergraduates were satisfied with library services, with some exceptions, but that the library did not meet the minimum service level for the "Information Control" dimension (collections, access to collections) for graduate students and faculty.

A preliminary perusal of the "comments" survey question (qualitative data) revealed two divergent sets of perceptions.

LibQUAL+® respondents commented positively on these issues:

- the library's "transition to online" program (moving from print to electronic journals);
- liaison services by subject librarians;
- teaching and learning programs;
- their many positive encounters with staff; and
- the Interlibrary Loan/Document Delivery services (this was not a survey question, but the service received a noteworthy "write-in" vote of confidence).

However, respondents frequently used the word "difficult" to describe their experiences in finding resources, people, places, and help:

- resources are often hidden/invisible/lost, not where they are "supposed" to be;
- service points are hidden, especially in the two largest branch libraries;
- people are sometimes hard to find, subject specialists are too scarce;
- policies and procedures are sometimes difficult to find online;
- online help is hard to find or presented inconsistently;
- some libraries are hard to find;
- some places within libraries are hard to find; and
- some content is hard to find.

## B. ATLAS.ti: Discovering "What" and "Why"

ATLAS.ti enabled us to analyze the comments in a systematic way, to uncover patterns, to consolidate common threads, and to focus on the most important concerns.

### 1. The process: coding the comments

We assigned 126 codes to the 369 comments received from respondents, expanding the individual ideas in the comments to over 3,600 snippets (parts of comments or subtopics). The coding scheme included the three LibQUAL+® dimensions, codes for all 22 core questions and demographics. In addition, we assigned free coding, using simple keywords from the respondents' own words or concepts that would be meaningful to librarians. The process of coding allowed for serendipitous discovery and was iterative. As we entered more codes, we discovered connections between codes, eliminated repetitious codes, and substituted better terms.

### 2. The process: analyzing the codes

We sorted the codes by frequency of occurrence and streamlined the coding further by dropping codes, re-coding some comments/snippets, and adding others. The frequency of codes, sorted high to low, began to reveal the potential importance of common themes. For example, we were surprised by the number of concerns about the physical access to collections and the range of perceived gaps in collections. The analysis of the codes also pointed to a number of issues related to access, one of many signs that the collections gaps may have several causes, not only "real" gaps in holdings, but also findability gaps.

**Table 1. ATLAS.ti Codes - Frequency in Descending Order**

| **Demographics** | | **Issues** | | **Library Used** | |
|---|---|---|---|---|---|
| | **Codes (#)** | | **Codes (#)** | | **Codes (#)** |
| Faculty | (242) | Services | (177) | Koerner - HSS | (242) |
| Grad | (232) | Collections | (136) | Woodward - LifeSci | ( 64) |
| SocSci | ( 88) | Positive | (116) | IKBLC - SciEng, FA | ( 58) |
| Humanities | ( 77) | Instruction | (105) | Educ | ( 34) |
| Undergrad | ( 77) | Physical access | ( 98) | | |
| Science/Math | | Gaps - Collections | ( 97) | | |
| HealthSci | | Reference | | | |
| Age 23-30* | | Library Web site | | | |
| Age to 22* | | E-journals | | | |
| AppSci | | Books | | | |
| | | Access | | | |
| *over 30 not coded | | Negative | (63) | | |
| *Number of respondents: 755* | | | | | |
| *Number of comments: 369* | | | | | |
| *Number of codes: 126* | | | | | |
| *Number of snippets: 3,656* | | | | | |

### 3. The Process: Creating Code Families

Using the Code Manager in ATLAS.ti, we combined codes into code "families," representing both broad and narrow concerns. For example, when combined, the codes in the "collections family" connected the specific detailed examples of collections gaps to the broader collections concerns.

**Table 2. Code Families**

| Collections Family | Codes | # |
|---|---|---|
| | 12print | 37 |
| | 13e-info res | 12 |
| | 17journals | 13 |
| | A/V | 15 |
| | Asian lang | 2 |
| | Books | 73 |
| | Browsing | 11 |
| | Collections | 136 |
| | Datafiles | 1 |
| | e-books | 7 |
| | e-journals | 81 |
| | Exhibits | 2 |
| | Gaps | 97 |
| | ILL/DD | 25 |
| | Microforms | 7 |
| | Missing | 18 |
| | Newspapers | 3 |
| | Preservation | 4 |
| | Print journals | 28 |
| | RBSC | 1 |
| | Reserves | 8 |
| | Theses | 3 |
| | Total codes | 584 |

Individual codes could "belong" to more than one family, creating the possibility of overlap and/or links between themes, e.g., the code "browsing" relates to the "collections family" and "teaching and learning family" and the "physical access" family, depending on the context of the code.

### 4. Theme Teams Discover "What" and "Why"

Three ATLAS.ti tools helped us to tailor the comments to specific audiences:

- Code Manager: simplifies the process of coding, sorting the codes, revealing the most frequent codes;
- Network Editor: enables understanding the connections between codes; and
- Query Tool: enables sorting, combining codes and code families, creating "queries" and manageable reports ("query reports").

The 3,656 snippets of comments could now be assembled into manageable printed reports by broad themes. We called for volunteers to assist with the analysis of the "comments" and their associated codes. Thirty-two volunteers responded from across the library system. All three employee groups participated, librarians, library assistants, and "management and professional" staff (systems, circulation supervisors).

The initial sorting of codes, creation of code families, and query reports indicated that four Theme Teams might be appropriate:

- Customer services (behaviours, skills, expertise, teaching & learning);
- Access to information and access to collections;
- Collections and gaps; and
- Place and physical access.

In addition, a few individual analysts also volunteered to look at the comments from specific user groups and disciplines. Some tailored query reports were also distributed to branch heads and standing committees (on public services, e-Library services, reference, and instruction).

The four Theme Teams were asked to consider the following questions:

- What are the 3-5 main themes/concerns?
- Why are these concerns?
- What issues might be addressed in the short term?
- What issues cannot be addressed now (but might be explained/clarified)?
- What issues might be addressed in the longer term (might require additional staffing or funding resources)?
- Is this a collections gap?
- Is this an access to collections question?
- Is this a findability/navigation question?
- Is this a policy/procedural issue?
- Is this a physical access issue (signage, findability, arrangement, missing/misshelved)?
- Is this a teaching and learning issue?
- How can we best communicate the results from your team to the library administration, staff, users?

The Theme Teams perused their respective reports and identified 14 dominant themes. When all teams assembled to share their stories and compare their findings, four main themes emerged, as follows.

**Table 3. Theme Teams Identify Main Themes ("What" and "Why")**

| Team 1<br>Customer Services<br>-behaviours, skills, expertise<br>-teaching & learning | Team 2<br>Access to Information and<br>Access to Collections | Team 3<br>Collections and<br>Gaps | Team 4<br>Place and<br>Physical Access |
|---|---|---|---|
| **Top 4 Themes:** | | | |
| Findability | Findability | Findability | Findability |
| Education (teaching & learning) | Education (teaching & learning) | Education (teaching & learning) | Education (teaching & learning) |
| Visibility | Visibility | | Visibility |
| | Accessibility | Access to collections | |
| | | Access to information | |

Finally, a common overarching word emerged. The **one** big idea was "findability."

LibQUAL+® respondents said: *make it easier to find*:

- the people (in-person helpers, subject expertise);
- information (about the resources, about contacts, about the places, about help on the Web site);
- resources (the content, access to the content); and
- places (the libraries and inside the libraries).

In response, the Theme Teams recommended ways to address these service gaps, at least in part, either in the short term or longer term.

## C. Nesstar: Discovering "Who" and "Where"

We turned to Nesstar WebView for a more detailed analysis of the quantitative data. This analysis would allow us to pinpoint more closely "who" was most concerned and "where"—which libraries, places, disciplines, or functions required attention the most.

In LibQUAL+® terms, the advantages of using Nesstar WebView for this purpose include:

- usability by novice and expert alike;
- a choice of universal or limited access;

- ability to search by survey or by survey variable;
- ability to download any statistical program, SPSS, SAS, or other program;
- ability to create user-defined variables;
- ability to view and manipulate selected data only (layers, subsets, filters);
- ability to customize output for specific audiences and purposes
  - view online tables, charts, pdf format
  - export data to spreadsheets, export pdf files; and
- perhaps most important, with Web access, assessment teams can view the data online and create/manipulate the tables and charts in consultation with each other.

### 1. Exploring Data, Searching Surveys, and Variables

We loaded the SPSS data for three datasets:

- UBC Library (UBC-Vancouver and UBC-Okanagan);
- UBC West; and
- UBC CARL (Canadian Association of Research Libraries consortium).

### 2. Customizing Data: Browsing, Analyzing, Computing, Re-coding

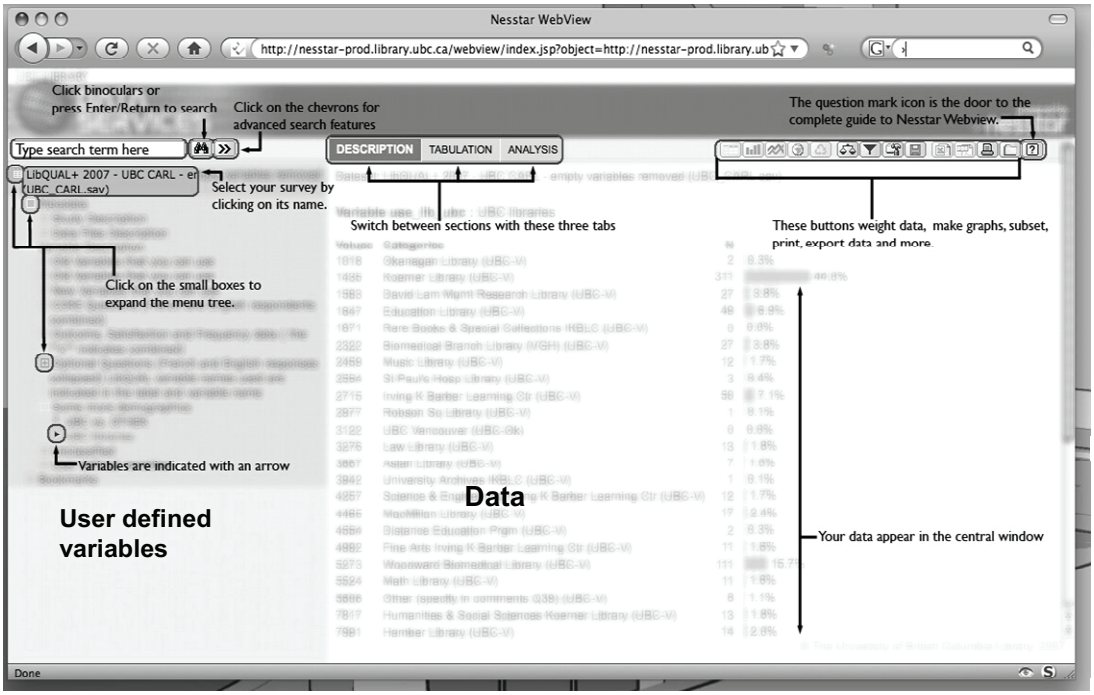
Since UBC Vancouver and UBC-Okanagan data were initially combined into one dataset, we created two new "user-defined" variables: UBC-Vancouver and UBC-Okanagan. The new variable "UBC-Vancouver" allowed us to isolate the data for UBC-V only.

We explored the LibQUAL+® story in more detail through the application of layers, filters, subsets, and additional user-defined variables (re-coding), for example:

- layers (survey, branch library);
- filters (user group, disciplines);
- subsets (the four largest branch libraries or benchmark libraries); and
- user-defined variables (combined branches: Koerner, Barber).

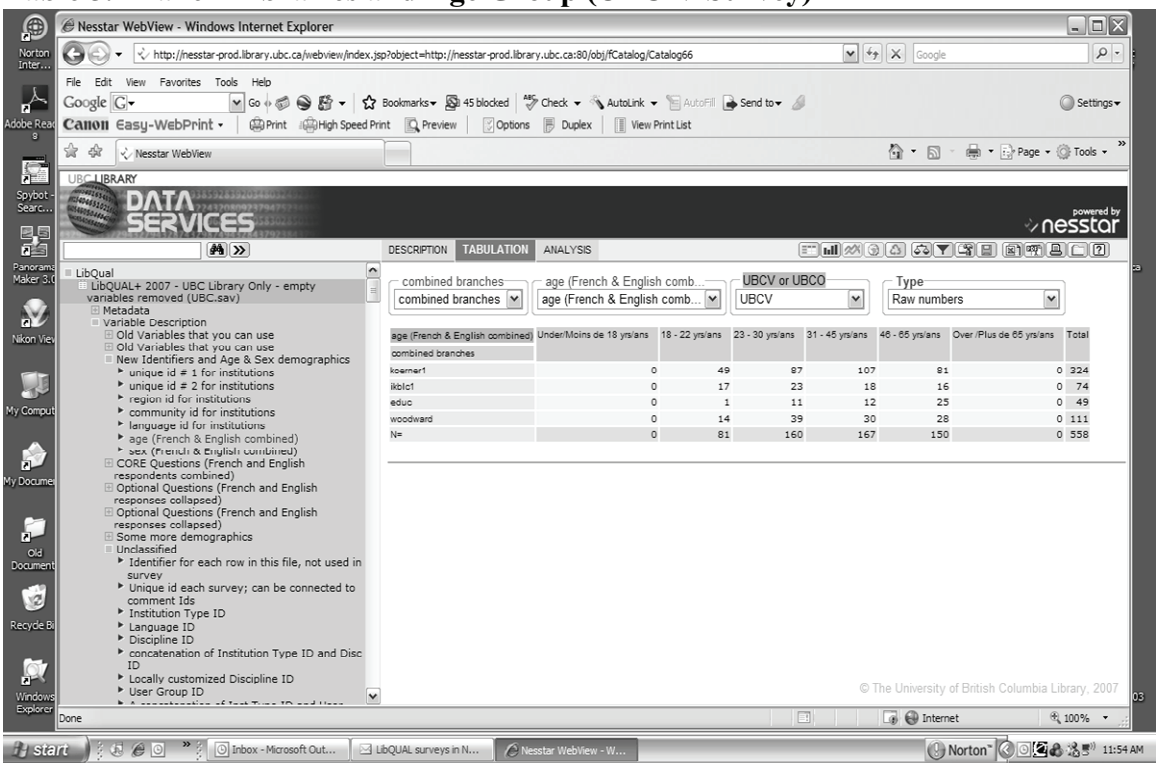
This is illustrated by the following two Nesstar tables:

**Table 4. Nesstar WebView Window**




Key:
Left column = survey data and variables, including user-defined variables, selecting layers, selecting row/column tables for output
Center column = description, tabulation, analysis views
Top right column = buttons to weight data, make graphs, create subsets, view/print/download output

**Table 5. Branch Libraries and Age Group (UBC-V Survey)**




Key:
Layer = UBCV (University of British Columbia Vancouver survey)
User-defined variable = "combined branches"
Tabulation = LibQUAL+® variables: branch library, age of respondent
Subset = selected 4 libraries

### 3. Customizing the Output

Customized tables were viewed online or printed out in several ways:

- previewing, viewing and printing PDF files in Nesstar WebView;
- exporting tables to spreadsheets;
- exporting tables as PDF files; and
- downloading data and manipulating spreadsheets.

## D. Steps to Assessment

These customized statistical reports and the Theme Teams' reports point us to the next stage of assessment planning and programming. Some possible investigations to pursue are as follows.

1. *Why are respondents in the sciences using the Koerner Library (the "humanities & social sciences" library) in such high numbers?*

It's a long walk from most science teaching and lab classrooms to the Koerner Library. Is this usage a sign of increasing interdisciplinarity in research? Are science students and faculty using the specialized materials in Koerner for data services, map information, social science literature, browsing, attending information literacy classes, or meeting friends? Will this "gate count" change when Barber gets rediscovered by students and faculty?

2. *Why are e-resources so difficult to find?*

Is the collections "gap" really a resource issue or is it perhaps a findability issue? Which resources are hidden? Does usage increase with better visibility on the Web site?

3. *How can physical access be improved?*

How can we make the big small(er)? How can we overcome the complexities of a multi-branch, decentralized library system? Can the arrangement of materials be made more consistent between buildings? Can better signage and online information improve wayfinding?

4. *How will the results of the next LibQUAL+® survey (2009) compare with the 2007 survey? Specifically, what difference will the opening of*

*Barber have made to perceptions of "library as place"?*

## Conclusion

In summary, use of both analytical tools, ATLAS.ti and Nesstar, and the Theme Teams' insightful interpretation of the data helped us to understand the LibQUAL+® story. The clear message from users was to make it easier for them to find people, information, resources, places (and inside the places). This directive informs our assessment plans and programs to improve customer services, the library Web site, access to collections, and to address gaps in our collections.

—Copyright 2008 Margaret Friesen

### Nesstar: A Brief Description

Nesstar (Networked Social Science Tools and Resources)
http://www.nesstar.com

Contact: Norwegian Social Science Data Services (NSD)
http://www.nsd.uib.no/nsd/english/index.html

Nesstar is a Web-based software system used to publish and share statistical data. The tools enable finding, browsing, visualizing and analyzing data online, as well as publishing various kinds of survey data.

Nesstar is a complete metadata authoring tool (description of the various elements of the data resource, including documentation) and is DDI compliant (a metadata standard used for documenting datasets developed in European and North American agencies).
http://www.nesstar.com/software/publisher.html

Nesstar WebView is used to view data and metadata that have been published with Nesstar Publisher via a Nesstar Server. Nesstar WebView incorporates the following features:
1. searching and browsing
    - simple and advanced search
    - ability to browse data and accompanying documentation
2. analytical tools
    - display of descriptive statistics
    - crosstabulations
    - correlations
    - regressions
    - compute and recode
    - graphical representations of data in customizable forms
    - application of variable weights
3. data access
    - support for datasets to be downloaded in various statistical formats
    - subset functionality for customizing data according to users' needs

http://www.nesstar.com/sofware/webview.html

# If They Build It, Will They Come? Implementing Students' Conceptions of an Ideal Library Home Page

**Joan Stein**
Carnegie Mellon University, USA

## Abstract
Most libraries conduct usability testing on the design of their new home pages after a prototype page has already been designed (often by library staff) and after a significant amount of work has gone into the design phase of their new library home page. During the usability testing phase, students usually react to an already designed product and libraries usually only receive feedback on how well the page they present to testers functions, rather than new ideas for inclusion in the design of the Web page. This paper will describe a set of workshops that elicited Carnegie Mellon University undergraduate and graduate students' feedback and design suggestions at the beginning of the design phase of a new library home page and how the feedback from these students' for an "ideal" library home page was incorporated into the initial design of the Carnegie Mellon University Libraries' new home page.

## Introduction
The use of qualitative measures is on the rise in libraries. This increase is a natural extension of libraries' need to be user-centered and to remain relevant in the changing networked information landscape. If libraries don't understand their users, it is difficult to focus their services, collections, and other activities on those users' needs. Qualitative methods are particularly well-suited to gathering this type of intelligence about our users. Peter Brophy recommends a combination of "three approaches:

1. ethnographic methods, which rely on the assessor living in the lifeflow;
2. independent, expert assessments; and
3. painting rich pictures—in particular the use of narrative and story."[1]

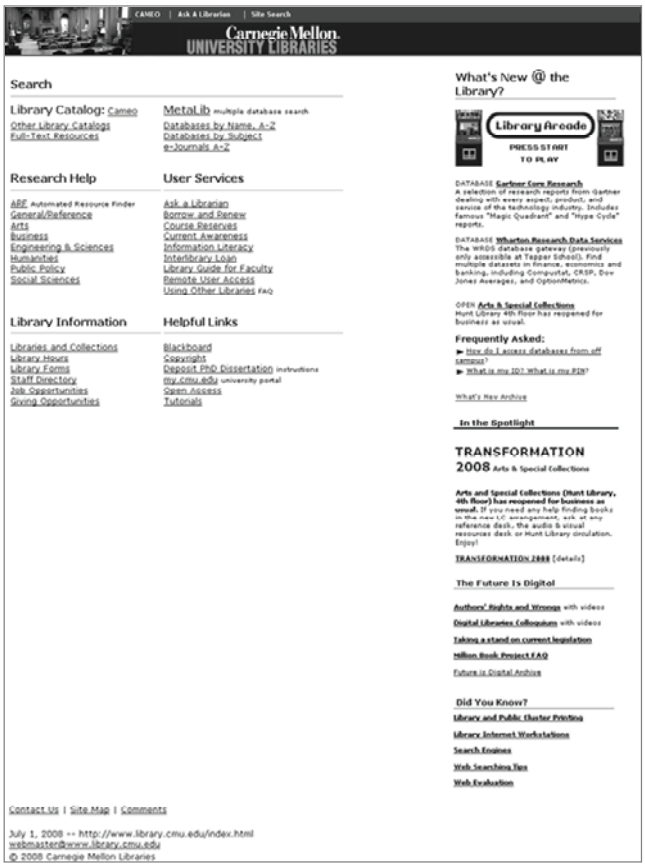
Ethnographic methods have received attention by libraries in the past few years in the library performance measurement literature. These have shown themselves so far to be a rich source of data and artifacts that greatly facilitate understanding library users' needs and motivations. This paper describes the use of such methods for gathering student input into the design of a new library home page.

## Opportunity
In January of 2008, Carnegie Mellon University Libraries was about to begin work on a major upgrade of our library management system, Sirsi Unicorn, moving from a more traditional online catalog into a product that Sirsi calls EPS Rooms, EPS standing for Enterprise Portal System. This new software integrates the online catalog into our library Web pages. During a discussion of potential design firms for the new home page, we recognized an opportunity to gather student input to inform the design of the new home page and acted on it quickly so that we would have their ideas available to the designers we would select. Carnegie Mellon University is a small, private university in Pittsburgh, PA. For further details about Carnegie Mellon University Libraries, please visit http://www.library.cmu.edu.

## Method
When we looked around for the best method to obtain the type of feedback we desired, we were pleased to discover the ethnographic work done at the University of Rochester's River Campus Libraries which was reported in the book: *Studying Students: The University of Rochester Undergraduate Research Project,* edited by Nancy Fried Foster and Susan Gibbons[2] and published by the Association for College & Research Libraries. We contacted Katie Clark at the University of Rochester, who generously shared advice and materials. In the end, we made some modifications to their process to adapt it to our own particular local needs. At Carnegie Mellon, we focused on asking students to generate "ideal" library home pages as the main exercise of our two workshops and increased the number of participants to twenty-

one to feel more confident in our results. The Rochester study was far more broad-based and wide-ranging. The Libraries hired Nathan Browne as the anthropology advisor to the study and we had welcome assistance at our two workshop sessions by interested colleagues. Nathan Browne holds a degree in Anthropology from the University of Pittsburgh and was able to advise on methodology. The sessions themselves were held during late January and early February of 2008. The sessions were held in advance of any design decisions made by library staff or a Web design firm, so that the students' ideas could be incorporated into the earliest design phases of the Libraries' new home page.

Below is an image of the Libraries' home page as of July 28, 2008:




As you can see, it looks somewhat lopsided, with more text and links on the right hand side than the left. This page had minor edits over a seven year period of time but had remained essentially unchanged and had become outdated in terms of look and content.

## Soliciting Participants

To solicit both undergraduate and graduate student participants in our study, a colleague designed some eye-catching posters and we put these up at the University Center, our student center, and in each of our three subject-based libraries. One of the images was also used for the Call for Participation that was placed on the Libraries' home page. For Incentives, we offered: pizza, soft drinks, and $20. It is usually difficult to solicit undergraduate student participation in library studies at Carnegie Mellon. The students are frequently stressed in terms of workload and therefore hard to entice.

We wanted a mixture of undergraduate and graduate students to participate and we did get a good balance of both, along with representation from each of the major subject areas taught, and a good mix representing the diversity on campus. We had ten volunteers show up (out of twelve who signed up) for the first session and eleven (out of fifteen) for the second. We had budgeted $500 for this so we could only afford to pay a total of twenty-five participants. We had more volunteers

than we could accommodate and had to turn several student volunteers away, which is unusual for us. We could easily have populated a third session. Following is an image of the recruiting posters we designed and distributed across campus and on our home page.







These posters were 11" X 17" and seemed to catch our students' attention.

The pictogram solicitation from the library home page also brought in several volunteers, especially since it was placed "above the fold" or "above the scroll" or whatever we should call this page break in the electronic environment.

## Group Work

Each of the two workshop sessions were conducted in the evening, from 7-10 pm, in the office of the Dean of Libraries, a beautiful space that has a variety of workspaces which allowed the students to work in groups while remaining in the same large room. The students responded well to the environment and there was a nice hum of activity as they worked enthusiastically in their groups. The sessions each lasted from two and one half to three hours. Each session and each exercise was audio-taped, although we would have preferred to video-tape them instead and will do that the next time we conduct sessions like this.

The sessions consisted of several interactive exercises:

1. All of the participants first introduced themselves and then brainstormed what they liked best about a particular Web page or Web pages in general, which were scribed on a flip-chart.

2. This was followed by another brainstorming exercise, this time of what they liked least about a particular Web page or Web pages in general, which was also scribed.

3. Next, we had them break into small groups and asked them to design a device (other than a laptop) that would make their lives easier as a student. There were no limits on what their device could do; they were asked to use their imaginations. This session both helped them become used to working in their groups productively and got them begin to think creatively. After this exercise, each group presented their "device" to the whole group. And when I say "thinking creatively," I mean just that. I

knew the presentations would be interesting when I heard someone say, "Why would we need bus schedules if we can teleport?" Two of the three devices in the first session had teleportation capabilities.

4. Working all together again, we asked them to brainstorm what they thought should be on an "ideal" library home page and write their ideas on post-it notes.

5. Then we asked them to get back into their small groups, and using their post-it notes and any new ideas they came up with, to design their "ideal" library home page. This exercise was also followed by presentations to the whole group.

Student participants were advised during the session that we would unfortunately not be able to implement all of their suggestions but that even those that we could not implement now would be taken under advisement for future product development or purchase over the long term. We then explained that the Libraries would use what ideas we could, given software constraints and good design principles. We collected and retained all of the artifacts ("anything machines" and "ideal library home pages"), paperwork (scribed pages of brainstorming exercises), notes taken by library staff observers, and audio-tapes. We then analyzed these results.

## Brainstorming Exercises Results

Our student participants had very definite ideas about what they did and did not like about home pages in general. The intelligence we gathered from these initial two exercises was often repeated by its inclusion or exclusion from the later "ideal library home page" exercise. Participants raised the following points during the brainstorming exercises:

### 1. Name a Web site you like a lot and which feature(s) you like about it.

Features of good Web sites mentioned by students included:

Ease of use:

- ease of use, simplicity; don't need instruction or advanced knowledge to use; just type in your search;
- user-friendly;
- easy categories (easy to understand what they mean and contain); and
- quick-loading.

Design elements:

- sites that are well-tailored to their audiences and don't supply unnecessary information;
- ability to pick from different "views" of the page and to switch back and forth between "views"; and
- really "in your face" graphics—good sized pictures grab attention (example here was Rolling Stone magazine online). Our site should be "juicier" to attract users; and
- easy to navigate; self-explanatory; all the most recent stuff up front (i.e., ESPN).

Customization:

- ability to have "my account" that would keep track of searches and bibliographic information for bibliographies;
- should make "delicious" bibliographies (like Bibme.org does); and
- ability to connect with friends.

"Smart" features:

- good search engine—gives me things I didn't know were out there;
- sites that can recognize and fix misspelled words and give you a result in spite of your error;
- gives comprehensive information on books: i.e., similar books by other authors, books by same author; more information on the topic;
- sites that provide information about or define whatever keyword you type in (i.e., Google, Wikipedia);
- sites that both pull up the information you need and information that you didn't think to search for ( mentioned by 3 different people);
- "ask questions" feature—questions answered by community members and answers rated by credibility of source of answer; and
- interactivity.

Recommendations:

- sites that provide you with a list of recommended books based on your past practices; and
- the element of "suggestion" (meaning "recommendation").

Convenience:
- quick branching to other sites (especially sites containing full text) i.e., Pub Med;
- sites that make it easy to find the journals, especially electronic journals, that we own (Google was mentioned here, not any link from the library home pages); and
- sites with no pop-up ads.

Comprehensiveness:
- comprehensive (lots of sources available); and
- enough categories to catch obscure information.

**2. Name a Web site you DON'T like and why you don't like it or something you don't like about Web sites in general. Which features or lack of features don't you like about it?**

Participants disliked the following points about Web sites:

Nuisances:
- sites that provide so much extra stuff you don't care about that its distracting (two mentions);
- random ads, loud music, and flash videos you can't avoid (especially when they follow your cursor and you have to deal with them); pop-up ads; sites that play random things once it loads; loud animations (ads mentioned repeatedly);
- too much spam;
- Lexis-Nexis specifically—too many offers to sign up to receive pay content; too hard to find the free licensed content; and
- when links in truncated summaries lead to the wrong page.

Poor design:
- sites that don't reflect the service they're trying to provide; the aesthetics of the site and the organization of its interface should reflect its purpose;
- no directional buttons inside the site so you get lost;
- ugly sites—poorly designed and organized (mentioned twice);
- poor aesthetics; out-dated; poorly organized; page looks jumbled; print too small;
- hideous and over-stimulating (colors, motion, etc.); and
- sites that are hard to navigate; not clean (design) and easy to use.

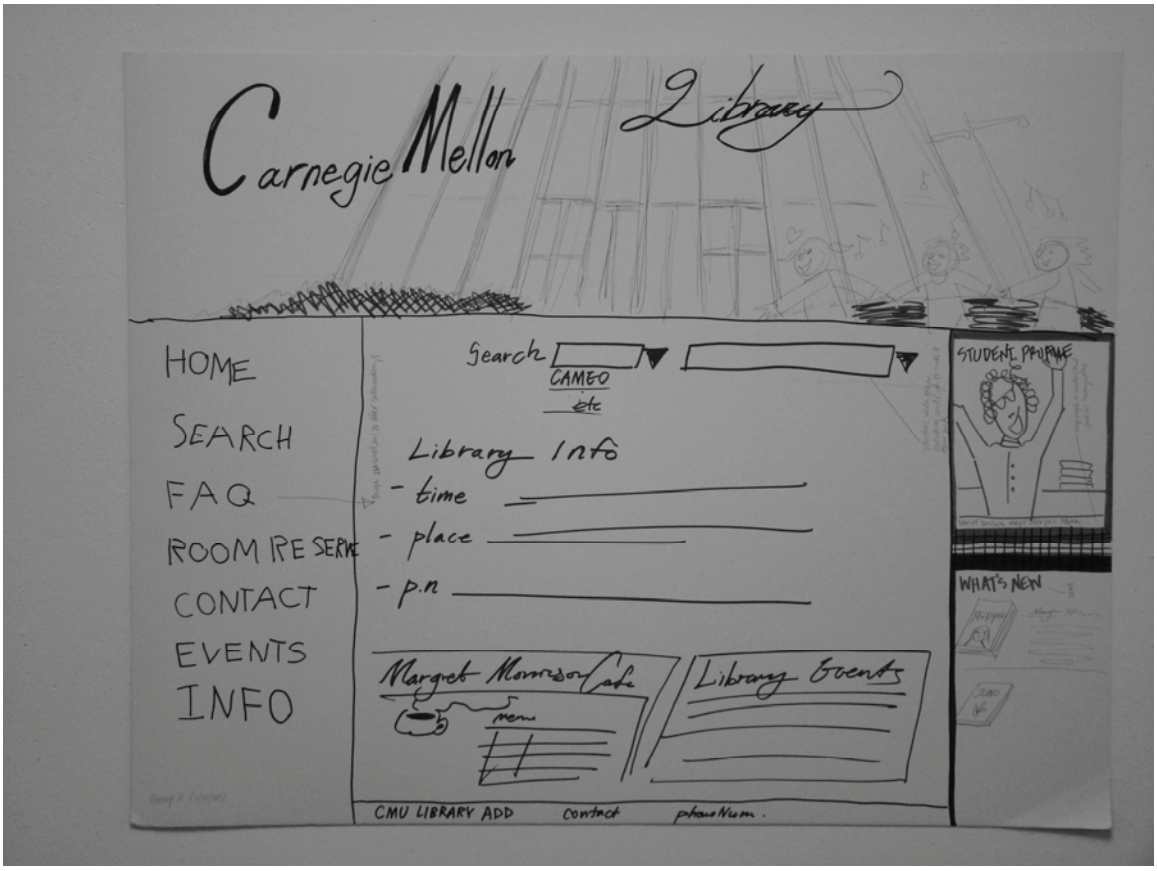
Difficulty of use:
- sites that require advance knowledge and decisions before you can decide which links to click to find what you want or which part of the site is aimed at you as the audience;
- inability to return easily to where you were before or hard to find things again;
- non user-friendly (mentioned three times); and
- sites where the content you want is too far down the page and you have to scroll too far to get to it.

Features:
- sites without enough features;
- sites where the search is too broad and you get too many extraneous results; and
- when e-mails to and from the site are blocked.

Library catalogs:
- features they didn't like about library catalogs and library Web pages in general:
  - when an exact title search turns up too many results (or none at all); and
  - not as good (as easy or convenient) for finding full-text or for starting your research as Google and Google Scholar are.

## Ideal Home Page Exercise Results

At the end of the two sessions, we had six poster-board examples of students' "ideal" library home pages and the results were heartening and enlightening. We found we could implement many of their ideas and suggestions without much trouble. Surprisingly, our students wanted us to do a better job of presenting our collections, services, activities, and the information they needed rather than wanting us to add content unrelated to libraries. The first group was especially vocal about not wanting us to seem to be promoting any particular non-library sites. Each group did include at least one relevant university Web page link on their "ideal" pages. Below is a sample ideal library home page that represents the majority of the designs and contents that the students created.




Five out of six of our students' "ideal" home pages had the following common elements:

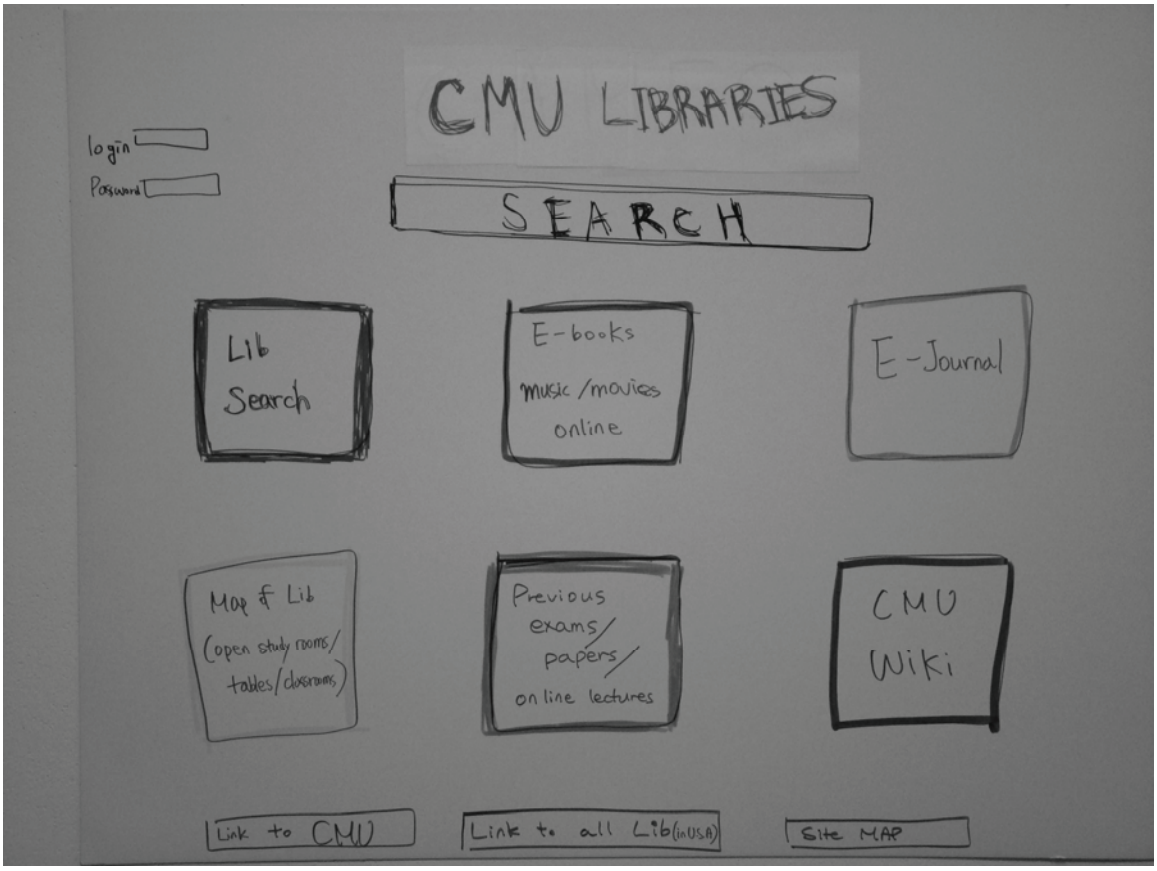
- a horizontal bar across the top with rotating images of students and buildings at Carnegie Mellon for variety and appeal;
- are usually divided into three sections below these pictures, with a large center section and two smaller sections to the right and left of this;
- were clean and uncluttered in appearance;
- had a brief taxonomy of links on the left-hand side of the page; and
- contained a search box prominently displayed in the large, center section. One of our students dubbed this box the "Google Rift."

Contents of the taxonomies differed somewhat from each other but certain categories were recurring, such as search, research, FAQ, services, help, library catalog, library information, library events, reserve study rooms, contact us, and what's new? (including recent acquisitions, especially popular movies).

In addition, the pages:

- let you "mouse over" links in the taxonomy to see what's below them without having to click down to see what is there;
- fit onto one screen—no scrolling necessary to view the entire page; and
- are "juicer," to attract return visits, and project a younger image. The students were emphatic about this and made the point that we tended to show only "old" people on our Web pages and on the local "Read" posters hanging in our library. One group included a section on their mock-up that would focus on a different student regularly, including a picture of the person, where that person would explain how they use the Libraries. The group thought it could help other students to learn from each other about reasons and ways to use the library. This would also contribute to creating a younger image on the home page.

But one group was thinking differently or perhaps "inside the box." The design, below, was based on the iPhone and iGoogle, something this group could obviously relate to.




Further, most students wanted their "ideal" home page to give them recommendations for books. This is something our students would highly value; recommendations of various sorts were discussed in-depth at the sessions. These recommendations could be based on:

- their past check-outs;
- titles recommended by librarians; and
- from faculty members on campus.

They would also like to be able to make their own recommendations to others, e-mailing a book record to a friend, and to recommend books for the Libraries to buy.

### Top Level Links

Certain items that are currently buried under a few to several links right now were brought to the fore on these "ideal home pages. It was clear from the six mock-ups that what we, as librarians, might consider important enough for the home page didn't always match what the students wanted at this top level. For example, our students wanted a quick and easy link to find out what books they had checked out or if they had fines; they wanted a link that would take them directly to their account in the online catalog. They also wanted an availability or status bar or higher level results (not buried in the hierarchy) that let them see the status of materials without digging down, especially for recreational movies. Participants also were interested in a top-level link to electronic reserve items so they didn't need to dig through the library catalog to find them.

In addition, students wanted the ability to reserve a study space, either the Libraries' group study rooms or empty classrooms on campus, from our home page. The link to the Libraries' group study rooms should give availability and on-line sign up; it should also show open group study areas and open computers available in the library in real-time (like the University apparently does with washing machines in the dorms). Students also wanted a link to the University's software that shows empty campus classrooms in case they wanted to reserve one of these to study in.

Participants also requested top-level access to pictorial maps of the Libraries—including maps of each library and each floor in each library, section by section, describing where things are, including

locations of journals and call number ranges. They'd love the maps to be interactive, telling them "you are here." Ideally they would like a kind of Marauder's Map, from the Harry Potter books, for the library.

Our new café, which opened in 2006, hadn't yet been added to the Library Web page and the students wanted it there, along with its menu and hours. In addition, the Libraries' hours and phone numbers were important to students and they wanted them on the home page, probably so that they could use their ubiquitous cell phones to call with questions. In addition, students were interested in very easy access to library hours. Some participants supported an idea to place a banner at the top of each the page for each branch library telling whether or not the physical library was closed or open and what time it opened the next day. Our students also wanted a top level link for finding online journals, not buried under "full-text resources" as they currently are on our Web site.

### Customization:

Customization was another desirable feature of an "ideal" library home page, particularly for our second group of students. They stressed the desirability of being able to personalize the home page and make it their own, placing the things they use most often on the top (or home) page (similar to iGoogle functionality). They saw several advantages to this.

- The system could analyze what they have checked out and make recommendations to them based on that;
- They would have easy access to their entire borrowing history; and
- they could make "delicious" bibliographies from books they had on their account.

Participants also wanted the ability to e-mail or text message book call numbers to themselves.

### General Advice:

We also received some general home page design advice from our participants. These tended to fall into the category of common-sense design principles that we needed to keep in mind or improve on in our new home page, including:

- categorize your links better; use a very simple outline and simple language;
- keep your page simple and clean—its too messy now and has too many words;
- all the different article indexes are confusing. We don't know why we should choose a particular index over another one. The indexes need descriptions;
- create a better FAQ—general information should be all in one place rather than scattered around like it is now;
- add RSS news feeds regarding what library services or content or events are available to us; and
- highlight online books and CDs that can be played from their computer.

## Incorporating Results

As I write, the Libraries have already incorporated many of the students' suggestions into our new library home page. These results are helping us come closer to creating the home page our students' want. However, user testing just ended in December 2008 and the results still need to be incorporated into the final product.

The new library home page was recently released with a soft launch in January 2009. There are far-reaching differences between our older home page and this new version. These differences include:

- a layout that matches the majority of the mock-ups of "ideal" pages;
- an increased use of images; the image at the top is larger, rotates content, and includes "young" faces;
- a taxonomy on the left-hand side (this particular software package doesn't come without a taxonomy; we were lucky that the students found this "ideal");
- a prominent search box in the middle of the center section;
- placement of library account access at the top level (on the right);
- the ability to reserve the Libraries' group study rooms;
- FAQs that are consolidated into one central location; and
- news about library happenings is available (in the center section).

We are currently in the process of preparing modules that will allow us to include other recommendations as well. These currently include recommendations based on check-outs and links to floor by floor library maps. The new home page does not, however, fit onto one screen at this point,

requiring scrolling to view it in its entirety. This particular point needs further exploration. We will continue to implement recommendations as time permits and user feedback requires.




Home
- Research Help
- Library Collections
- Find Articles & Journals
  Other Library Catalogs
- Library Services
- Carnegie Mellon Links
  FAQ
  Site Search
  Logout

**Quick Library Catalog Search**

SEARCH

Search by: Word or phrase
Library: ALL
Match on: Keyword

Advanced Catalog Search >>
Browse Search >>
Browse Reserves >>



ASK ANDY

MetaLib
Multiple database search.

**Libraries & Collections**
Quick Info

**Library Services**
Quick Info

**Reserve Study Rooms**

Group study rooms are available in the Hunt and Engineering & Science Libraries.
Click here to make a reservation.



**Whaddaya Think?**

Counting Opinions
Your Opinion Counts ...



**My Library Account**
Renew my items
Hold items for me
See my account
See my fines

**Comments?**
Send us your comments about the new library website.

**Research Showcase**




**Research Showcase provides a place for researchers to bring content to the web and thus to increase the impact of that work. It will collect and organize Carnegie Mellon's research output and make it accessible for scholars and laypeople all over the world. Check it out at** http://repository.cmu.edu/ ...

**The Latest Additions**
- Word Puzzles Produce Distinct Patterns of Activation in the Ventrolateral Prefrontal Cortex and Anterior Cingulate Cortex
- Traveling the Second Bridge: Using fMRI to Assess an ACT-R Model of Geometry Proof
- The Acquisition of Robust and Flexible Cognitive Skills
- An Integrated Theory of Prospective Time Interval Estimation: The Role of Cognition, Attention and Learning
- Conditional Routing of Information to the Neocortex: A Network Model of Basal Ganglia Function

**How Do I:**
- Apply for library job
- Contact my librarian
- Deposit PhD dissertation (PDF)
- Find Reserves
- Get library ID & PIN
- Login as library guest
- Obtain library instruction
- Reserve group study room
- Use Carnegie Library of Pittsburgh
- Use University of Pittsburgh libraries
- Access the wireless network
- Get a list of where things are in the libraries? (PDF)
- Print or make photocopies? (PDF)

**Popular Movies**

DVD's are available for checkout at the Hunt Library Circulation Desk, 1st floor.

**Current List of Popular Movies**
1. Arrested development. Season one [videorecording]
2. Star wars. Episode III, Revenge of the Sith [videorecording]
3. Atonement (Motion picture : 2007)
4. Casino Royale (Motion picture : 2006)
5. No country for old men [videorecording]
6. Ratatouille (Motion picture)
7. The devil wears Prada [videorecording]
8. 300 (Motion picture)
9. Perfume [videorecording] : the story of a murderer
10. Madagascar [videorecording]

**MEMORABILIA**

**Bill Elliott Collection**
Check out a rotating display of former VP Bill Elliott's renowned collection of Carnegie Mellon artifacts. University Archives, Hunt Library, 2nd floor.

**Reading Lists**

**Best Sellers**
New York Times Nonfiction
Washington Post Nonfiction
Globe and Mail Non-Fiction

**Library Arcade**




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## Final Comments

I'd like to stress that the results you get will be specific to your local environment and not applicable to other institutions. Our results were quite different from those from the Rochester study because every student body and every institution differs. I'd also like to point out that gathering this type of input is very rewarding in terms of the wealth and depth of data that you gather in return for your effort. Of course, the analysis afterwards does require considerably more effort than the gathering itself but its narrative structure makes it pleasurable to work with and learn from. And finally, our university administration is more influenced by student narratives than by most other measures. Our students spend a significant amount of money to come to Carnegie Mellon and the university wants them to feel that it was money well spent. So do the Libraries.

—Copyright 2008 Joan Stein

## Endnotes

1. Peter Brophy, "Telling the Story: Qualitative Approaches to Measuring the Performance of Emerging Library Services," Performance *Measurement & Metrics* 9, no. 1 (2008).

2. Nancy F. Foster and Susan Gibbons, *Studying Students: The University of Rochester Undergraduate Research Project* (Chicago: Association for College & Research Libraries: 2007).

# Usability Process: Measuring the Effectiveness of Facets

**Kathleen Bauer**
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## Abstract

Yale University Library (YUL) has pursued an approach to usability analysis of all its new digital services which views usability as an ongoing, continuous process. This approach encompasses several types of analyses, including examination of log files which record user behavior, and usability protocol testing which seeks to identify how and why errors happen. This paper presents some of the usability analysis done at YUL on its OPAC (called Orbis). An examination of Orbis logs showed an unacceptably high rate of errors, and low use of catalog metadata. Because of these problems YUL elected to pursue the implementation of Vufind, a next generation OPAC developed at Villanova University by Andrew Nagy, with goals of reducing errors and increasing metadata use. This paper specifically addresses one aspect of Vufind: facets. In usability protocol testing, Vufind (called Yufind at Yale) was shown to increase the use of metadata through the display of facets. Barriers to correct facet use were identified, such as poor navigation options and inconsistent metadata in records. YUL staff have implemented some changes to Yufind as a result of testing, have identified priority areas for further development, and based on continued user testing and feedback will continue to look for ways to improve the Yufind interface.

## Introduction

Yale University Library (YUL) has adopted a usability process in all its technology projects, whether new implementations or major upgrades. Some people misunderstand usability as consisting of single isolated task-based usability protocol testing. While usability protocol testing is an important part of usability, it is only one part of the process. The usability process should not consist of isolated one-time tests, but rather must consist of ongoing, continuous work which progresses in stages. This paper describes the staged approach to usability as applied at YUL in the implementation of Vufind, a next generation OPAC, and in particular how it was applied to the implementation of faceted results.

In the case of Vufind, staff in the library's Usability and Assessment Department first laid the groundwork for the implementation by creating a deeper understanding of user behavior in the current OPAC through log file analysis. Log file analysis helped set priorities for the implementation of the next generation OPAC and also formed the basis of tasks included in the next phase: actual protocol tests of Vufind. In this phase staff studied user behavior of a new type of display, facets, was gained. The results from testing were shared with staff to raise awareness of issues staff needed to address in Vufind. Finally, YUL will make changes and then assess the effect on behavior (if any).

## Log File Analysis

3777 lines from the current Yale OPAC, called Orbis, were gathered in December 2007 and March 2008 and examined. A simplified log file line is shown in Figure 1. The line includes the date and time of the search, a session ID (which helps to group consecutive search commands), an identifier of the type of search (in this case a title search), the actual search as entered (here it is John Dogget JNR) and the number of hits, or OPAC entries returned (0 records were matched for this search).

**Figure 1. A line from an Orbis log file showing an actual user initiated search.**

| | | | | |
|---|---|---|---|---|
| 12/2/07 20:06 | 20071202200646 | Title Index | TALL JOHN DOGGET JNR | 0 |

Lines from the log file were analyzed using a text analyzer. The most common search type was by title (41.8%) followed by keyword (31.4%). The average search phrase was 2.5 words long, and the most commonly searched phrase was "united states." The most common number of hits returned for a search was 0 (21.4%). The last statistic was very disturbing. A result of 0 hits may be an accurate reflection of a user request for a book the library does not own, but it may also represent a mismatch between the item the user wants, the way they formulate the search, and the system's interpretation of the search. To better understand the situations leading to 0 hits, all title searches returning 0 hits were further examined. Title searches were chosen because title searches should be for some known item, and therefore it should be possible to determine if a search was done correctly and shows that the library did not own the desired item. In the sample, 506 such title searches existed. Title searches were examined by running the search terms in Orbis, Google Books and Worldcat. The searches were then classified as to the type of error encountered. Examples are given here to illustrate types of errors and how they were classed.

BOOKS ON PHOTOGRAPHY?
ALABAMA 2004
PATHOPHYSIOLOGY CHILDREN

In these three examples, no matching book title could be identified. It seemed most likely that these searches are actually a topic or keyword search. Title search is the default entry point into Orbis. In a different type of search, as exemplified by

JOHNSON, JAMES?

No book could be found and it was supposed that this is really a search for either an author or person as subject of a book. In another type of class, the search seemed to be very close to an actual title.

INTRODUCTION TO AFRICAN AMERICAN STUDIES: A READER?

No matching title could be found, but a very close title, African American Studies: A Reader was identified.

The most common cause of 0 hits was that the user was trying to search for a subject, not a known title. The frequency of 0 results, and the mistakes represented therein, demonstrated a key need for a new OPAC interface. The Orbis interface as it existed simply did not do a good enough job at helping users to prevent or recover from search errors. A summary of the errors identified are presented in Table 1.

**Table 1. Classification of 0 hit title searches.**

| Title 0 hits sample | Number in class | Percent of all 0 hits (N=506) |
|---|---|---|
| Subject or keyword | 108 | 21.3% |
| Misspelling | 93 | 18.4% |
| Author or person | 87 | 17.2% |
| Correct no holdings | 69 | 13.6% |
| Close | 67 | 13.2% |
| Foreign language | 32 | 6.3% |
| Unknown | 27 | 5.3% |
| Article | 14 | 2.8% |
| Other | 9 | 1.8% |

Another data point watched by the library is the overall breakdown of the types of searches. In 2007-2008 search types became increasingly homogenous. Title and keyword searches increased, while other search types declined. In particular, the Library has become concerned that author, subject, and call number searches have continued to decrease, and now collectively represent only 26% of all searches. These searches represent use of metadata added by the library (or purchased) and lack of user interest in these searches represents a lack of impact of the work of

the library staff, and a poor return on investment of resources by the library. YUL would like to raise use of these metadata fields.

From the log file analysis it became apparent that patrons commonly use field specific searches unsuccessfully. There does not seem to be a good conceptual framework for how users search. The majority of searches do not make use of metadata in catalog records, in particular for subject, author, or call number. The library's current Voyager system does a poor job of handling or preventing error states. In light of these results, the library launched an investigation and then implementation of a next generation OPAC, with one of the goals being to reduce errors and increase the use of metadata.

Vufind is one of a class of next generation OPACs, a broad term applied to a number of improved search interfaces for library catalogs. Vufind is an open source interface developed at Villanova by Andrew Nagy. YUL went live with its implementation of Vufind September 3, calling their version Yufind beta. Features typically associated with next gen OPACs that are included with Vufind include:

- Google-like, very forgiving search that will return some results for almost any search term—hard to get 0 hits;
- Relevance ranking, involving an algorithm that weights some results higher than others based on a set of rules;
- Interaction tools such as user reviews; and
- Faceted navigation, displaying clickable subsets based on format, author, topic (pulled from subject headings), call number and others. Though YUL tested other characteristics of Vufind, this paper focuses on testing facets.

## Methodology for Testing Facet Use

Usability and Assessment staff created two sets of usability protocol testing[1] to study the performance of Yufind. One test was run for a Yufind-based subject display of electronic books used by the Cushing/Whitney Medical Library at the Yale School of Medicine. A separate test was run for Yufind as an alternative interface for the YUL OPAC aimed at undergraduate students. In these tests, tasks were written based on common searches found in the log files or all Orbis searches. One challenge of the test was to measure the use of facets without deliberately drawing attention to them. That is, the tests were designed so that students would have an opportunity to use facets, but they would not be asked to do so. The intent was to measure both the chance that a student would see and try to use the facets and the ultimate efficacy of that use.

**Tests at the Cushing/Whitney Medical Library.** Tests were run the last week of April 2008 with eight medical nursing students (all graduate level). Tests lasted thirty minutes each and consisted of ten questions. All tests were run on laptops in the Cushing/Whitney Medical Library using Morae software to record participants' comments, video, and screen captures showing how they addressed each task using Yufind. They were asked to think aloud as they proceeded. To begin the tests students were engaged in conversation about their area of concentration and any research they were currently doing. Then students were asked to find electronic books in their general discipline, and then to further narrow that search to a specific clinical or research question they were currently investigating. Facets were not pointed out to students and discussed until all tasks were completed. Questions about facets raised by participants were not answered during the tests.

**Undergraduate Tests.** Tests were run from late April to early May 2008. Five students were asked a series of questions and asked to use Yufind to complete the tasks. Each test lasted approximately thirty minutes. All tests were run on laptops in the Sterling Memorial Library using Morae software to record participants comments, video, and screen captures showing how they addressed each task. They were asked to think aloud as they proceeded. Facets were not pointed out to students and discussed until all tasks were completed. Questions about facets raised by participants were not answered during the tests. They were asked two-part questions designed to see if they would use facets to refine a search.

In these tests, three questions presented an opportunity for appropriate use of facets. The questions and results are summarized below.

1. (undergraduate) Find books within a set by a particular author (John Adams). Most participants failed to complete this task, with only one of five participants able to successfully answer the question. The use of the topic facet to narrow the search was not understood by most participants, and represented one of the hurdles of use of topic facets. Participants voiced surprise at the specific topic facets listed,

as they did not seem to make sense. Even when participants tried to use topic facets, the length of the list and extraneous topics rendered them less than useful.

2. (undergraduate) After finding books about the United States' depression of the late 1920s through 1930s, participants were asked to specifically find books specifically about public health during that period. The overly broad search results made this difficult for participants. Again, topic facets were difficult to navigate and not particularly useful to this search. One participant successfully answered the question.
3. (graduate medical and nursing) Within a subject-based display of electronic books, find a topic-based subset. Half the participants were able to successfully use facets to answer this question. It should be noted that half the participants tried to use search to narrow to a particular subtopic, and these participants voiced a strong preference for using search over other techniques to narrow a result set. Participants who did use facets commented on the difficulty of browsing long lists which were not presented in alphabetical order.

A goal of the Yufind implementation was to raise use of metadata in the catalog above the current 26% as established by log file records of Orbis use. As a comparison, the results of the questions which could be answered with the use of facets were pooled together (results in Table 2).

**Table 2. Results of facet testing.**

| Questions | Participants Answering Question | Use of Facet | Successful Use of Facet | Percent Successful Use of Facet |
|---|---|---|---|---|
| #1 | 5 | 3 | 1 | 20% |
| #2 | 5 | 2 | 1 | 40% |
| #3 | 8 | 4 | 4 | 50% |
| Total | 18 | 9 | 6 | 33% |

The rate of successful use of facets, 33%, did exceed the benchmark 26%. Facets were more often noticed (50%), but not all of these were converted to successful use. Participants noted problems that contributed to difficulty using facets. Author and topics displayed in the faceted list did not always make sense to the participants. Long lists of facets, displayed in descending order by number of occurrences in the search set were also noted to be very difficult to scan and navigate. Call number facets which may have been useful were not used to complete any tasks. Participants were enthusiastic in noting the potential usefulness of facets for format, language and topic (subject). Some students noted that they did prefer to use a second search over facets to refine a search. This result confirms evidence found elsewhere that a second, refining search is a more popular alternative to the use of facets.[2]

It should be noted that this is only a preliminary finding, and that thirteen subjects is too small a set to confidently predict that Yufind will continue to increase the use of metadata. However, it was an encouraging result prompting a willingness to further examine Yufind.

## Discussion

Yufind was shown to have the potential to increase the use of some metadata in the catalog. However, the confusion caused by the facets displayed is cause for concern. Yufind performs a search that looks for the exact search phrase in the title field and applies a very high score to those records, exact phrase matches in other fields are given slightly lower scores, all terms found in title are given a lower score, and so on, with any single search term appearing in some fields getting the lowest scores. These lowest scored hits are returned in the result set, but at the end of a large set. The user who browses from the top of the set will probably never see them, as they may stop browsing after fifty to 100 hits. However, facets are formed from the entire result set. Depending on the largest parts of the collection, this may mean that very large facet sets are formed of items with very low relevance. For example, a search for "great depression" will return hits for records containing only the word "great," and so facets sets of records for Great Britain or Great War will be very large (based on the contents of the collection with large coverage of these topics), although they may have little to do with the

user's search. The difference between how relevance is applied and how facets are formed is a central problem with the current Yufind implementation. Possible solutions being explored include limiting the facet sets to only highly relevant records by not including records whose relevance score falls below a threshold.

Another problem noted by staff is that inconsistent cataloging practice makes it difficult to present reliable facets. Era for example, could be helpful to users. But over time era names have changed, or have been applied inconsistently. Therefore, it becomes difficult to present an authoritative list of eras that may reliably represent the contents of a search. Staff are currently examining what facets appear to be most accurate, and what retrospective corrections can be made to catalog records to make them more consistent and reliable. It is a disservice to users to imply that displayed facets are faithful representations of all results in a set that have to do with a particular era or topic when that is not the case. The data in the catalog records will need to be made more consistent for faceted display to work reliably and accurately. Those facets found to be most unreliable will be suppressed from display.

Display and navigation also interfered with facet use. To make it easier for users to browse and navigate long lists of facets, an option will be added in Yufind to resort sets alphabetically. Also some users never noticed the facet display on the right side of the screen. The faceted results in Yufind will be moved to the left side of the screen, in accordance with the emerging standard seen in other sites such as eBay and Metalib.

Call number facets may be more accurate and ultimately more useful to YUL patrons, but in the usability protocol testing call number facets were not used. It may be that call numbers have little resonance for patrons, especially students who are more conversant with digital resources than print, and so may not be very aware of the meaning of call numbers. An area to be explored is to convert the call number display to a more user-friendly natural language display that does not depend on arbitrary sequences of letters and numbers.

The usability process as implemented for Yufind, involved several stages. Log file analysis of the current Orbis OPAC helped to clarify the problems of the current system, and proved that an alternative had to be found. The record of user activity also helped in setting benchmarks against which new systems can be examined. Log file searches also were used in creating protocol tests, so that real-world examples were presented for testing. Think aloud usability protocol testing helped to show where Yufind was successful and where errors occurred, so that future development could focus on those areas. Discussing results of testing and log file analysis with library staff helped them understand how users can struggle with library systems, and built empathy for the user experience. This continuous approach to usability will continue as Yufind is released in beta, as log files for Yufind will also be examined, and new usability protocol tests will be run, leading to further refinements of the system.

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## Endnotes

1. Jeffrey Rubin, Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests, (New York: Wiley, 1994), 330.

2. Cory Lown, "A Transaction Log Analysis of NCSU's Faceted Navigation OPAC" (PhD diss., North Carolina State University, 2008).

# Information Competence Assessment Using First Year and Upper Division Writing Samples[1]

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## Abstract

In recent years, there have been an increasing number of informative studies published on the use of authentic means to assess the information literacy of college students. Some studies find that students have not achieved program or institutional expectations, while others find that students have met or exceeded these expectations. No matter what the outcome, the majority of articles conclude with the common goal of using the assessment results to enhance learning.

This paper will focus on the need for libraries to expand their notion of information literacy assessment, since information literacy learning does not take place solely in the library domain. In addition, it will illustrate the need for libraries to address the difference between evaluation and assessment, since many library "assessment" models for information literacy continue to disregard key parts of the assessment process, as well as reinforce the notion that results, impacts, and recommendations cannot be the end of the line for information literacy assessment.

## Introduction

There have been more and more informative studies published on the use of authentic means to assess the information literacy of college students in recent years. Some studies find that students have not achieved program or institutional expectations, while others find that students have met or exceeded expectations. No matter what the outcome, most of the articles conclude with the common goal of using assessment results to enhance learning as well as a long list of action items that would need to be accomplished in order to do so. Some of these next steps include establishing committees, raising awareness, and implementing training. There are usually similarities between these next steps, but it is clear that each list reflects the unique context of the institution. It is also apparent that some of these action items might take months or years to accomplish, and in some instances might mean that the results would never be used for their original intent. This paper, therefore, will focus on the need for libraries to expand their notion of information literacy assessment, as information literacy learning does not take place solely in the library domain. In addition, it will also illustrate the need for libraries to address the difference between evaluation and assessment, since many library "assessment" models for information literacy continue to disregard key parts of the assessment process.

Our study found that there is a real need to shift efforts from getting results to building assessments that consider all aspects of the assessment process. Only then can a particular assessment method be assessed to be effective, sustainable, practical, or even meet its original intent. This shift would mean that it would be much more difficult for one institution to adopt another institution's assessment method for information literacy. This shift also would require institutions to not only establish institutional goals for information literacy, but open a dialogue about where the learning takes place in regard to the skills and concepts associated with information literacy. Most importantly, it means that institutions would have to be willing and able to tweak the overall assessment in order to get the desired data, as well as have a plan for how the results would be fed back into the system to actually produce meaningful change and enhance learning.

## Background

California State University Channel Islands (CSUCI) is a relatively new public four year university. The university graduated its first native freshman class and received initial accreditation in 2007. At CSUCI, information literacy is seen as a campus responsibility; information literacy was included in the *Characteristics of CSUCI Graduates*, which was drafted in the university's third year. Three information literacy outcomes were part of the CSUCI General Education Goals and Outcomes

developed in 2006. All first-year writing students receive some sort of information literacy session. These sessions are a collaborative effort between library and composition faculty, ranging from one to three meetings each semester, and are conducted in either a library or composition classroom. The librarians have information literacy outcomes developed for the library's information literacy program, which have been assessed informally within the library. The composition faculty have research outcomes, which have been assessed at the end of the semester using the composition program rubric. It should also be noted that CSUCI has not embraced standardized tests to assess things such as general education and writing outcomes. For example, all first-year composition papers are holistically graded by the composition program.

Upon reflection, the strong desire to use results to enhance learning has always been a part of this project. The main impetus for seeking the grant was the campus' less than enthusiastic participation in the CSU-wide beta-testing of the ETS ICT test. The beta-test was conducted when CSUCI was in the middle of its initial accreditation by the Western Accreditation of Schools and Colleges. The campus had an accreditation steering committee that included a librarian and a working accreditation committee with over a hundred members that included several librarians. Library and other discipline faculty regularly attended workshops and conferences focusing on assessment so there was a strong desire to explore assessment tools that would lead to program improvement. Programs and committees worked on pilot assessment projects that assessed a range of outcomes from disciplines, general education, and the university's mission.

With so much campus effort focused on assessment, the library was surprised that no other campus unit wanted to partner on the ETS ICT beta-test, and openly questioned the instrument's merit. For this reason, the beta-test ended up being conducted by a single person from the library. The results from the beta-test were shared inside and outside the library, but the campus was unsure on how the data could be used to enhance student learning, or even help them to improve in the categories identified by the ETS ICT test. As a result, the library and composition faculty decided to seek funding to examine a way to assess information literacy using assignments that students were already producing for courses. CSUCI students were already submitting assignments for a portfolio in the composition program, and submissions were already holistically scored by the composition faculty using a rubric. This existing process seemed like a natural fit for this type of assessment.

## The California State University System-wide Information Literacy Grant

The library and composition faculty at CSUCI received a two-year System-wide Information Literacy Grant from the California State University System (CSU) Grant for fiscal years 2006/2007 & 2007/2008. The first year of the grant was to develop a rubric to assess four information literacy outcomes using student products already submitted for composition courses, English 102/103 and 105. The second year of the grant was to be used to assess the same four information literacy outcomes using student products from the first-year composition courses as well as the products submitted in courses that meet CSUCI's upper division writing requirement. The project group, composed of all public service librarians and all composition faculty, also proposed that the assessment results would serve several purposes: first, to inform us of the information competence of incoming and outgoing students; second, to evaluate the impact of the information competence instruction program; and third, to help identify weaknesses in the information competence instruction program in order to make recommendations for improvement. The group quickly found that the goals of the proposal were geared towards large ideas and concepts in information literacy, and could not possibly take into account the developing and changing values and goals of our new university. Therefore, the group became accustomed to taking detours, engaging others on campus, and encouraging discussions early on that focused on what other things might have to be put in place to actually use the results.

## Year 1: Rubric Development and Student Product Selection

Originally the grant proposed to develop a rubric that addressed four outcomes from the ACRL Information Competency Standards for Higher Education: the information literate student synthesizes main ideas to construct new concepts; the information literate student compares new knowledge with prior knowledge to determine the

value added, contradictions, and other unique characteristics of information; the information literate student applies new and prior information to the planning and creation of a particular product or performance; and the information literate student acknowledges the use of information sources in communicating the product or performance. However, weeks after the receipt of the grant the campus adopted the CSUCI General Education Goals and Outcomes, which included three information literacy outcomes that did not completely align with the outcomes identified in the grant. These outcomes included: the information literate student accesses needed information effectively and efficiently; the information literate student evaluates information and its sources critically; and the information literate student explains the economic, legal, social, and ethical issues surrounding the use of information. As a result of this development, the group thought it best to develop a rubric that addresses both the proposed and adopted outcomes. Realistically, once the grant is complete the four original outcomes will be dropped from the rubric.

The group's first step, like all good researchers, was to scour the literature to find similar projects. Project descriptions and rubrics were also solicited on information literacy listservs. It was no surprise that back in 2006 the group did not find what is available today. Most rubrics focused on examining information literacy via products created out of library instruction (3 unit library classes or one-shot course integrated session), and not on products produced for composition or other disciplines. Most rubrics focused solely on outcomes from the ACRL Information Competency Standards for Higher Education. The group, however, thought it was important to look a variety of materials in order to create a rubric to assess key information literacy outcomes identified by the campus, the library, and the composition program. The group then scheduled three workdays over the next three months, and each group member received a packet with:

- All seven relevant outcomes
- *ACRL Information Competency Standards for Higher Education*[2]
- *AASL Information Standards for Student Learning*[3]
- *Rubrics for Assessing Information Competence in the CSU*[4]
- CSUCI Composition Scoring Rubric
- Rubrics that were designed to assess information literacy by using products from other disciplines, including rubrics collected from City University, Austin Community College, California State University, Chico, University of Southern Utah, LaGuardia College, PACE, Marquette University[5]

The first workday was used to familiarize all participants with information literacy definitions, information literacy standards, various campus outcomes, sample rubrics, and applications. The group was also asked to consider outcome overlap, assessment levels, useful products, and further questions. This first workday session was supposed to be led by the librarian project leader, who unfortunately ended up out sick with the flu. Instead of canceling the workday, the group decided to push on. By doing so the group produced a creative, not so library-centric, rubric, which had strong buy-in from all members. The only downside was that the group missed the outcomes grid in the packet, which meant some additional alignment work was needed.

The second workday allowed the group to align the draft rubric with the student learning outcomes in the grant and CSUCI Student Learning Outcomes for General Education. The result was the CSUCI Information Literacy Rubric Sheet (See Appendix A).

The third workday was scheduled to test the rubric on a variety of products. The group looked at a half a dozen types of products, including narratives, problem/solution essays, and individual research papers. The group found that it was surprisingly uniform in its ratings for three outcomes: the information literate student synthesizes main ideas to construct new concepts; the Information literate student applies new and prior information to the planning and creation of a particular product or performance; and the information literate student acknowledges the use of information sources in communicating the product or performance. The group also found that certain kinds of products, such as research papers or group research assignments, lent themselves to this type of assessment, while others, like the narrative paper, did not. The group found that the following outcomes raised too many questions and required too many assumptions to be useful for rating student papers: the information literate student compares new knowledge with prior knowledge to determine the value added,

contradictions, and other unique characteristics of information; the information literate student accesses needed information effectively and efficiently; the information literate student evaluates information and its sources critically; and the information literate student explains the economic, legal, social, and ethical issues surrounding the use of information. Therefore, the group was unable to effectively rate any of the composition products using the rubric for these outcomes.

The solution was to create an annotated bibliography assignment that was flexible enough to be paired with any of the student products already being assigned and collected by the composition program, and which would allow the group to measure all identified outcomes effectively. The librarians in the group were asked to research and create the ideal annotated bibliography, which could then be modified by the composition faculty in the group. The ideal annotated bibliography included four parts: an introduction that discusses the search process, annotated works the student would use and why, annotated works the student would Not use and why, and a self-reflection on what was found and any next steps that needed to be taken in the research process (See Appendix B). The ideal annotated bibliography assignment was then tweaked by each composition faculty, and paired with a variety of individual and group assignments. The group would eventually like to come up with a catchier name than "annotated bibliography," since the assignment is much more than a traditional annotated bibliography.

## Year 1B: Results

The second year of the grant ended up being postponed until 2008/2009 because the library members of the project committee had to focus their efforts on opening a brand new library. The group used this time to pilot the annotated bibliography assignment, and to continue to explore the different kinds of composition assignments that could be placed in the student portfolios. Annotated bibliographies and the companion writing assignments were collected from all six composition faculty participating in the grant project, and scored by three librarian raters using the rubric. The results from three of the six groups are shown in the table below (see table 1). The students in Group 1 were asked to develop an annotated bibliography as a group on a wiki in Blackboard. The companion assignment was a group paper on *Guns, Germs and Steel*'s (CSUCI's Campus Reading Celebration book) importance to the scientific community. Students received two one-hour library sessions and had a librarian embedded in their Blackboard class. The students in Group 2 were asked to develop a group or individual annotated bibliography in paper form. The companion assignment was a group or individual research paper on a chosen topic. Students received no library instruction. The students in Group 3 were asked to develop an individual annotated bibliography in paper. The companion assignment was an "otaku" paper, which is a personal essay that requires research. Students received two one-hour library instruction sessions from the library's archivist.

## Table 1: Score Distribution by Outcome

| OUTCOME | | Group 1 | Group 2 | Group 3 | All Groups |
|---|---|---|---|---|---|
| The Information literate student applies new and prior information to the planning and creation of a particular product or performance. (IL Grant Outcome) | Mean | 2.20 | 1.63 | 1.53 | 1.63 |
| | SD | .85 | .56 | .5 | .60 |
| | Median | 2.5 | 1.5 | 1.5 | 1.5 |
| The information literate student accesses needed information effectively and efficiently. (CSUCI GE Outcome) | Mean | 2.67 | 1.5 | 1.60 | 1.67 |
| | SD | .47 | .44 | .54 | .61 |
| | Median | 3 | 1.5 | 1.5 | 1.5 |
| The Information literate student evaluates information and its sources critically. (CSUCI GE Outcome) | Mean | 2.54 | 1.57 | 1.54 | 1.65 |
| | SD | .59 | .53 | .60 | .66 |
| | Median | 3 | 1.5 | 1.5 | 1.5 |
| The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, and other unique characteristics of information. (IL Grant Outcome) | Mean | 2.17 | 1.66 | 1.62 | 1.68 |
| | SD | .75 | .61 | .57 | .62 |
| | Median | 2.5 | 2 | 1.5 | 2 |
| The information literate student synthesizes main ideas to construct new concepts. (IL Grant Outcome) | Mean | 2 | 1.77 | 1.68 | 1.73 |
| | SD | .61 | .55 | .61 | .61 |
| | Median | 2 | 2 | 1.5 | 2 |
| The information literate student acknowledges the use of information sources in communicating the product or performance. (IL Grant Outcome) | Mean | 2.33 | 1.58 | 1.66 | 1.71 |
| | SD | .62 | .53 | .55 | .59 |
| | Median | 2.25 | 1.5 | 1.75 | 1.5 |

**Note: The most common score for the outcome, "the information literate student explains the economic, legal, social, and ethical issues surrounding the use of information," was "rater can not determine." Therefore, this outcome was not included in the table.**

Overall, the results were not too surprising. Most CSUCI composition students are first year students. Most scores fell somewhere between "emerging" and "proficient." Scores varied widely, which is consistent with institutional data that knowledge, skills, and abilities of our incoming students varies greatly. Group 1 scores tended to be higher, which is not necessarily because students received more traditional librarian instruction than the other two groups. Instead, it is more likely the result of both the annotated bibliography and paper being assigned as a group project, or possibly that there were fewer products to score. Group 2 and Group 3 scores were similar, despite the fact that one group received some librarian instruction and the other did not. However, the lack of library instruction was due to the wireless network being down. The faculty member is in the grant group, and students most likely attended in a library instruction session the prior semester. There was no control group that was purposely not given library instruction.

On the other hand, we learned a lot from the data that had little to do with student learning, but much to do with our assessment process. First, results showed that the type of bibliography and companion assignment had a significant impact on rater consistency, and the rater's ability to determine a score based on the rubric. The process allowed each professor to modify the annotated bibliographies and choose which assignment it would accompany. As a result, no two annotated bibliographies were implemented the same way.

About half chose to assign individual bibliographies, while the other half chose to assign group bibliographies. Some bibliographies were submitted in a traditional paper format, while others were delivered via a wiki in Blackboard. The different variations of the annotated bibliography assignments created some interesting discussions on both data collection and scoring. For example, group bibliographies resulted in individual papers. Individual and group tasks ebbed and flowed during the process. This got the entire group reflecting on how group assignments, social interactions, and technology are changing individual roles in both information seeking and writing processes and its impact on assessment.

Second, only the librarians in the group scored the products, which in retrospect was a huge mistake. Having the entire group score the products would have kept everyone in the loop, and not separated librarians and faculty from the scoring process. This disconnect became obvious to the librarians who applied the rubric. Questions regarding the intent of the instructor's original assignment, the instructor's perceptions of their students' work, and even the quality of the resources chosen by students came up time and again, and would not have occurred had the group scored the products as a whole.

Third, application of the rubric varied among raters which is likely connected to the aforementioned disjunction of the group who applied the rubric, and this raised norming issues. Not unexpectedly, each librarian who applied the rubric did so in a slightly different manner. Some verified students' resources for accuracy and plagiarism when applying the rubric, others spent more effort in evaluating how students integrated their resources into their papers. It was interesting for the group to note these variations and the questions raised led to informed and productive discussions. In the future, the scoring needs to be more inclusive. If the group does decide that only a subset of the group scores, then this subset should include all represented programs, and each round of scoring should include a norming session to insure consistency in scoring and provide an opportunity to ask questions.

Fourth, as to the outcome: the information literate student explains the economic, legal, social, and ethical issues surrounding the use of information proved to be problematic. In the library world, this outcome typically focuses on plagiarism and intellectual property. The group believes this outcome encompasses so much more, and is dedicated to augmenting the rubric for this outcome to better represent the civic engagement, multicultural, integrative, and international aspects of the university's mission.

### Year 2: Change of Plans

This assessment project has shown us that the process must be inclusive in order to get useful results and to have the potential to enhance learning based on those results. The group will offer mini-grants to faculty, who teach composition and upper-division interdisciplinary general education courses. The mini-grant recipients will be asked to attend a workshop to augment the rubric, identify products, explore ways to modify the annotated bibliography, collect products and the corresponding annotated bibliography, attend a workshop to norm and score products, and share results widely to identify gaps and engage in dialogue for change. The group also hopes that a better name for the annotated bibliography will be found, since the group tends to talk about it as more of a reflective essay than a traditional annotated bibliography.

## Conclusion

This project has shown that results, impacts, and recommendations cannot be the end of the line for information literacy assessment. It is not enough to find out if students are emerging, proficient, or advanced at the selected information literacy outcomes. Projects designed to assess information literacy need to reflect institutional context. The assessment must establish a common knowledge of how the data collected is going to be fed back into the system, and then steps must be attempted to use that data to facilitate change to enhance student learning. The ability must also exist to take detour or redesign the assessment when needed. Most importantly, there needs to be more reflection on process, and a constant eye to how process can be improved.

This project has given the library and composition programs a better understanding of each others' values, goals, outcomes, and the research-writing connection. We found that there is a lot of common ground between the two programs as well as the university's critical thinking class. Ties have been strengthened and new partnerships have been established between the Library and the Writing Center as well as between the faculty that teach in Composition, the Library, and UNIV 110

(Critical Thinking). The group seems confident that more informed student research will lead to better writing in a number of assignments. The group also appears to be energized about assessing information literacy via more authentic means as opposed to the library doing it in isolation or using a standardized test.

Most importantly, this project has shown that information literacy assessment can be fun, meaningful, and bring people together.

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## Endnotes

1. When this paper was delivered at the 2008 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment, two alternate titles were given: *Oh Sh&t! We Have Information Illiterates. What Are We Going to Do Now and Who Really Cares?* and *Assessment Deficit Disorder*. Both alternate titles were meant to emphasize the desperate need for more reflection on process and humor in library assessment. The authors want to thank Karen R. Diller and Sue F. Phelps, both of Washington State University Vancouver, for leading the way on both fronts.

2. Association of College and Research Libraries, *Information Literacy Competency Standards for Higher Education* (Chicago, IL: American Library Association, 2000).

3. American Association of School Librarians and the Association for Educational Communications & Technology, *Information Literacy Standards for Student Learning* (Chicago, IL: American Library Association, 1998).

4. Ilene F. Rockman, "Rubrics for Assessing Information Competence in the California State University," CSU Information Competence Initiative, http://www.calstate.edu/LS/1_rubric.doc.

5. Rubrics selected were used by the institution to assess products in Composition, English, Critical Thinking courses, or contributed to portfolios.

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## Appendix A: CSUCI Information Literacy Rubric Sheet

### Information Literacy Assessment Project
### SCORE SHEET

**Reviewer:**
**Product Type:**
**Annotated Bibliography:** **Yes** **No** **Type:**
**Original Assignment Information**
**Semester/Year:** **Professor:** **COMP** **UDIGE** **OTHER:**

**1. The Information literate student applies new and prior information to the planning and creation of a particular product or performance (Grant Outcome).**

**X** **Rater can not determine.**

**1** **Emerging.** Student identifies insufficient and/or inadequate information sources. Student identifies insufficient or inadequate concepts and terms that lead to limited information. Student develops ineffective research questions lacking focus and clarity.

**2** **Proficient.** Student identifies sufficient and somewhat varied information sources. Student identifies some concepts and terms that lead to somewhat appropriate information. Student develops research questions with limited focus and clarity.

**3** **Advanced.** Student identifies extensive and varied information sources in numerous formats. Student clearly identifies key concepts and terms that lead to the appropriate information. Student develops research questions that are focused, clear, and complete.

**2. The information literate student accesses needed information effectively and efficiently (CSUCI GE Outcome).**

**X** **Rater can not determine**.

**1** **Emerging.** Student creates an ineffective search strategy using limited and/or inappropriate research methods. Student develops an unrealistic or inadequate timeline for implementation of the search strategy. Student gathers insufficient and/or inappropriate sources of limited variety.

**2** **Proficient.** Student creates a search strategy using somewhat varied and appropriate research methods. Student develops a realistic timeline for implementation of the search strategy. Student gathers sufficient and somewhat varied sources.

**3** **Advanced.** Student creates a thorough search strategy using a variety of appropriate research methods. Student develops a flexible timeline that allows for implementation and revision of the search strategy. Student gathers numerous and varied sources in multiple formats.

**3. The Information literate student evaluates information and its sources critically (CSUCI GE Outcome).**

**X** **Rater can not determine.**

**1** **Emerging.** Student fails to or is unaware of how to evaluate sources for relevance, accuracy and credibility.

**2** **Proficient.** Student evaluates sources for relevance, accuracy and credibility.

**3** **Advanced.** Student uses critical thinking to evaluate sources for relevance, accuracy and credibility to establish his or her own authority.

**4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, and other unique characteristics of information (Grant Outcome).**

**X Rater can not determine.**

**1 Emerging.** Student unsucessfully or inadequately compares new information to prior information.

**2 Proficient**. Student sufficiently compares new information to prior information.

**3 Advanced.** Student uses critical thinking to compare new information to prior information and create a heightened understanding of the research.

**5. The information literate student synthesizes main ideas to construct new concepts (Grant Outcome).**

**X Rater can not determine.**

**1 Emerging.** Student poorly summarizes and fails to synthesize the main ideas from the information gathered to develop his or her own interpretation.

**2 Proficient.** Student proficiently summarizes and struggles to synthesize the main ideas from the information gathered to develop his or her own interpretation.

**3 Advanced.** Student clearly summarizes and synthesizes the main ideas from the information gathered to develop his or her own interpretation.

**6. The information literate student acknowledges the use of information sources in communicating the product or performance (Grant Outcome).**

**X Rater can not determine.**

**1 Emerging.** Student exhibits little control over information and fails to integrate it into his or her research. Student presents the information in a format inappropriate to the purpose and audience of the assignment.

**2 Proficient.** Student exhibits proficient control over information with competent integration into his or her research. Student presents the information in a format somewhat appropriate to the purpose and audience of the assignment.

**3 Advanced.** Student expertly controls information and integrates it seamlessly to advance his or her research. Student presents the information in a format highly appropriate to the purpose and audience of the assignment.

**7. The information literate student explains the economic, legal, social, and ethical issues surrounding the use of information (CSUCI GE Outcome).**

**X Rater can not determine.**

**1 Emerging.** Student demonstrates little or no understanding of intellectual property and fair use of copyrighted materials.

**2 Proficient.** Student demonstrates a working understanding of intellectual property and fair use of copyrighted materials.

**3 Advanced.** Student demonstrates a comprehensive understanding of intellectual property and fair use of copyrighted materials.

**Hours of Information Literacy Instruction:**

**Describe Type of Information Literacy Instruction:**

**Appendix B: The Ideal Annotated Bibliography Assignment**

## Creating Annotated Research Bibliographies

*Created by the CSUCI Library and adapted from Cal Poly Library Services http://www.lib.calpoly.edu/research/guides/bibliography.html and Florida Gulf Coast University Library http://library.fgcu.edu/Instruction/handouts/writing%20an%20annotated%20bibliography.pdf)*

An annotation summarizes the essential ideas contained in a work or resource, and how they relate to your own research or assignment. Unlike traditional bibliographies, annotated bibliographies provide an opportunity to evaluate the usefulness of your resources and are flexible enough to be used with ANY research assignment or topic.

**I. Begin your search process with a paragraph addressing the following questions:**

- What is your assignment or topic?
- What types of resources will you need to complete the assignment?
- If you could describe the IDEAL sources for this assignment, what would they look like?
- Where will you look for these resources?

Once you have answered these questions, start gathering resources for your annotated bibliography.

**II. Create Annotations (approx. 1-2 paragraphs per resource) using the following components:**

- Citation of the work, using either MLA, APA style (i.e., author, title of the work, date of publication, publisher, page numbers, etc.)
- Main focus or purpose of the work—what is this resource that you've found? (i.e., is it a journal article, web site, press release, etc.) What is the scope or purpose of the work?
- Is the information current? Does it need to be?
- Who is the intended audience for the work—how can you tell?
- Which resources will you include or NOT include in your paper?
    - What is the usefulness or relevance of the resource to your research topic—why would you want to use this resource? (Or, why does it not meet your expectations?)
- Are there special features of the resource that are unique or helpful?
- What is the background and credibility of the author?
    - What is the author's authority on this subject?
    - What is the author's bias?
- What are the conclusions or observations reached by the author?
- What are the conclusions or observations reached by you—how will you use or NOT use this resource in your paper or assignment?

## Sample Annotation

Finneran, K. (2001). What's food got to do with it? *Issues in Science and Technology 17*, 24-25.

In this editorial, Finneran questions why many people on both sides in the debate over the safety of genetically engineered food base their arguments on speculation, rumor, and emotion rather than scientific research. He references an article by Harvard biologist Richard Lewontin. Lewontin discusses an anti-genetic engineering physicist whose arguments are based on Hindu scripture instead of lab results and pro-genetic engineering scientists who advertise "Golden Rice" (a genetically engineered variety of rice rich in beta carotene) as a benefit for victims of malnutrition who lack vitamin A, even though many people suffering from malnutrition are too weak to properly metabolize the beta carotene into vitamin A.

Kevin Finneran is editor-in-chief of *Issues in Science and Technology*, a policy journal sponsored by the National Academy of Sciences, the National Academy of Engineering, and the University of Texas at Dallas, making him someone qualified to write about forming opinions on scientific matters.

This editorial serves as a cautionary reminder that sensible decisions on important issues must be grounded in fact and not influenced by vague fears, unrelated beliefs, unwarranted enthusiasm, or knee-jerk emotional reactions.

**III. Answer the following reflective questions in a paragraph on the search process:**

- How did you go about searching for resources? Where did you look?
- Was the search process you used adequate to complete your assignment?
- What did you think you would find, and what did you ACTUALLY find?
- Did you find resources that were balanced and expressed all sides of your topic, or were they one-sided?
- Did you find a variety of resources, or are they all of one type (i.e., all articles, web sites, etc)?
- Do you have enough resources to complete the assignment? If not, what resources or types of resources do you still need to complete your assignment?
- What would you have done differently to yield more useful/relevant resources or to make the search process more efficient?

# Library Instruction Assessment Made Easy: Practical Tips to Get You Started without (a lot of) Training, Money, or Time

**Marvel Maring and Nora Hillyer**
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## Abstract
Assessment is a hot topic in education today and the urgency to measure information literacy learning outcomes is of growing importance to librarians. Libraries cannot rely solely on door counts and user satisfaction surveys to show their value in the academic environment. In today's educational environment, effective assessment demands a new approach. This paper will describe how two librarians, the authors, developed an effective assessment instrument with little time, little training, and little money. We will show how we utilized the resources available at their university to tap into the wealth of assessment experience and knowledge of campus faculty and personnel.

## Introduction
In 2000, Patricia Senn Breivik described assessment as one of the "hottest" topics in American education, and almost a decade later, assessment literature has exploded.[1] Search *ERIC* today for "assessment" and you will retrieve a staggering 92, 329 hits; add "information literacy" to that search and retrieve 1,709 articles. With *No Child Left Behind* mandating assessment in public education, the culture of assessment is firmly entrenched. Entire library conferences (such as this one) are dedicated to the topic of assessment. The pressure to assess library services and instruction is a reality in most libraries and yet many librarians have no formal coursework, professional training, or expertise in library instruction or assessment.[2] How do instruction librarians respond to the pressure to create meaningful measurements of student learning when they've received so little training about the complexity of library instruction themselves? Heidi Julien states:

> "Currently only one North American library/information science (LIS) school includes instruction as a dedicated core course (the Information School, University of Washington), and the last published analysis of instructional courses suggests that only about half of all North American LIS schools offer an elective in instruction."[3]

How does one begin to develop assessment tools that provide useful, valid and reliable data that can be used to illustrate the importance of the library and library instruction on campus? Even in the current environment where new librarians are thrust into the role of instructor and evaluator of instruction, there are ways to build a simple, flexible outcomes-based assessment. The key is to take advantage of the expertise and resources at your institution. Without a great deal of time, money, or training in education and assessment, it is possible to develop a basic assessment tool that can capture the value of library instruction on your campus.

## Literature Review
Assessment of information literacy by its very nature demands that we understand the educational environment, including the collaboration between the library, campus, department and students, and the practical aspects of test instrument design and technological requirements of online assessment.

Many libraries have already done what we set out to do, and libraries around the country are keenly aware of the complex and multi-layered environment that assessment exists within. O'Hanlon states the importance of linking "outcomes assessment in academic libraries to the institutional mission of the parent organization".[4] Edward K. Owusu-Ansah suggests that the library be the focal point for information literacy instruction because information literacy extends beyond any discipline-specific boundary. He asserts that librarians should be the key personnel "to define and achieve campus-wide information literacy."[5]

Many institutions have examined the pressures imposed from higher education administrators regarding information literacy and assessment and the ways in which they managed the external pressures within their library environment.[6] Dorothy Anne Warner discusses the need for programmatic assessment and ways in which librarians and faculty can identify learning problems to improve teaching.[7] Rockman considers the tradition of librarian and faculty collaborations[8] while Donald Barclay underscores other challenges such as the lack of institutional support, the perceived difficulty of the evaluation process, and the time constraints.[9]

Other authors present existing concerns regarding classroom faculty's perceptions of library instruction and the ACRL Information Literacy Competency Standards for Higher Education.[10] Some classroom faculty do not make time to provide library instruction, or they assume their students have a solid understanding of how to use the library from previous experience.[11] Many authors admit the challenge of assessment and recognize that "libraries cannot do it alone."[12] Rockman addresses the collaborative relationships with "discipline-based classroom faculty" and she includes another stakeholder—the future employer. Rockman quotes Anthony Comper, President of the Bank of Montreal, when he spoke to the 1999 University of Toronto graduating class: "Whatever else you bring to the 21st century workplace, however great your technical skill and however attractive your attitude and however deep your commitment to excellence, the bottom line is that to be successful, you need to acquire a high level of information literacy."[13]

Other authors mentioned their concerns regarding the lack of adequate preparation students receive in their high school media programs.[14] Students' actual skill level and perceived skill level is also frequently addressed in the literature.[15]

The literature provides excellent examples of online information literacy test instruments. Project SAILS is one that is widely accepted and discussed by Julia C. Blixrud.[16] Rockman and Smith examine several other collaborative test instruments including The Information and Communication Technology Literacy Assessment, Bay Area Community Colleges Information Competency Assessment Project, and International Computer Driver's License (ICDL).[17]

In 1989, Roger F. Krentz and Donald E. Gerlach mention the frustration of having "no reliable instrument which educators can use to assess the library media proficiency of graduating high school seniors."[18] More currently, Jessame E. Ferguson, Teresa Y. Neely, and Kathryn Sullivan describe a 51-item survey they developed with input from campus leaders and faculty across disciplines.[19] Others have measured student performance against existing instruments, primarily testing lower level students and incoming freshmen.[20] Barclay asserts the need to create test questions that would most closely mirror the act of library research, and he prefers "free-response" questions to multiple choice because "the act of writing an answer to a free-response question . . . has more in common with the unstructured act of library research and so may be a better test of a student's ability to use a library."[21] Heidi Julien's article described the lack of course requirements in library instruction and assessment in library schools worldwide, and what disadvantage this creates for new librarians thrust into this core duty.[22]

Finally, the use of Blackboard is discussed as a portal for links to library resources and beneficial in reaching students where they are.[23] However, few articles discuss the use of Blackboard to deliver an assessment instrument for library-initiated projects. This is one reason we feel that our project can benefit other librarians who are preparing to launch an assessment project.

The literature regarding assessment of information literacy is vast and rarely limited to one aspect of assessment or of information literacy, but it also reinforces the complexity of the various constituencies or stakeholders in the higher education environment. The lack of formal training and coursework for librarians entering into positions where instruction and assessment are core duties seems woefully inadequate. Assessing instruction is a complex and multi-faceted topic and relying on the literature and "on the job training" to gain the skills to develop effective assessment instruments is a serious omission in the curriculum of library schools. Julien suggests that this would never happen to a would-be cataloguer or reference librarian, so why should it happen to an instruction librarian?[24] The onus is on librarians to gain the professional training to establish a meaningful assessment of information literacy skills.

## Complexity of Assessment Environment

Assessment of any kind demands an awareness of the multi-layered influence of the entire academic environment in which we function. Many

constituencies make up the various layers including the students, librarians, department faculty, university administrators, and even state legislatures. Effective assessment of information literacy demands cognizance of the various interests that have a stake in its outcome.

In today's educational environment, effective assessment also demands a new approach. Many of the established methods for measuring the library's value are no longer adequate. Collection analysis, door counts, reference desk statistics, and student satisfaction fail to fully demonstrate what students have learned. Ilene F. Rockman and Gordon W. Smith describe what they call "a new learner-centered approach" which has "shifted the focus from passive learning to what students can actually do".[25] And Nancy O'Hanlon, in discussing how Ohio State University considered the role of instruction, asked, "How does the focus on learning outcomes affect the mission of the library? Like other communities at the University, the library must move from a content view (books, subject knowledge) to a competency view (what students will be able to do). Within the new environment, we need to measure the ways in which the library is contributing to the learning that the University values."[26]

Information literacy instruction and evaluation of its effectiveness have been in place on the University of Nebraska at Omaha campus for years. Prior to 2002, library instruction was present but inconsistent; individual English instructors took responsibility for organizing library visits and presenting library information as it intersected with students' research needs. From its inception in 2002, the new Information Literacy curriculum taught in the first-year English course (ENGL1160/1164) has succeeded because of a strong collaborative vision between the library and the English Department faculty. The course, taught by a reference librarian, usually consists of two, one-hour sessions in computer-equipped classrooms in the library. Although not a formal requirement, departmental participation in the sessions is high, and the numbers of classes taught has grown twenty percent in the last year alone.

To evaluate the effectiveness of this Information Literacy course, student evaluations of library instruction have been gathered after the second session; however, these responses reflect the students' perceptions of library instruction; they fail to capture what the students have actually learned. Anecdotally, everyone agrees that information literacy instruction is important to students' success, but to develop an effective assessment instrument to measure student learning seemed beyond our realm of experience and expertise, hence, no formal outcomes-based assessment was in place. Additionally, in 2005, UNO was launching an e-portfolio to measure campus-level, college-level, program-level, and individual faculty and staff-level effectiveness. This new system, called MyMapp, would gather data electronically to create a comprehensive picture of assessment of the University of Nebraska at Omaha.

As the new MyMapp system was being introduced on the UNO campus, the library dean requested that the library faculty be the first faculty group to test the system. MyMapp was ushering in a new way to measure our effectiveness as a library, an instruction program, and as individual library instructors. Gathering assessment data that measured learning outcomes was not something that could be delayed any longer. This urgency to gather data was the inspiration for developing a basic, outcomes-based assessment of student learning in the Criss Library instruction program.

The primary aim of the information literacy assessment project at UNO was to determine the information literacy skill level of first-year students prior to library instruction *and* their skill level after library instruction. We entered the multi-layered assessment arena with three seemingly small questions: How effective is our library's information literacy instruction in the first-year composition course? What do students know about the library before the library instruction sessions? What do they know after the library instruction sessions?

We chose this population of students because it is a reliably large pool (nearly 300 students in the spring semester, and double that number in the fall semester) and the curriculum has been firmly established with proven faculty support. We could rely on curriculum materials already developed and simply add the assessment layer over it. Our goal was not to reinvent library instruction at UNO, but to add the online assessment piece to an already sound foundation. We wanted to take advantage of the things that were already working,

## Getting Started on an Assessment Project

As new librarians, we also knew that our experience and understanding of outcomes-based assessment was limited. Our lack of experience mirrored what Julien described, "While some

students in our graduate programs enter with backgrounds in education, most do not."[27] The development of the test instrument would require training that we had not received either in library school or through professional development opportunities. Heidi Julien describes the inadequacy in LIS programs regarding instruction and assessment training:

> "We need to develop our graduates' skills in pedagogy, instructional planning, understanding learning theories and assessing learning outcomes. Currently only one North American library/information science (LIS) school includes instruction as a dedicated core course (the Information School, University of Washington), and the last published analysis of instructional courses suggests that only about half of all North American LIS schools offer an elective in instruction."[28]

It was clear that the instrument needed to be straightforward, relatively simple, and flexible. Starting with a manageable scope was key. We had a solid curriculum in which to base the assessment so we knew we would save time using this well-established curriculum model. Gathering feedback and support from campus was also essential for participation in what would be a voluntary assessment. Several faculty on campus have a particular research interest in assessment and their guidance was also valuable in the test design. We asked three faculty from the College of Education, one from the Department of Psychology, and one from the Department of English to serve as our consultants on this project. They provided a much deeper understanding of the many ways in which learning can be assessed and they were instrumental in helping us design a solid test instrument. We also knew we needed the input and feedback from the English Department faculty in order to have any "buy in" for the assessment. We chose to utilize a delivery method that was familiar and accessible to everyone—Blackboard, the UNO's course management software. Data analysis and assistance with Excel and SPSS was also provided by graduate students in computer science and psychology. Maximizing the resources and expertise on campus allowed us to save time and money. It also had the added benefit of reinforcing the collaborative nature of assessment planning and development with key units on campus. We started to see how our part fit into the mission of the entire MyMapp initiative.

With the onset of MyMapp, our Office of the Vice Chancellor offered grant funding to units developing online assessments. This grant funding, though minimal, allowed us to hire graduate students and to provide a small stipend to campus faculty consultants. The funding served as a motivator to implement an assessment program, however if your institution is not able or willing to provide financial support, there are ways to design an assessment instrument without a sizeable funding source.

For training, we discovered that ACRL offers a three-week online assessment course that provided a solid overview of outcomes-based assessment. This course was a very informative and constructive introduction into library assessment. The final project in this ACRL course allowed us to develop a model that would serve us in our library assessment initiative. We were able to get feedback and pointers from the ACRL instructors and work through issues before dedicating hard resources to the effort.

We developed an assessment instrument with the advice of UNO faculty and English Department faculty with a particular expertise in assessment. The committee of faculty consultants reviewed the specifics of test development, reviewed our questions, and helped navigate the IRB system. Their support and "big picture" view of assessment allowed us to understand exactly what the scope of our mission should be at this time.

The assessment would be delivered via Blackboard, UNO's online course management software, which captures student performance-based outcomes to improve library instruction and, in turn, benefit students by providing immediate feedback. A range of questions and reporting capabilities allowed us to create an assessment using the already familiar system and we had campus IT support and training. A computer engineering graduate student and a doctoral student in psychology assisted with data analysis.

Utilizing the wealth of expertise in the library literature and on your own campus has many benefits. Many libraries are experiencing the same pressure to create meaningful assessment instruments and it is some comfort to know that a great deal of learning about assessment can come from librarians who have implemented successful programs at their institution. Being aware of the bigger assessment conversation on your campus is also advantageous. The library can and should be aware of the assessment planning occurring in

various departments of campus. Educating faculty and librarians about assessment creates a deeper understanding of all aspects of assessment and an opportunity to engage in a process that can impact instruction and program development throughout your institution.

Our project description follows, in addition to an overview of what we've learned so far and what future projects we are considering.

## Project Description

Our hypothesis was: students would demonstrate greater knowledge of information literacy skills following consistent library instruction, as compared to before instruction, as indicated by higher questionnaire scores. We wanted to learn what students know prior to library instruction, what have students learned after formal library instruction, and whether the library instruction is helping students with their assignments. To answer these questions, we developed the program parameters: pre- and post-questionnaires, student surveys administered after the post-questionnaire, and instructor surveys. This study has been conducted for two semesters. Changes have been made from the initial semester but we are using the same questions, online format, and procedures. There are two sets of results and they have been mixed. We have utilized our assessment training and research on assessment to help define our methodology and scope for this project. Our first attempt at defining our scope was too large; we wanted to test online assessment software along with testing student learning. The faculty consultants advised us to narrow our scope to student learning.

To keep the project manageable, save time and money, we stayed with the original curriculum and handouts. The information literacy program was established in 2002 with a curriculum that had been built and approved by the English faculty in collaboration with the librarian instructors. The curriculum contained key, representative concepts from the ACRL Information Literacy Standards and those concepts were linked to test questions.[29] Several active learning exercises and the previously-developed handouts were incorporated into the lesson plans.

To measure student's library knowledge, pre- and post-questionnaires were administered online through Blackboard. The library was set up with a Blackboard organization where students were enrolled and questionnaires were accessed. The questionnaires were identical and contained fifteen performance-based questions with each question worth one point. Students were allowed three attempts and had fifteen minutes per attempt. Access to the pre-questionnaire was available one week prior to library instruction. The post-questionnaire access was available one week after the last library instruction class. The initial semester was controlled by using fifteen sections of English Composition and three library instructors.

The questions on the questionnaires were developed collaboratively with the English department and the library instructors. The questions emphasized the ACRL Information Literacy Standards and were performance-based questions that required critical thinking versus mere guesswork.[30] The assessment faculty consultants reasoned that the pre-questionnaire would act as a motivator and capture the students' attention. See Appendix A for a copy of the questionnaires.

Students today are technology-oriented and would not respond to a hard-copy assessment. We wanted to deliver an online assessment and looked for a product with two essential qualities: the capability to produce interactive, animated questions and built-in reporting. We investigated two companies that offered online assessment products: Respondus and Questionmark. Respondus was popular with other libraries for assessment but the Respondus Company was not willing to offer any trial software. Questionmark had an online assessment product, Perception, but there was great difficulty getting Perception to communicate with Blackboard.

We decided to use Blackboard as our backup assessment software. Blackboard matched our criteria for an online assessment product, plus it saved us time and money with little training needed to build and administer assessments. Blackboard had several advantages over the other assessment companies: it is familiar to students and the English faculty, convenient, and easy-to-use; there is on-campus technical support; and we were able to attend training sessions on the assessment and grade modules.

Blackboard has become the foundation for the assessment project. All of the processes for the assessment can be completed using Blackboard:

1. Performance-based questions are formulated and saved in a pool.
2. Questionnaires are built from the pool of questions and made available within the

library's organization.
3. Students enrolled in English Composition are added to the library's organization.
4. Students sign into their Blackboard account, click into the library's organization, and access the questionnaire.
5. Data from the questionnaires are stored in the grade book of the library's organization.
6. Additional reporting is completed by downloading the data into Excel and SPSS.

Blackboard stores the data from the questionnaires. Standard data reporting is included in Blackboard such as average score, standard deviation, and average score per question. Additional information from Blackboard included the highest/lowest score, the number of students who took the test, scores per student, and the time it took each student to take the test. Any further analysis on the data was completed in Excel or SPSS.

What have we learned from our assessment study? There has been mixed results from the original semester versus the second semester. The data from the initial semester was statistically significant and indicated that library instruction had an impact on learning. A total of 184 students took the pre- and post-questionnaire. An analysis of the data from the 184 students was run as a paired sample t-test which meant that each individual must have both a pre- and post-questionnaire. Students achieved significantly higher test scores following instruction (M = 9.89) than before instruction (M = 8.23). The results of a one-tailed paired samples t-test support our prediction ($t(183) = -8.085$, $p < 0.001$).

In order to assess the impact of instruction, we compared students' scores who completed the pre-questionnaire to students who received library instruction and also completed the post-questionnaire. The results of a one-way Analysis of Variance (ANOVA) test compared seventy-two randomly selected students' scores who completed the pre- and post-questionnaire. Students' scores indicated a significant difference between post-instruction (M = 10.05) and pre-instruction (M = 7.73) ($F(142) = 24.087$, $p < 0.001$).

The reliability of the questionnaires was also tested. An internal consistency test was used to show the degree of relatedness among the questions. We were assessing the same characteristic: knowledge of information literacy skills. A reliability coefficient can range from zero to 1.00. A reliable test has a coefficient that is closer to 1.00. Our internal consistency of the questionnaires was 0.699 showing our questions were consistent to teaching and learning information literacy skills.

Where the curriculum incorporated active learning exercises, scores from those questions had the biggest jump in percentage of correct answers. For example, students' scores were sixteen percent higher on questions testing their knowledge of journals and magazines and twenty-one percent higher after an active learning exercise on using databases.

After gathering the data from the initial semester, we met with faculty consultants, English instructors, and instruction librarians to discuss the results. Faculty consultants offered several different ideas and suggestions for future assessments:

- Add survey questions to the pre-questionnaire to compare students' attitudes and self-evaluations to their actual performance
- Eliminate the extra student survey
- Change the score from 15 to 28
  - Multiple-answer questions were given scores for each correct answer
  - Add incentives for students by awarding partial credit
- Only allow 2 attempts rather than 3—only use the first non-zero attempt to get a true picture of students' knowledge
  - Students took the test over to better their score
  - All second and third attempts were deleted

English faculty suggested we organize the pre- and post-questionnaires in their own folders to make the questionnaires easier to find. Beginning with the second semester, all English sections, English instructors, and library instructors were added to the assessment study.

The second semester of the assessment contained fifteen sections of English Composition with a total of 276 students enrolled in the Criss Library Organization. Of that number, 147 students completed both the pre- and post-questionnaire. Within this group of students, there were eight sets of scores with a difference in the scores greater than -0.50%. We considered these scores "outliers" and eliminated them from our results which left 139 pre- and post-questionnaire scores. Our prediction was the same; library instruction would have a positive impact on student learning and increase the post-questionnaire scores above the pre-

questionnaire scores. We have found that the results for the second assessment are not statistically significant and indicate instruction did not have an impact on learning (see Figure 1 and Figure 2). The pre-questionnaire mean score for the 139 students was 16.10 out of 28. There was a decrease in the post-questionnaire mean score to 15.61, a 3% decrease. On average, students did not score better on the post-questionnaire ($M = 15.61$, $SE = 0.36452$) versus the pre-questionnaire ($M = 16.10$, $SE = 0.36422$, $t(138) = 1.465$, $p = 0.145$, $r = 0.02$). The initial semester showed an 11% increase in scores from the pre to the post questionnaire versus a 3% reduction in scores for the second semester. We did not reach our goal of matching or exceeding the percentage of increase in scores from the initial semester to the second semester.

The faculty consultants advised us to add survey questions to the pre-questionnaire to measure the correlation between student perceptions and questionnaire scores. The survey questions asked students to rate their level of library and computer experience. The vast majority of students (88%) rated their library experience as intermediate beginner and beginner (Figure 4). Students rated their computer experience (82%) as intermediate to intermediate beginner (Figure 5).

There were three additional survey questions asking students if they enjoyed English classes, writing, or library research. Christopher Freeman noted in his study of student perceptions and library instruction that "students have a very positive view of their own abilities to make use of the library in general," but their confidence level drops when they have to tell "the difference between a scholarly and popular journals or identify a citation to a book versus one from a journal."[31] More students agreed than disagreed that they enjoyed writing and English classes. Very few students strongly agreed and a small minority agreed that they enjoyed library research. We hypothesized that students who score well on the questionnaire also enjoy library research and students who do not enjoy research would have low scores on the questionnaire. Approximately 38% of all students were neutral about library research and 45% disagreed or strongly disagreed that they enjoyed library research.

To try to determine why there are mixed results from the second semester assessment versus the first semester assessment, a correlation test was conducted using the second semester data on the difference in scores and the number of days between pre- and post-questionnaires. During the first semester assessment, the number of days between tests averaged fourteen days. There was an average of 23 days between questionnaires for the second semester assessment. The calculation results showed no correlation between the difference in scores and the number of days (Figure 3).

There are several theories as to why the results from the second semester did not duplicate or exceed the initial semester's results. It is possible that the librarians involved in the initial semester of the study skewed the results. This group of librarians formulated the hypothesis, planned the curriculum and wrote the questions for the questionnaires, and taught the library instruction classes. In a library proceedings assessment article by Holtze and others,[32] it was suggested that there should be a separation between the librarians who gather the data and those who are being assessed. "The personal investment and the potential for skewing the data are just too high."[33] Another theory that may explain the difference in results is the possibility of lower motivation in the second semester among English instructors, students in the English Composition classes, and the library instructors. For the second semester there were more library instructors and English sections involved with a greater variety of teaching styles among the group of library instructors, a lack of consistency in the curriculum, and ownership in the assessment study. A third possible explanation of mixed results after the second semester assessment was the absence of beginning semester meetings with new and returning English instructors (and adjuncts) regarding the assessment project, and the lack of additional incentives for the students to complete the questionnaires. The assessment project was heavily promoted when it was first introduced but the only promotion for the second semester involved e-mail correspondence between library instructors and English faculty. Also, during the first semester of the project, the English instructors promoted the assessment by giving extra credits or extra points to their students who completed the questionnaires. During the second semester very few incentives were offered by the English instructors.

To help sustain the assessment project, there are changes to Blackboard that will be implemented when version 8 is uploaded. Instead of manually loading student user names from paper copies of student rosters to the Criss Library organization, digital files of students enrolled in English

Composition classes will be sent to the library instructors and uploaded into the Criss Library organization. The new version of Blackboard will have an improved Grade Center. In the Grade Center, we will be able to group students by their section for the library and English instructors to see how well their class performed versus other sections or analyze the weak and strong areas of the class. This will facilitate class preparation for library instructors to individualize lessons per class. To assist with reporting, the Grade Center in Blackboard allows "Smart Views" to be generated so grades can be grouped and reported. For example, a Smart View can be designed to pull the scores above a specified level for analysis or list all students who completed both questionnaires. The Smart View can be selected in the Grade Center Manage module to be downloaded into Excel.

### Future Assessment Ideas

This project was always seen as an initial attempt to begin measuring the effectiveness of library instruction at the Criss Library. We knew that as we learned more from our results, we would need to adjust and examine our current assessment strategies. Currently we are only focusing on the first-year English Composition students. We would like to measure the information literacy skills of more advanced students in specific disciplines. We know there is more on the assessment horizon and this assessment project has encouraged us to consider additional ways to measure the significance of library instruction. Some ideas we are considering for future development include:

- verbal demonstrations (interview analysis);
- surveys (more comprehensive and at different educational levels);
- more comprehensive IL examination (60+ questions);
- key stroke analysis of search strategies;
- artifact analysis (citation analysis, e-portfolio analysis); and
- longitudinal studies (measure skills at several points in a student's career).

## Conclusion

There have been numerous rewards working on the assessment project at the Criss Library. The most important reward was improving instruction to impact student learning. The library instruction curriculum focused on the ACRL Information Literacy Competency Standards and prioritized key concepts that are important for the students, the English Department, and the information literacy instructors at the library.[34] In establishing a curriculum, we discovered the original curriculum was sound and contributed to the students' research success.

In addition to the rewards of improving instruction to impact student learning, this assessment project allowed us to see the wealth of resources available at our institution. The project would never have been launched without the effective collaborations with faculty consultants and English Department faculty, graduate students, and campus IT staff. Collaborating with campus faculty has benefits beyond the assessment project and can spawn new connections regarding how the library and library staff can be of assistance in other institutional assessment projects. Relying on sound curricula that is already in place as well as a delivery method that is familiar and accessible to all are also ways to streamline the process. Using your campus' online course management system rather than an outside vendor allows for fewer delays if technical issues do arise. The campus IT will have the familiarity and responsiveness (hopefully) to assist you promptly.

Finally, don't stop here—assessment is ongoing and fluid. Sustain the assessment by making it easy for instructors to give and students to take. Understand the reporting capability of the online software and make it easy to build reports and analyze data. Share results with the key stakeholders to reinforce the importance of assessment and to encourage participation. Share results with other librarians who will assist with instruction. Learn from your findings and adjust as the project continues.

Practical tips to keep in mind:

- Learn about outcomes-based assessment any way you can.
- Keep it simple (to start).
- Seek guidance from faculty on your campus with an expertise in assessment.
- Use existing course management software to deliver online assessment.
- Use campus IT staff for technological support (versus outside vendor).
- Collaborate with General Education or English Composition instructors to gain feedback and input.
- Build the questionnaire from your existing curricula.

- Create a flexible multiple-answer assessment instrument.
- Build on as you learn more from your results.
- Read up on the other libraries that are the leaders in assessment.
- Remember that assessment is on-going.

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## Endnotes

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**Figure 1 - Paired Sample Statistics**

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pretest | 16.1007 | 139 | 4.29407 | .36422 |
| | Posttest | 15.6187 | 139 | 4.29762 | .36452 |

**Figure 2 - Paired Samples Test**

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Pretest - Posttest | .48201 | 3.87925 | .32903 | -.16859 | 1.13261 | 1.465 | 138 | .145 |

**Figure 3 - Correlation Between Number of Days and Difference in Scores**

**Correlations**

| | | difference | Number of Days |
|---|---|---|---|
| difference | Pearson Correlation | 1 | -.081 |
| | Sig. (2-tailed) | | .344 |
| | N | 139 | 139 |
| Number of Days | Pearson Correlation | -.081 | 1 |
| | Sig. (2-tailed) | .344 | |
| | N | 139 | 139 |

**Figure 4 - Rate Your Level of Library Experience**



**Figure 5 - Rate Your Level of Computer Experience**

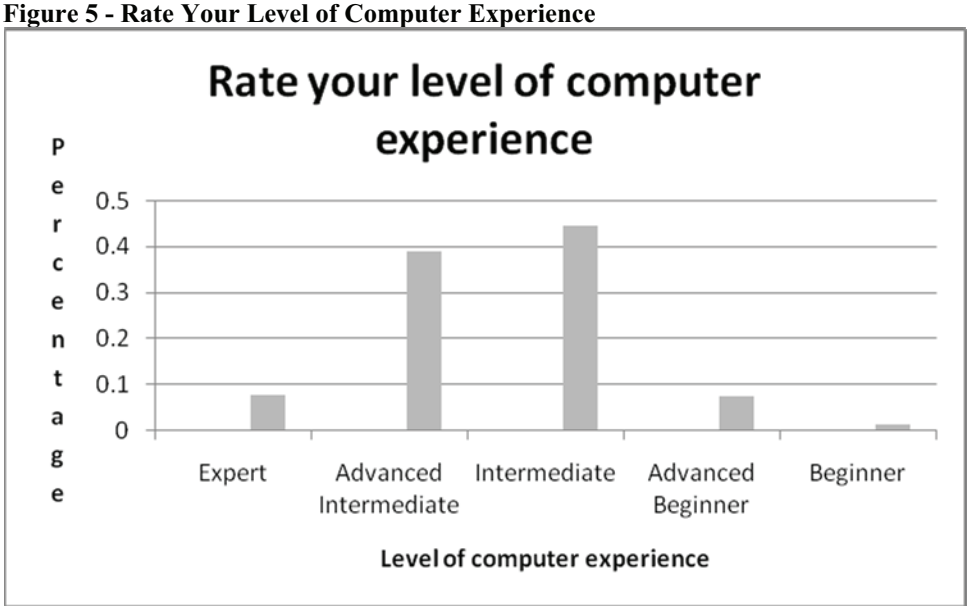



**Figure 6 - I Enjoy Writing**

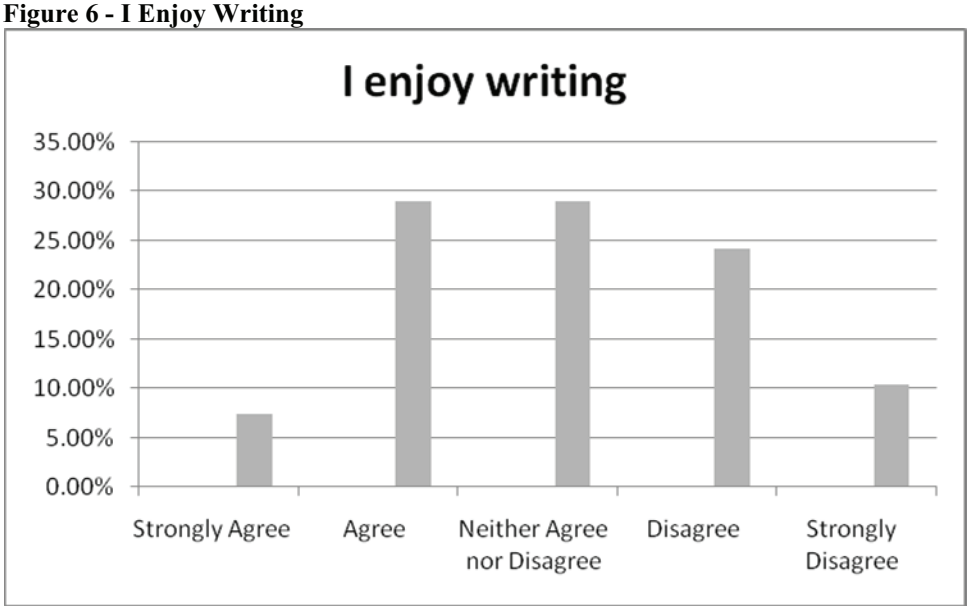


**Figure 7 - I Enjoy English Classes**

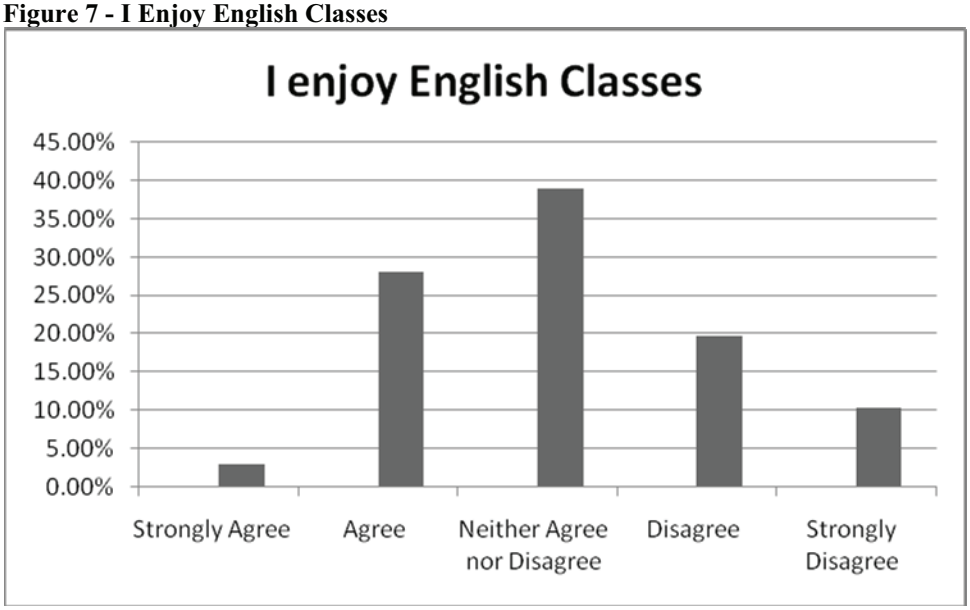
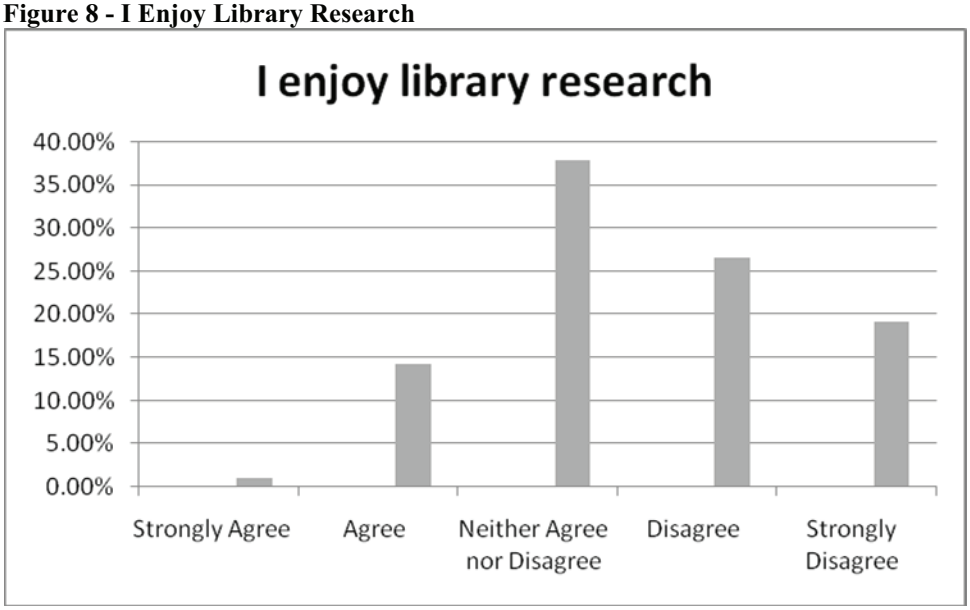



**Figure 8 - I Enjoy Library Research**

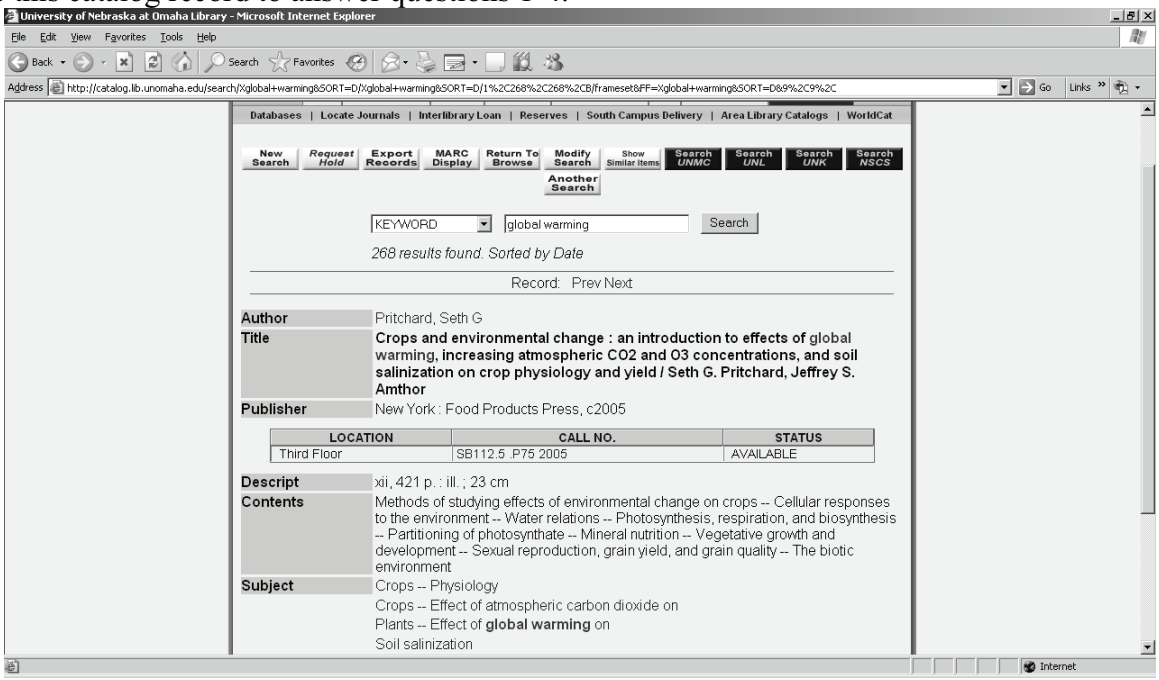


**Appendix A**

# Criss Library Assessment Questionnaire

Sample pre-test and post-test questions:

Use this catalog record to answer questions 1-4.




1) List one example of a Library of Congress Subject Heading _Crops -- Physiology_____
2) What is the call number? _____S81125. P75__2005_____
3) Who is the publisher of this book? ___Food Products Press_____
4) Is the book checked out? _____no_____

5) From the list below, select three characteristics of a scholarly journal. (Place a check mark beside your answers.)
   a. Contains advanced vocabulary
   b. Indicates source of information
   c. Contains advertising, classified ads, slick photos and coupons
   d. Written by person who did the research
   e. Not always footnoted
   f. Are peer reviewed by an editorial board

Answers = a, b, d, f

6) From the list below, select three characteristics of magazines. (Place a check mark beside your answers.)

a. Purchased at a news stand, bookstore, or grocery store
b. Often written from a particular political, economic or social point of view
c. May be dedicated to a particular industry or occupation
d. Often have the same depth of information as a scholarly journal
e. Are peer reviewed by an editorial board
f. Are always footnoted

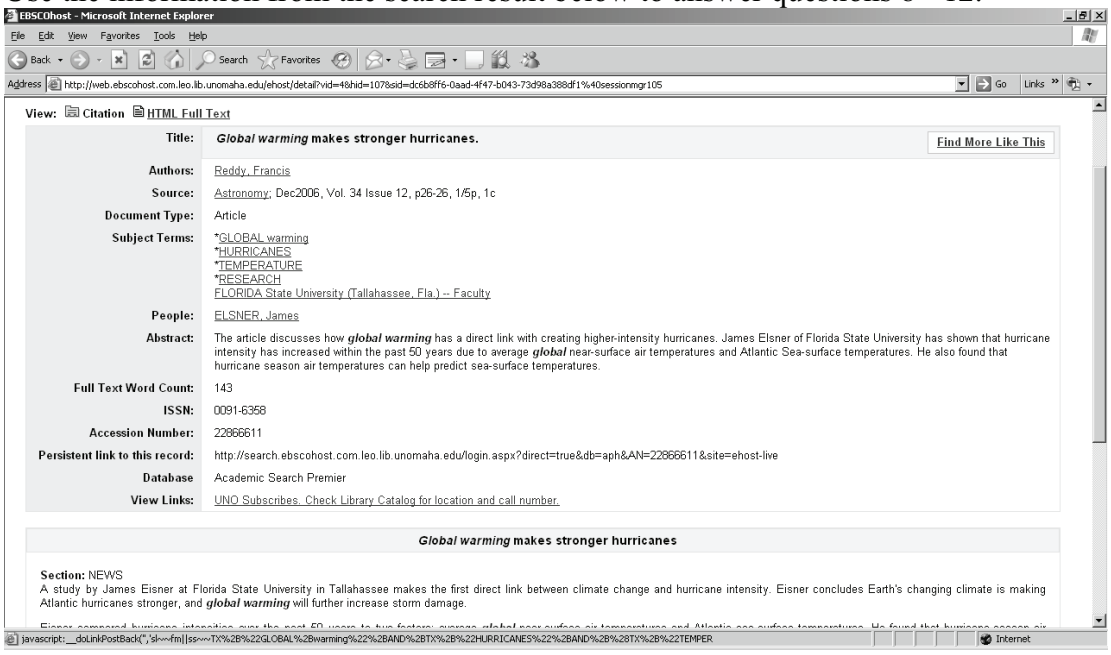
Answers = a, b, c,

7) Which of the sources listed below would lead you to a journal article? (Place a check mark by your answer.)

a. www.epa.gov/globalwarming
b. Ecology: Vol. 75, No. 7, pp. 1861–1876. Beyond Global Warming: Ecology and Global Change
c. Global warming: the science of climate change by Frances Drake Publisher: London: Arnold; New York: Co-published in the United States of America by Oxford University Press, 2000.
d. Copyright 2006 The New York Times Company
The New York Times September 24, 2006 Sunday
Late Edition - Final
SECTION: Section 4; Column 1; Week in Review Desk; The Basics; Pg. 2
LENGTH: 277 words HEADLINE: An Entrepreneur Sees Green BYLINE: By HEATHER TIMMONS

Answer = b

Use the information from the search result below to answer questions 8 - 12.



8) What is the title of this article? _____Global warming makes stronger hurricanes___
9) What journal is this article published in? _____Astronomy_____
10) What is the volume number of this journal? ___34_____
11) Is full text of this article available electronically? _____yes_____

12) Not giving proper acknowledgement for another writer's words or ideas is known as _____. (Please fill in the blank).

a. originalism
b. citation
c. referencing
d. plagiarism

Answer = d.

13) From the list below, select all of the accurate descriptions of the World Wide Web: (Check all that apply)

a. always provides authoritative and accurate information
b. offers some daily updated sites
c. presents a variety of information
d. is edited by a WWW Editorial Board
e. provides different types of information including current, historical, research, secondary, or primary
f. contains only .com and .org websites
g. all of the above

Answers = b, c, e

14) Magazines, journals and newspapers have what in common?

a. They are all periodicals
b. They are all peer-reviewed
c. They are all primary sources
d. All of the above

Answer = a

15) What is the best thing to do if the UNO Criss Library does not have the item that you need? (Check all that apply)

a. Submit an interlibrary loan request
b. Drop the title from the list of sources
c. Change the topic of the paper
d. Select another book
e. Check electronic catalogs for other libraries in the Omaha area

Answer = a & e

16) From the list below, select all that represent a characteristic of a primary source? (Choose one and place a check by your answer.)

a. an eyewitness account of the event
b. the first book written on the event
c. the most important journal article written on the event
d. a biography of someone involved in the event
e. field research, artwork, letters
f. a newspaper article written a year after the event.

Answer = a & e

17) Match the information source to the best access tool

| Access ls Too | Information eSourc |
|---|---|
| b. Index (electronic or print) | a. Web site |
| b. archSengine e | b. ooks B |
| c. Catalog | c. Periodicals (magazines, journals, and newspapers) |

Answers = Index--Periodicals b+c
Search Engine--Web site b+a
Catalog--Books +bc

18. Pretend you are looking for four books on the shelves in the library. On the end of each shelf is a list of the range of call numbers contained on that shelf. Match each book's call number with the shelf you would find it on.

| Call umbeN | Range |
|---|---|
| 1. S441.E15 | A. Z473.T --- Z 1005.2 |
| 2. S605.5D87 2005 | B. UA853.K --- Z473.5 |
| 3. Z473.K74K7 | C. S441.R3 --- SB407.G |
| 4. Z711.4.I57 1996 | D. RJ499.T8 --- S441.R3 |

Answers = 1 + D
2 + C
3 + B
4 + A

19. When researching a topic, why would you consult a book? (Check all that apply)

a. For background information
b. For very current, up-to-date information
c. For understanding the complexity of the issue
d. For facts and statistics
e. All of the above

Answer = a, c, d

20) When you are using the web for your research, it is particularly important that you evaluate the quality of websites. List four things you need to consider when evaluating the reliability of a website.

1. _____

2. _____

3. _____

4. _____

Answers might include any of the following --
Audience
Purpose
Authority
Credibility of the author
Accuracy and reliability of the information
Objectivity or bias
Currency or timeliness
Structure and navigation of the site

# DLF Aquifer's American Social History Online Enables Easier Searching and Use of Digital Collections

**Katherine Kott**
Digital Library Federation, USA

## Abstract

This paper will describe the methods and tools used in development and evaluation of the American Social History Online project.[1] Through its Aquifer initiative,[2] the Digital Library Federation (DLF), with support from The Andrew W. Mellon Foundation, has gathered digital material pertaining to American culture and life from a number of distributed collections into American Social History Online, a Web site and associated services for research, teaching, and learning. The purpose of American Social History Online is to make digital material easier to find and use. Throughout the planning, design, and development processes, keeping the focus on the end user—called the content consumer within the project—has been a key principle.

The project is now entering the assessment phase. The American Social History Online Web site is being optimized for search engine crawling to promote discovery of the digital content through commercial search services such as Yahoo! and Google. American Social History Online is also integrated with Zotero for Firefox users and with the Sakai course management solution. An open-source federated search service is available within the Web site to allow the content consumer to easily access complementary material outside of the American Social History Online collections. This paper will present the assessment questions and the plans for addressing them.

DLF Aquifer focuses on solutions that can be generalized for widespread use in the community. We hope the learning we share from our experience will benefit others who are developing digital library services.

## Acknowledgements

I am indebted to the members of the Aquifer working groups and to the American Social History Online core team, without whose effort, the work that this paper describes would not have happened. Special thanks to the development team, Susan Harum, Chick Markley, Tom Habing, and Kat Hagedorn and to the people who have led the Aquifer working groups over the course of the project, Martin Halbert, Jennifer Vinopal, Deborah Holmes-Wong, Jon Dunn, James Bullen, Todd Grappone, Sarah Shreeves, Jenn Riley, Winston Tabb, Leslie Johnston, and Perry Willet. Liz Milewicz contributed significant effort to compiling survey results and creating the institutional survey report, Laine Farley and Steve Toub introduced the persona technique, and Tito Sierra suggested the agile development experiment.

Support from both David Seaman and Peter Brantley during their respective tenures as DLF Executive Director has been invaluable, as has the interest and engagement of the presidents of the DLF Board, Michael Keller, Carol Mandel, and Wendy Lougee. I am deeply grateful to Donald Waters for helping us to keep our focus on scholars' needs and for enabling the development of American Social History Online through funding from The Andrew W. Mellon Foundation Scholarly Communications Program.

## Introduction

Supporting digital scholarship is the aim of the American Social History Online Web site and associated services developed through the Digital Library Federation (DLF) Aquifer initiative. American Social History Online is a "distributed" digital library, created by gathering metadata and links to digital objects in hundreds of different collections. DLF offers a working definition of digital libraries:

> Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities.[3]

A distributed digital library involves all of the elements in the DLF definition. In the case of American Social History Online, DLF has provided organizational oversight, with some responsibility for specialized staff. Technical development is primarily centralized through DLF, with some distributed among Aquifer participant libraries.

Throughout the planning, design, and development process for American Social History Online, the focus was on the "content consumer," the Aquifer term for end-user. This paper will provide a context for focusing on the user in digital library design and development, and will describe the practices we used to ensure that scholars' needs remained at the forefront through each phase of the American Social History Online project. This paper will also report on the assessment plans currently being developed. Assessment is the final phase of the project, which will be implemented in the fall of 2008. Results of the assessment activities will be reported at DLF Spring Forum in April 2009.

## User-centered Design and Development in Digital Libraries

When building usable digital libraries, digital library developers have a rich legacy of resources to draw upon from the social sciences, computer science, and library and information science. Theoretical frameworks for understanding information-seeking behavior emerged from information science in the 1980s. Wilson included cognitive and social-psychological factors to create a practical model for use in designing information systems.[4] Roberts took a more theoretical approach and advocated for the addition of qualitative research to quantitative methods to better define and understand "information man."[5] Wersig and Windel maintained the position that "information science is forming itself into some sort of a social science at the interface between such technical disciplines as cybernetics, computer science, telecommunications, technologically based subjects like mass communications, social sciences like sociology, and humanities like psychology."[6] They supported Roberts' criticisms of empirical research, but advocated for a broader model than his "information man" framework, which concentrated on motivation as the prime mover in information-seeking behavior. These social science principles and frameworks have informed practical methods for systems development in industry.

The best methods for evaluating digital libraries remain a topic of research and discussion as is evidenced by the attention it continues to receive in *D-Lib Magazine*. William Arms advocated for "a holistic evaluation [that] would center on a user."[7] Kellie Snow and colleagues report that researchers need "to develop a robust and scientifically grounded methodology that provides rich and detailed data on the working habits of users interacting with digital material."[8] The wisdom gained through decades of research has informed the user-centered design and mixed assessment methods applied to the development of Aquifer and American Social History Online.

## Background on DLF Aquifer and American Social History Online

Aquifer is a DLF initiative that emerged to support a key goal of the 1995 DLF founding charter:

> the implementation of a distributed, open digital library conforming to the overall theme [of America's heritage and culture] and accessible across the global Internet. This library shall consist of collections—expanding over time in number and scope—to be created from the conversion to digital form of documents contained in our and other libraries and archives, and from the incorporation of holdings already in electronic form.[9]

In 2005, DLF committed resources to hire a director for the initiative. Twelve DLF member libraries became actively involved by contributing staff to four Aquifer working groups: metadata, technology and architecture, collections, and services. To guard against the "supply-side mentality (we want to share this great collection of content; we have an innovative approach; we have innovative technology, etc.),"[10] the Services Working Group (SWG) was charged with identifying scholars' unmet needs and imagining a set of digital library services associated with pooled collections that would address these needs.

In 2007, The Andrew W. Mellon Foundation awarded DLF a significant grant to "address the difficulty humanities and social science scholars face in finding and using digital materials located in a variety of environments with a bewildering array of interfaces, access protocols and usage requirements."[11] With the grant funds, DLF was able to hire a small team led by a business analyst/assessment expert. The team was charged with developing tools and services that would enable scholars to make better use of distributed digital library collections. The grant award was

made through the Scholarly Communications Program. Thus, project structure kept the focus on the target audiences: faculty, graduate students, and, to a lesser degree, undergraduate students. Assessment is a key component of the project.

## Planning

As a federation, DLF is committed to leveraging resources through collaboration and expanding on previous work completed within member libraries and by other organizations and individuals engaged in complementary activities. The SWG began the work of defining the Aquifer problem-space by building on information that had been gathered through a previous DLF project: DLF Scholars' Panels held annually in 2004, 2005, and 2006. DLF Scholars' Panel findings were augmented with data from a SWG survey of DLF member libraries to determine the best methods currently practiced to evaluate digital collection use and what remains to be learned.[12] Among the key findings from the survey was that:

> use of digital collections and services is often assessed at point of introduction or update, rather than systematically over time. An implication of this is that more is known about initial reactions to a technology, resource, or service, and how (or whether) it is integrated into regular research activity is not evaluated on an on-going basis.[13]

To gain a scholar's perspective external to the library community, SWG members consulted two studies. The first study, *Use and Users of Digital Resources,*[14] was later revised and published in *Educause Quarterly*.[15] This research reported on the obstacles faculty face when trying to find and use digital resources that support their teaching approaches, including those identified difficulties that the SWG thought Aquifer could help address:

> The digital resources are distributed in so many places that it is difficult for me to organize them for use in my teaching.
>
> There are too many resources out there for me to take advantage of—I am overwhelmed.
> I don't have time to assess the credibility of the available resources. . .
>
> The academic quality of available materials is too poor to meet my needs. . .
>
> I don't know how to locate the online materials I need. . .
>
> Search engines provide irrelevant results for my needs. . .
>
> Web sites I would use are unreliable, and I can't count on them being there when I need them. . .
>
> Web formats allow me to link to whole documents, but not to specific excerpts within a text.[16]

The second report consulted was *Our Cultural Commonwealth,* which investigated the condition of cyberinfrastructure for the humanities and social sciences and made recommendations for future development and support.[17] Of eight recommendations in the report, Aquifer seemed well positioned to focus on four:

1. Invest in cyberinfrastructure for the humanities and social sciences, as a matter of strategic priority.
2. Develop public and institutional policies that foster openness and access.
3. Develop and maintain open standards and robust tools.
4. Create extensive and reusable digital collections.[18]

With a wealth of information about scholars' needs and a framework provided by the cyberinfrastructure study, the SWG was ready to begin designing systems and services with solutions to offer.

## Design

Again, the SWG benefited from prior work by adapting use cases and "personas" that the California Digital Library's Assessment, Design & Production Services team[19] had developed for the American West project.[20] Use cases included finding, browsing, collecting, annotating, and obtaining access through a course management system. The group also identified use cases for the underlying infrastructure. These included metadata harvesting, remediation, and enhancement.

The persona process was essential in coming to a clear definition and consensus about the primary and secondary target audiences for American Social History Online. "Personas are detailed descriptions of imaginary people constructed out of well-

understood, highly specified data about real people."[21] Aquifer personas included a "superstar" faculty member, a "regular" faculty member, a graduate student, and an undergraduate student as well as two "internal" personas: a digital library developer and a collections librarian. Ultimately, faculty and graduate students were defined as the primary audience, with undergraduates as the secondary audience. This decision created an emphasis on service development for research, teaching, and learning including classroom use.

To achieve the level of specificity needed to begin development, the SWG worked with Geneva Henry to establish "common business functions" that American Social History Online would support. The common business functions work was situated within the context of the DLF Service Framework Group (SFG). The SFG was established "to understand and model the research library in today's environment, by developing a framework within which the services offered by libraries, represented both as business logic and computer processes, can be understood in relation to other parts of the institutional and external information landscape."[22] The identified high-level functions were linked to the previously developed use cases and included search/find, identify, obtain, and manage/use. The functions and sub-functions broken out under each high-level function were used to determine how each field in the metadata record for each object should be handled for indexing and display. The common business functions and fields to index became the functional requirements for American Social History Online.

## Development

In March 2007, a small development team, led by a business analyst/assessment expert, began to work on the project. Other members of the team—a systems architect, data analyst, and developer—remained closely connected with the Aquifer working groups. The architect created an architectural framework to support the functional requirements that the Services Working Group (SWG) had developed. The Technology and Architecture Working Group (TWG) had determined that there was established community interest in bringing more structure into the digital library development process without creating high-overhead procedures. The development team therefore determined to experiment with using an "agile" development methodology and to document and share the experience. Agile Alliance, a not-for-profit organization, describes the principles of agile software development in their manifesto:

> We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
>
> Individuals and interactions over processes and tools
>
> Working software over comprehensive documentation
>
> Customer collaboration over contract negotiation
>
> Responding to change over following a plan
> That is, while there is value in the items on the right, we value the items on the left more.[23]

One principle of agile software development is to create a basic product as soon as possible, obtain direct user feedback, and "iterate," rather than investing time up front on detailed functional specifications. Working in this mode, the development team had an operational stubby portal, based on common business functions, by the end of July 2007. The application was loaded with collection data from the Library of Congress, Indiana University, University of Michigan, and University of Tennessee, Knoxville and was released for internal evaluation in early August. Core team and working group members began testing the portal, and logging bugs and requests for features on a SourceForge site.

The business analyst and a SWG member organized the first evaluation/assessment by conference call for a group of five scholars, including one faculty member, two graduate students, and two scholar/librarians on August 30, 2007. Prior to the call, the business analyst asked participants to preview the portal and familiarize themselves with the collections. The systems architect and the developer participated in the conference call, facilitated by the business analyst. Following agile development procedures, participants provided useful feedback about the features they wanted in American Social History Online, such as "more visual tools for undergraduates." Based on this feedback, the developer and architect immediately integrated the Simile Timeline from MIT into the portal.[24]

The business analyst held three additional

individual interviews with eight participants over the following six weeks, using questions created by the SWG. The business analyst reported results of each round of interviews within one week to the developer and architect, who implemented recommendations before the next round of interviews. Information from the interviews also contributed to decisions about which metadata elements were key for users to determine that the object was what they sought, to determine what could be done with the object, and to provide clear citation information. The agile process insured that user needs, not technology, drove development.

## Operation

By creating American Social History Online, Aquifer participants hoped to meet the needs of scholars by improving access, stimulating new research questions, supporting interdisciplinary study and cross-regional research, and promoting increased discovery of hard-to-find or "dark" collections. One of the services put into place to achieve these goals includes a Web site that provides unified access to nearly two hundred collections consisting largely of primary material. These collections are held by a range of cultural heritage organizations, from large research libraries to small public libraries and historical societies.

The Web site includes simple browse and search functions for researchers in the process of discovering unknown collections; it also offers advanced search capabilities for researchers making in-depth study of the material, including the ability to further narrow search results by various criteria. Based on user feedback, visualization capabilities for displaying search results were added during development, including the Simile Timeline and a Google Maps mashup that shows one hundred items from each search result as pins on a map of the United States. The ability to log in using OpenID enables features such as saved searches and an innovative limiting capability that suppresses recently viewed items from being displayed repeatedly.

To address scholar-reported difficulties using digital materials, the development team integrated an open-source tool called Collectus,[25] developed by the University of Virginia, into the Web site. (Collectus was designed to support collecting images, annotating them for a personal collection, or re-using them in a slide presentation.) In addition, Technology and Architecture Working Group (TWG) members and the development team optimized the Web site for use with the Zotero Firefox browser plug-in. This enabled scholars using the Firefox browser to capture citations from primary materials in the collections and integrate them with other resources they use for their research. In a study that looked at the way American literature scholars utilized digital resources, researchers found that scholars used primary digital resources more than they cited them due to confusion about citation practices.[26]

Although not immediately visible to the end user, the technical structure of the Web site was developed to encourage and optimize discovery by commercial search engines such as Yahoo! and Google. Access to complementary journal and book content that could not be tightly integrated through metadata aggregation was brought into the Web site through a federated search solution. An experiment to offer American Social History Online in the Sakai course-management-software interface is also now underway.

## Assessment

The Services Working Group (SWG) has a complex set of services to assess. Members have consulted the library assessment literature, identified research frameworks, and matched methodologies to the research questions that had been put forth in the grant proposal. The questions they will address include: Does American Social History Online improve access to digital material for scholars? Does the combination of material from different collections stimulate new research questions? Does bringing material in a range of formats around a theme support interdisciplinary research? Does combining collections with different regional foci promote cross-regional research? Has promoting American Social History Online to Web crawlers increased the use of this material?

SWG members are currently designing a range of instruments and methods to evaluate the effectiveness of American Social History Online. They propose a mix of quantitative and qualitative methods to determine how close American Social History Online comes to meeting its goals.

The assessment plan includes a longitudinal study of the way undergraduate students use the Web site in combination with Zotero throughout a semester-long class. The research design for this study will demonstrate how digital library assessment can be carried out over time rather than only at point-of-service introduction or update, which has been typical, according to the

institutional survey reports mentioned above. This study-over-time will rely on periodic surveys and focus groups to measure the effectiveness of the Web site and Zotero integration in making primary digital material easier for the students to find and use. Other assessment methods include interviews, observation, and transaction log analysis.

Faculty members will be interviewed to determine how well American Social History Online compares with other tools and services that provide access to primary research materials. Graduate students at several institutions will be asked to complete a survey based on their experience using American Social History Online. They will also be asked to compare the effectiveness of the themed collections in meeting their research needs with the usefulness of the results they obtain on the open Web through commercial search services such as Google. The federated-search solution that brings commercial content into American Social History Online will be assessed by observing graduate students, faculty, and librarians as they use the service in their own research. Strategy for this assessment is being based on the work of Nancy Fried Foster and her colleagues.[27]

Transaction log analysis will provide quantitative information about how the Web site is used, enable the SWG to see which services meet researchers' needs, and identify gaps that remain. The transaction log construction and analysis are based on a framework developed by Bernard J. Jansen, who supplied a theoretical model and review of the literature as well as suggesting an implementation plan.[28] Later, Jansen, Booth, and Spink devised a method for determining user intent by evaluating transaction logs.[29] In an e-mail message to the author on July 17, 2008, William Mischo at the University of Illinois at Urbana Champaign, where the American Social History Online Web site is hosted, explained how Jansen's method has been implemented:

> We map Jansen's informational category to what we call 'topical searches'; the navigational searches to 'known-item' or specific item searches; and the transactional searches to what we call 'factual' searches that require further use of an information tool to obtain an answer to an information need.

Analysis of American Social History Online transaction logs will provide an opportunity to experiment with Jansen's ideas about discovering user intent and will enable us to gather data on "query submission, query modification, results list viewing, and use of information objects."[30]

Within the project schedule for American Social History Online and the software update cycle for Sakai, assessment of the Sakai integration must be done in a "laboratory" setting. All the other assessment activities will focus on actual research or study tasks performed by content consumers. Indiana University, where the Sakai integration is being done, will provide a test instance of the Sakai software with American Social History Online content available as a resource. Because the content will be made available through Search/Retrieval via URL (SRU)—a protocol that may not take full advantage of the rich metadata available in American Social History Online—the Sakai assessment will compare search results from within Sakai with search results performed directly in the Web site interface.

Using a variety of assessment methods to capture the different means of access and use of American Social History Online promises to provide a wealth of information about the effectiveness of the services and the scope of the collections in meeting the needs of scholars. The SWG will also share their learning with the digital library community so that other digital library developers can adapt the American Social History Online methodologies for their own use.

## DLF Contributions to the Digital Library Community

In addition to the ultimate goal of creating a usable, distributed, open, digital library for scholars through Aquifer, the DLF works to create standards, schemas, and best practices for digital library development. In creating American Social History Online, Aquifer has built on best practices for sharable metadata and has contributed to schema development to improve interoperability among disparate systems. By modeling planning, design, development, and assessment methods that keep the focus on the user, the Aquifer Services Working Group is contributing to best practices in user-centered design and development for digital libraries, making digital collections easier to find and use.

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# In Search of a Standardized Model for Institutional Repository Assessment: How Can We Compare Institutional Repositories?

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## Abstract

This paper summarizes some of the existing candidate frameworks for institutional repository (IR) assessment from a futurist's perspective, and considers potential challenges on the path to establishing comparative assessment metrics. The authors consider what a future IR analysis might look like, and how it would differ from the evaluative frameworks being discussed today.

## I. Introduction

> "An institutional repository concentrates the intellectual product created by a university's researchers, making it easier to demonstrate its scientific, social, and financial value. Thus, institutional repositories complement existing metrics for gauging productivity and prestige . . . this demonstration of value can translate into tangible benefits, including the funding . . . that derives in part from an institution's status and reputation."[1]

Assessing universities and faculty is a continuous struggle. Academic administrators must labor year after year to gather meaningful statistics for assessment exercises such as periodic institutional accreditations, program reviews, and annual funding requests. It is hard to overstate the difficulty and complexity of compiling such data. The professional literature of higher education administration contains frequent calls over the past several decades, for better ways to measure performance in colleges and universities.

Despite this recognized need, few tools or standards have emerged to fill the void. The US Department of Education's *Report on the Future of Higher Education in the United States*[2] noted, "We have found a remarkable shortage of clear, accessible information about crucial aspects of American colleges and universities . . . this lack of useful data and accountability hinders policymakers and the public . . . and prevents higher education from demonstrating its contribution to the public good." Norris et al.[3] note that the lack of performance data for US colleges and universities is particularly problematic today, when public demand for such data is escalating.

In recent years, some institutional repository (IR) advocates have emphasized the potential utility of IRs in institutional assessment. Their potential to provide "online, continuous, metrics-based"[4] scholarly performance and impact measurements is a persuasive argument for implementing IRs. On-demand metrics would be an important asset for academic administrators and faculty at all levels within a university. An institutional repository, if properly planned, deployed and supported via appropriate policies and resources, could provide real-time reports demonstrating productivity, impact and overall value for research organizations.

Achieving the full administrative benefit of IRs, however, is hindered today by ongoing evolutions within the realms of digital repositories, individual and disciplinary scholarly communication behaviors, and policies of organizations that support research. Before IRs can serve as tools for institutional and faculty assessment, universities must reach a greater degree of agreement about the purpose, content and shared characteristics of IRs. Currently, ideological, social, financial, and technical shifts underway make it difficult to reach consensus about what should be measured, by whom, and for what purpose.

Additionally, as Thomas & McDonald[5] observed, digital repositories and other scholarly communication tools are growing more hybridized and more interconnected. If this trend continues, identifying the scope, content and context of individual repositories will be an increasingly

imprecise exercise. Though institutional, disciplinary and other scholarly digital repositories certainly will be important parts of tomorrow's scholarly communication fabric; today they differ so much from each other that the statistics and measures they can produce do not conform to any common standards or definitions. In this environment, measurements and statistics produced by IRs are largely meaningless for comparing individuals, groups, or organizations across universities.

One of the many steps needed toward better comparison of IRs, is a shared understanding of how to evaluate them. IRs are more than just particular software, policies, or content. Instead, they are enterprise-wide programs. Measuring an IR's progress and impact might be the best way to build faculty support for an existing local repository, if only meaningful and standardized evaluative metrics were available.[6] Proudman[7] reminded us a standardized evaluative framework also would be valuable for encouraging more institutions to implement IRs.

This paper summarizes some of the existing candidate frameworks for IR assessment from a futurist's perspective, and considers potential challenges on the path to establishing comparative assessment metrics. The authors consider what a future IR analysis might look like, and how it would differ from the evaluative frameworks being discussed today.

## II. Existing Candidate Frameworks for IR Evaluation

Currently, the task of evaluating digital scholarly repositories is complicated by variations in:

- what repositories contain;
- who funds and administers each;
- underlying legal, social and policy infrastructure for each repository;
- who contributes to the repository; and
- motivations for contributing, whether they be mandates, disciplinary cultural norms, or other incentives.

Additionally, distinctions made in relevant literature between institutional, disciplinary, and other types of repositories, can quickly become murky when one surveys the global network of databases and systems that hold content and metadata, sometimes contain only citations and links to content and metadata in other repositories, often overlap significantly with other sites, and are part of a scholarly communication web where individual scholars in different disciplines make choices on an item-by-item basis to deposit their works in any one of multiple possible repositories.

With these and other complications, it is difficult to set reliable guidelines or tests for classifying repositories as institutional, disciplinary, or other types. Instead of using rigid one-dimensional groupings, it is likely in coming years that repositories will be described according to their mapped plots on several multi-dimensional continua. These continua might include dimensions such as ownership and management, communities served directly and indirectly by the repository, level of usage by both contributors and by researchers, scope of content in the repository, underlying technologies and policies, and relationships and interoperation with other repositories. Even if the institutional and disciplinary categories do not prove useful over the long-term, they remain useful distinctions today for those considering scholarly repository evaluative criteria.

The easiest example of differences between disciplinary and institutional repositories is to consider the hypothetical search and discovery experiences of someone looking for scholarly information in each. Users of a functioning recognized domain or disciplinary repository could reasonably expect to discover full-text reports, citations, or other references to most of the current research within that specific field. In many ways, this search and discovery process would equal what could be expected from a modern research library that collects comprehensively within the same content domain. In both the disciplinary repository and the research library, of course, the completeness and comprehensiveness of what could be discovered depends on how successful each is in its acquisition routines.

Now, contrast that experience with what the same user would encounter when instead searching a disciplinary repository. Imagine searching a campus library and discovering the library provides access to only materials produced by campus faculty and departments, who may or may not have incentives to share their work with the library, due to its very local and limited influence on their wider academic disciplines. Researchers trying to conduct research or understand current work within any field would have a very difficult time if they had to rely solely on what they could

find in such a library.

This example is obviously very simplistic. Deposit in a disciplinary or institutional repository does not preclude simultaneous deposit in other repositories, publication in journals, and dissemination through other scholarly communication channels as well. As the web of repositories becomes more complex, scholars who deposit works in one repository may one day be able to expect that metadata-sharing and other repository services will automatically push their works to the attention of other external channels. However, the main point to understand from the example above is that institutional and disciplinary repositories exist for fundamentally different purposes, and therefore require different evaluative criteria. Though frameworks do exist for some specific aspects of digital repositories, including the OCLC/NARA/CRL *Trustworthy Repositories Audit and Certification*[8] checklist for preservation repositories, and the Open Society Institute's[9] technical comparison of repository softwares, no general evaluative models have emerged for disciplinary or topic-based scholarly repositories.

For institutional repositories, however, three analytical/comparative frameworks recently surfaced in the scholarly literature. Proudman's[10] analysis of European institutional repositories employed the following evaluative criteria, identified as "recurring themes of international and national discourse on the issue of open access and scholarly communication":

- policies;
- organization;
- mechanisms and influences for populating repositories;
- services;
- advocacy & communication; and
- legal issues.

Proudman applied this evaluative framework to multiple institutional repositories, and concluded these categories cannot provide a numeric score, but instead are useful to compile a qualitative profile of a repository's strengths and weaknesses. No individual evaluative category was found to be most indicative of a successful repository.

Like Proudman, Westell[11] had earlier applied a framework of several evaluative criteria, and found most of them tend to generate qualitative, not quantitative, success indicators. Her study used eight categories, including:

- repository mandate;
- integration with institutional planning;
- funding model;
- relationship with digitization centers;
- interoperation;
- content measurement;
- promotion; and
- preservation strategy.

Interestingly, Westell deemed "user acceptance" of a repository as another potential category, but one worthy of its own separate study. In contrast to Proudman's subsequent findings, Westell found one indicator, the amount of content in a repository, to be the greatest determinant of whether a repository is considered successful or not.[12]

Both of these studies revealed the problems inherent in applying a set of common evaluative categories to a heterogeneous group of repositories. Many of the analytical categories used in each study are not conducive to consistent and accurate measurement across repositories. In their own ways, however, each study illustrated the potential and the utility of measuring success of IRs.

Recently, Kim & Kim[13] reported on their efforts to develop an evaluative framework for IRs in South Korea's university system. By synthesizing literature on evaluation of both IRs and digital libraries, through analysis of six well-known repositories, and through extensive testing and interviews with IR experts, they developed a rubric of four broad evaluative categories and numerous indicators within each category. This analytical framework was tested on a single digital repository, but evidently soon will be tested on a wider group of IRs. In its present manifestation, this evaluative framework is broken into the following categories:

- content (diversity, currency, size, metadata);
- system and network (interoperability, use of help services like FAQ and Q&A);
- use, users and submitters (use ratio, user satisfaction, submitter satisfaction, user/submitter support); and
- management and policy (budget, staffing, library awareness of Open Access and related issues, copyright management, IR marketing, institutional support, policies and procedures in place, diversity of archiving methods).

By the authors' own admission, some of these analytical criteria cannot be applied consistently across multiple repositories. Also, though the Kim & Kim framework provides some quantitative

measurements, much of the data it provides are not the quantitative sort that encourages easy comparison of repositories. Additionally, their framework makes multiple assumptions about the administrative and organization structure of a university and its IR, and about the role of libraries and librarians as indicators of a successful IR effort. From a librarian's perspective, these assumptions are an ego booster, but the Kim & Kim model will likely require significant modifications to be applicable for use in US and North American environments.

## III. The Need for Measurement and Comparison

Each of the three studies described above produced useful descriptions of individual repositories, such as case studies of each repository analyzed, and lists of unique or interesting characteristics of IR. This kind of detailed contextual narrative is valuable, and in the Westell and Proudman studies, also resulted in lists of useful tips, best practices and recipes for better repositories. However, none of the investigations discussed earlier claim to be scoring systems for measuring and comparing repositories. Without the ability to compare, repository administrators may have a difficult time demonstrating the significance or degree of an IR's success.

Kyrillidou[14] reminds us qualitative, more subjective descriptions, of digital library collections may soon replace the more easily-comparable quantitative measures (e.g., total budget expenditures and item counts) used in the past. Nonetheless, hard numbers and comparisons will continue to be strongly preferred or required to secure ongoing administrative and financial support for most repositories. One strategy for achieving effective evaluative frameworks for IRs is to adopt many of the qualitative criteria explored by Westell, Proudman, and Kim & Kim, but to supplement them with repository-wide quantitative measurements borrowed from other statistics used by scholars and university administrators. Some of these might include:

- scholarly impact of both individual digital documents and the repository overall;
- comparisons of resource inputs vs outputs;
- categorized totals amount of content (e.g., published research gray literature);
- correlated measures of productivity (e.g., # of faculty, # of deposits per scholar);
- relationship and influence of local IR with disciplinary repositories, journals, etc.; and
- indicators and adjustments for overall organizational size and resources.

These are just some examples of the numbers that would be useful for administrative evaluation of an IR. Librarians and others involved with managing IRs could benefit by becoming better acquainted with other evaluative frameworks used in upper-level academic administration, such as for regional and disciplinary academic accreditations, and for higher education reporting to the US Dept. of Education.[15] All of these evaluation exercises, which university administrators must manage on a continuing, cyclical basis, are based on very general categories similar to the IR evaluation frameworks described earlier. However, university administrators have learned how to operationally integrate definitions and break evaluative criteria into quantitative measures. In the same way, IR managers must recognize the need for reports and statistics that help measure and compare success of IRs.

## IV. Future Evolution of Institutional Repositories and Evaluation

The landscape of digital scholarly repositories is still evolving, and no one cay say for certain how long the current categories of "institutional" or "disciplinary" repositories will persist. Much of the uncertainty about the future is due to an ongoing decentralization of power and authority in scholarly communication. Institutions, publishers, and scholarly societies that once exercised extensive control over scholarly communication are losing their grip as grassroots; scholar-driven initiatives are gaining momentum. The SCOAP3 initiative within the high energy physics community is a perfect example of such developments.

As individuals and like-minded clusters of researchers exploit new technologies and redefine scholarly communication, new types of digital scholarly repositories may emerge and disrupt existing classifications. Calabrese[16] described "problem-centered" multidisciplinary groups that are defined only by the research questions they investigate; might we see problem-centered digital depositories emerge as the Next Big Thing in this field? If so, will they have their own particular evaluative needs?

Whatever changes may occur, it is important to keep several important points in mind when

considering evaluation of institutional repositories:

1. Though research questions may transcend particular scholars or organizations, individual researchers are still usually paid and supported by particular institutions.
2. Continuing support of scholars and programs is dependent on continuing demonstrations of performance and impact.
3. The changing scholarly communication landscape gives scholars many choices on where they may publish or share their intellectual output.
4. Scholars are still averse to any extra work of depositing their work in prescribed repositories.[17]
5. The tasks of counting and measuring performance and impact, while extremely important to institutions and funders, are arguably now more difficult thanks to points 3 and 4.

If institutionally-hosted digital repositories do not survive as a viable component of scholarly communication, this would not be surprising. Their primary utility is for the benefit of the institutions and not as a primary node where researchers would be expected to conduct comprehensive literature searches. Regardless of where scholars' works reside, however, institutions and funders will want to count, measure and compare the quality and quantity of research they sponsor. At some point, then, the enormous potential utility of an IR, or for automated tools that track and count scholarly deposits in diverse distributed repositories, will continue to resurge, and probably will lead to discussions of institutional mandates for secondary deposits by locally-supported scholars in locally-supported repositories.

At this point, we come back full-circle to the question of how to evaluate locally-supported repositories, but now with a better understanding of their context. Earlier, this paper discussed the possible tension between institutional administrators' needs and desires for quantitative measurements, and the emerging consensus that qualitative descriptions are needed to fully understand and gauge an institutional repository's success. By combining some of both, perhaps IRs can be adequately measured and compared against each other.

However, in the search for new metrics in the new realms of digital collections, it might also be constructive to consider that comparisons do not always have to mean "more vs. less" or "better vs. worse." Instead, if we remember that each IR is a complex, unique combination of local policies, resources and specializations, intentions and needs, then each IR may be more like a particular color value on a palette of thousands or even millions of possible colors, where each color value is the result of a unique combination of light from the red, green, and blue spectrums. For purposes of comparison, then, one possible alternative to a multi-dimensional graphical plot of a repository's attributes, might be as simple as a simple color palette, where one can produce a unique color value associated with an IR by inputting its value or ranking in various spectra, in the same way that the user of image software might choose a color through a simple interface like the one shown below in Figures 1-3.

## V. Conclusion

The future of IRs is uncertain, but the need for better institutional assessment tools is undisputed. If IRs survive the ongoing evolutions within scholarly communication, it will undoubtedly be because of their utility as tools for measuring and comparing faculty and organizational performance. In turn, IRs will also need to be evaluated and compared as programmatic activities within universities and colleges. The evaluative criteria of IRs are different from other types of digital scholarly repositories, because they serve a different purpose.

Librarians and academic administrators should remember that scholars are not waiting on them to make decisions. Instead they are re-inventing the systems of scholarly communication, and as often as not, not including outsiders in their decisions. Simultaneously, lines between institutional, disciplinary, and other digital scholarly repositories continue to change. The net result is a lag between the current scholarly communication landscape, and the discourse (published literature, proposed frameworks, etc.) on how to evaluate components such as IRs.

Recent efforts to develop IR evaluative frameworks have produced criteria that favor qualitative assessments, due to the variety of policies, resources, organizations, and scholars unique to each institution. This creates a tension because traditional metrics and evaluative criteria for both libraries and higher education have focused on quantitative measurements. As libraries, university administrators, and IR managers seek

ways to evaluate the success of IRs, they should blend together both quantitative and qualitative measurements, and devise innovative representations that assign precise, accurate, and rich indicators of IR attributes.

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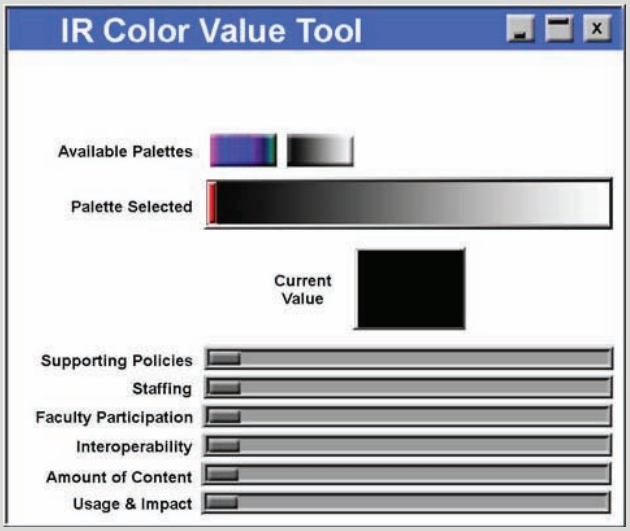
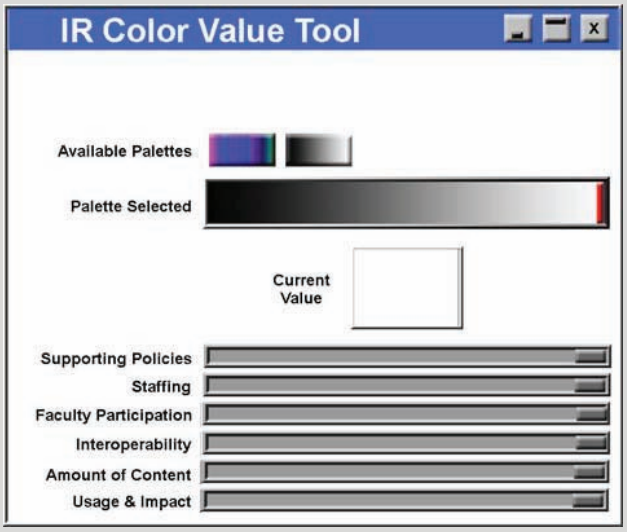
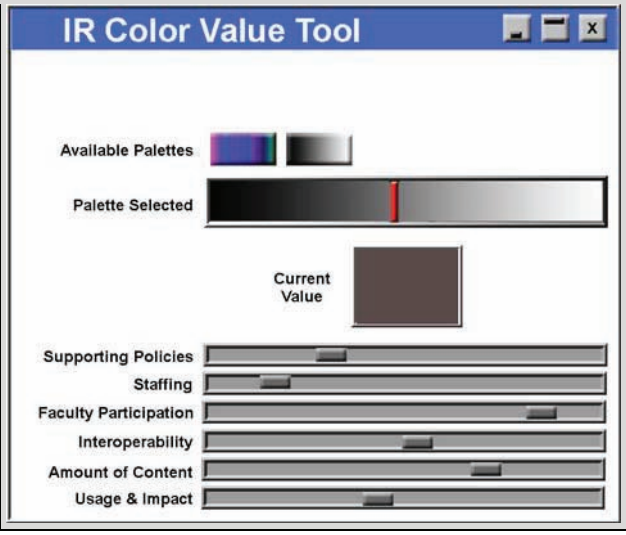
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| Figures 1, 2, 3 : Using A Color Palette Metaphor To Represent Multi-Variate IR Profiles | |
|---|---|
| **Figure 1.** In a traditional digital color palette, the color black represents an absence of any other colors from the color spectrum. An IR with no supporting policies, staffing, interoperability, or other measured attributes would be equivalent to selecting black on the color palette. |  |
| **Figure 2**. An ideal IR with full faculty support, full policy support, full faculty participation, a maximum of interoperability, a high volume of content, and other optimal attributes would be equivalent to white on the color palette. White represents maximum saturation of all values in the color spectrum. |  |
| **Figure 3.** In this mockup of a color-value calculation tool, users could select a palette of millions of colors with more variable attributes to input, or a grayscale palette with a relatively smaller set of thousands of possible colors. A typical IR might score low in some attributes, and higher in others, to end up with a particular shade of gray as its corresponding aggregate color-value assignment. |  |

# Library Assessment Plans: Four Case Studies

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## Abstract
The libraries at the University of Chicago, Columbia University, the University of Texas Southwestern Medical Center, and Cornell University have created or re-defined their assessment plans and programs within the last two years. These case studies underscore how vital assessment has become and illustrate how these assessment programs have evolved to reflect local needs and priorities, their libraries' organizational structure, their institutions' planning cycle, and, yes, the reality of limited resources.

## Introduction
Anyone responsible for creating an assessment plan or program would recognize (or shudder at) these challenges included in the 2002 Council on Library and Information Resources' report "Usage and Usability Assessment: Library Practices and Concerns:"[1]

- Gathering meaningful, purposeful, comparable data;
- Acquiring methodological guidance and the requisite skills to plan and conduct assessments;
- Managing assessment data;
- Organizing assessment as a core activity; and
- Interpreting library trend data in the larger environmental context of user behaviors and constraints.

In spite of these challenges, or perhaps because of them, libraries at the University of Chicago, Columbia University, the University of Texas Southwestern Medical Center, and Cornell University have created or re-defined their assessment programs within the last two years. Their plans range from providing a conceptual framework for assessment to detailing specific assessment projects. Their plans and programs also reflect local needs and priorities, the libraries' organizational structure, their institutions' planning cycle, and, yes, the reality of limited resources. The fact that these programs exist testifies that assessment is increasingly seen as vital to a library's success.

Recognizing that understanding local needs is the key to successful assessment at any institution, the authors hope that these case studies will be useful to libraries that are at various stages of building an assessment program.

## The University of Chicago
### Institutional and Library Profile
The University of Chicago is a private university with an enrollment in 2008 of 4,901 undergraduates and 9,820 graduate students. There are four graduate school divisions and six professional schools on its Hyde Park campus. The Graduate School of Business also has campuses in downtown Chicago, London, and Singapore.

The Library's collections are housed in five libraries. The Library has a professional and support staff of 311 FTEs.

### Institutional Needs and the Role of Assessment
At the core of the Library's mission is its commitment to "provide comprehensive resources and services in support of the research, teaching, and learning needs of the University community."

The assessment program supports this, and other components of the Library's mission, in the following ways:

- Support for strategic planning
  A strategic action plan is created by the Library Planning Council (LPC) at the start of its one-year planning cycle. As one of the main sources for gauging user perceptions and collecting user comments, the LibQUAL+® survey results (compiled by the Assessment Director) have helped the LPC focus on those issues that users consider high priority and to identify issues where more information is needed.
- Data for internal and external use
  The ARL statistics represent a significant data collection activity for the Library, and these data are used in annual reports and inform decisions about hours and program-support levels. The Assessment Director has overseen the adoption of a Web-based system for gathering public-service statistics and will be leading a group to improve data reliability and re-usability. Other data that are routinely collected (e.g., reference questions, interlibrary loan requests) need to be reviewed to see how (or whether) they can be used to shed light on user perceptions about the Library's services and collections.
- Product/service assessment
  Usability testing has proved a valuable tool for getting feedback on changes to the catalog interface. In 2006, a round of testing showed improved results and user acceptance of a faceted interface which led the Library to implement AquaBrowser in 2008. Six months after the launch of this new interface (Lens), additional testing was done to compare task completion for users of the "old" interface and those using the new interface. These results will be used by those managing the development of these interfaces. Usability testing should be ongoing.

## Organization and Support of Assessment Activities

The position of Assessment Director was created in 2007, representing the Library's growing commitment to assessment that began with a group of seven public-services librarians forming an interest group in 2003.

The Assessment Director reports to the Head of Access Services and Assessment and manages a project assistant who works approximately 15 hours/week. In addition to leading several assessment projects, the Assessment Director is responsible for submitting the appropriate documents for the Institutional Review Board, helping recruit study participants, and tracking assessment activities. In order to expand the number of assessment projects that can effectively be undertaken, the Assessment Director heads the five-member Assessment Project Team (APT). Members participate in the review and planning process of all assessment activities and also commit to leading at least one assessment project annually.

## The Assessment Plan

With much of the first-year projects already committed to (LibQUAL+® analysis, usability testing), the goal of the Assessment Director was to create an assessment plan by the end of the first year. The objectives of the plan were to define roles and responsibilities and create a process for assessment activities to be reviewed, completed, and reported on.

The plan details those strategic initiatives that the Assessment Director is responsible for as well as activities that support the assessment program's goals of improving data collection, improving infrastructure and competencies, and publicizing the Library's assessment activities.

For each item that is being assessed, the plan includes the project's rationale, the assessment method, the population studied, the projected outcomes, the projected start/end, and the staff involved. These data will help summarize the Library's assessment activities and prevent over-assessing specific populations or services. The plan's appendix includes several forms that will be used during a project's life cycle: a proposal that gives a broad outline of the project; a project plan that details the various steps for the assessment project and; after the project is completed, an assessment of the project to capture lessons learned.

The plan was drafted by the Assessment Director and approved the Library Director. The plan will be reviewed and updated as needed so that it always reflects the current state of assessment activities.

## Mechanisms to Document, Share, and Act on Results

As noted above, every assessment project will generate a number of forms that document its purpose and life cycle. The Assessment Project Plan requires project leaders to present their results at an

Assessment Project Team (APT) meeting, which is open to any interested staff members. The Assessment Director and/or APT members will be responsible for periodic updates to various committees on significant results. The APT is also committed to organizing at least two "brown bag" sessions annually to highlight assessment activities, and members will organize/participate in three assessment-related sessions of our newly-formed journal club.

What is likely to prove a greater challenge is the longer-term organization and sharing of study results, particularly as the number and complexity of these projects grow. In the short term, we will rely on Web-based tools like wikis to post results.

### Strengths/Weaknesses of the Plan

As written, the assessment plan is very specific—which is both a strength and weakness. While it provides a blueprint for the upcoming year, if additional projects need to be done, it will most likely mean that there will be projects that will not be completed. Since the projects have not been given a priority level, it may be more difficult to identify which projects not to do.

The plan assumes the full engagement of all members of the Assessment Project Team. Since these are staff with significant primary responsibilities, the time they have to devote to assessment projects is subject to changes in their departments over which they may have no control (personnel changes, new projects, etc.).

### Lessons Learned

- Time spent refining an assessment project's objectives and methodology make analyzing, synthesizing, and writing up the results easier. However, it is easy to underestimate the time needed to complete this stage.
- When reporting on results, it is critical to focus on the key issues and include action-based recommendations.

### Future Direction or Initiatives

The second year of the Assessment Director's tenure will be focused on refining the review and planning process, distributing assessment project work, and developing more experience with a variety of assessment methodologies.

The addition of the Joe and Rika Mansueto Library, scheduled to open in 2010, will present new challenges and opportunities for the Library to improve the way it uses data to drive decision making.

## Columbia University

### Institutional Needs and the Role of Assessment

Columbia University in the City of New York is a private university with 7,411 undergraduates, 5,204 graduate students, 7,108 students enrolled in professional schools, and more than 3,000 students enrolled in medical programs.

The Columbia University Libraries (CUL) collections and services are organized into 25 libraries and various academic technology centers, and employ more than 550 professional and support staff.

CUL has been actively engaged in assessment activities for many years, and staff in all departments of the Libraries conduct local assessment activities on a daily basis. User surveys and focus groups have been employed regularly since the early 1990's, and Columbia participated in LibQUAL+® in 2003 and 2006.

- Planning services and service quality
  CUL is committed to providing quality service to all users. The Assessment Program supports this mission by assisting libraries with service quality evaluation and in gathering user input during the development of new library services, tools, and spaces.
- Support decision making
  The Assessment Program brings the user perspective to library planning processes by gathering, analyzing, and providing access to relevant information about users to support library managers in making data-driven decisions when developing or evaluating services, programs, and spaces.
- Guarantee quality data
  A goal of the CUL Assessment Program is to ensure that the data collected and applied is of the highest quality, soundly valid and reliable, and relevant to the information needs of staff. Increasing staff awareness about the quality of their data and potential limitations is a priority.
- Promote information transparency and independence
  The Assessment Librarian is exploring ways in which to address the data "silos" that exist within the Libraries and creating practical ways to empower staff to access, analyze, and apply data from library systems and assessment projects. A "CUL Data Center" is being developed, which will start with "cataloging"

and collocating all of the data streams produced by library systems and departments.
- ARL statistics
  The CUL Assessment & Marketing Librarian does not manage the process of reporting ARL statistics, nor any other similar external reports. The Libraries Manager of Financial Planning prepares and reports ARL statistics annually.

### Organization and Support of Assessment Activities

Recognizing the need for coordination and direction of assessment efforts, the position of Program Coordinator for Marketing and Assessment, which later became the Assessment & Marketing Librarian, was created and filled in 2006. Reporting to the Director of Access Services, the Assessment & Marketing Librarian commits 50% of her time to assessment projects in support of the Libraries strategic initiatives and works with 21 of the 25 libraries on campus, and all departments of the Libraries.

The Assessment & Marketing Librarian chairs the Assessment Working Group which is currently focused on building a culture of assessment at the Libraries through staff education, planning an ongoing series of Assessment Forums for staff, maintaining the online Assessment Center (an internal resource), laying the foundation for a robust "CUL Data Center," and communicating the work and successes of the Assessment Program to the Libraries, the University, and the public.

An incentives budget was created to support assessment projects, and funding has been provided to support large scale efforts such as Assessment Forums and LibQUAL+®.

### The Assessment Plan

The Assessment Plan was researched and written by a representative, ad-hoc group and was approved by the Libraries Management Committee in February 2007. The research phase included a literature review, interviews with key staff members, a review of the strategic plan, and analysis of recent survey and focus group results. The Assessment Plan was presented at a CUL Staff Forum, and the Assessment & Marketing Librarian met with each department of the Libraries to discuss future collaborations and staff reactions.

The Assessment Plan, aligned with the CUL three-year Strategic Plan, provides a strong conceptual basis for the program and has been a touchstone for all assessment activities. The plan introduces key assessment concepts including building a culture of assessment, data-driven decision-making, and information transparency. The plan also outlines a number of specific assessment initiatives and defines staff roles.

The next iteration of the Assessment Plan will be more practical and a direct counterpart to the Libraries/Information Services Strategic Plan. It will include a mission statement for the Assessment Program, goals and objectives for the Assessment Program, and success measures for individual assessment projects. Assessment priorities will be established and prioritized in conjunction with Public Service Directors and the Libraries Management Committee.

### Mechanisms to Document, Share, and Act on Results

All assessment projects are documented on the CUL Assessment Center, an internal Web site. Each profile identifies the client, staff for the project, scope, goals and documentation for the project. Upon completion, data sets and reports from assessment projects are posted here. All CUL staff have access to this information. The Assessment & Marketing Librarian also presents at Staff Forums, as requested, and provides periodic updates to committees and departments.

### Strengths/Weaknesses of the Plan

While the CUL Assessment Plan outlines potential projects for 2006-2009, it was developed primarily as a learning tool for staff members, and does not outline specific measures for success. The Assessment Team was conscious of the newness of the assessment program to the Columbia University Libraries organization and culture and was successful in creating a document that presented assessment in an accessible way that communicates value.

### Lessons Learned

- Keeping the Assessment Plan "alive" is a challenge, even within the Assessment Working Group. It is a flexible document, and the initial three-year outline of assessment project priorities is out of date. However, the Plan continues to serve as a theoretical foundation for the Assessment Program, providing direction and focus.
- Involving staff input in the research and writing of the plan was invaluable. By basing the plan on the needs of library staff and the

strategic goals of the Libraries, the Assessment Librarian was able to build buy-in in many departments early on.
- One major success toward building a culture of assessment at CUL has been the incorporation of assessment projects in staff annual goals. The success of individual assessment projects, like the 2007 Digital Social Science Center User Needs Assessment Project, has also helped build momentum for the program.

### Future Direction or Initiatives

The Assessment Working Group is committed to developing a public website to share information about assessment projects and results with the University and other libraries. The Group is also working to improve their project management and documentation processes. Upcoming assessment activities include re-issuing the Culture of Assessment Survey (based on the work of Amos Lakos) to CUL staff as a means to gauge the progress of the Assessment Program, conducting a second user-needs assessment for humanities researchers, and participating for a third time in the LibQUAL+® survey in spring 2009.

## University of Texas Southwestern Medical Center

### Institutional and Library Profile

The UT Southwestern Medical Center is part of the University of Texas System and includes three degree-granting institutions: UT Southwestern Medical School, UT Southwestern Graduate School of Biomedical Sciences, and UT Southwestern Allied Health Sciences School. Each year, about 4,200 medical, graduate and allied health students, residents, and postdoctoral fellows are trained. The Medical Center Library has two locations: the main Library on the South Campus and a smaller branch library on the North Campus. Among a staff of 52 FTEs are 20 professionals, 15 of whom are Faculty Associates.

### Institutional Needs and the Role of Assessment

The Library's assessment program was designed to support the Library's strategic planning process, improve data collection, evaluate the effectiveness of library services, measure the efficiency of library processes, and assess the impact of library services on institutional outcomes (e.g., teaching, student learning, research, and patient care).
- Support for strategic planning
  Data from internal and external surveys, along with results from the 2007 LibQUAL+® survey, were reviewed to help create the four strategic planning goals during the most recent planning cycle. One of the two-year plan's goals is to "create a culture of continuous Library-wide assessment and personal learning and growth."
- Objectives, including at least one performance indicator, associated with this and the other goals are submitted on an ongoing basis. Library-wide meetings are held quarterly to review progress and discuss outputs. These meetings include training sessions on assessment and evaluation topics by the Assessment Librarian.
- Data for internal and external use
  The Library's current data collection processes are hindered by the multiplicity of data collection systems, a lack of coordination among the systems, difficulty extracting data from the systems, and issues of reliability and validity. One of the Assessment Librarian's goals is to create a system that will address these issues and also provide data extraction on an as-needed basis.

### Organization and Support of Assessment Activities

The position of Assessment Librarian was identified as a critical need by the Library's Organizational Efficacy Council (OEC) and the initial job description focused on collecting outcomes data that would enable the Library to demonstrate its value. An Assessment Librarian, reporting to the Assistant Vice-President for Library Services, was appointed in September 2006. The job description was revised in November 2007 to incorporate evaluation activities and objectives related to the strategic goal of creating a culture of assessment.

The eight-member Data, Acquisition, Translation, and Analysis (DATA) Team, representing six library units, was created in 2003. Its mission changed in 2008 to include library assessment.

### The Assessment Plan

The initial assessment plan provided a framework for a new, but evolving, program. It included background issues, current research, examples and proposed assessment activities. Two key projects were included in the plan for 2007: LibQUAL+® and a pilot project to assess the impact of collection development processes.

The assessment plan was revised to provide a multi-year outline of planned assessment projects, including details about when the evaluation will occur, the method that will be used, and who will be involved. For each item that is being assessed or evaluated, the plan includes the project's rationale, the assessment/evaluation method, the population studied, the projected outcomes, the projected start/end periods, and the staff involved.

The plan was drafted by the Assessment Librarian and remained in draft form until July 2008. The DATA Team recommended that the plan remain in outline form for readability and to facilitate understanding. The draft plan was discussed with the Assistant Vice-President for Library Services (the Library Director) and the Deputy Director. The plan was approved in July 2008 with the understanding that the plan will be reviewed and updated as needed so that it always reflects the current state of assessment and evaluation activities.

### Mechanisms to Document, Share, and Act on Results

The Assessment Librarian, with the assistance of three DATA Team members, analyzed the 2007 LibQUAL+® data and prepared two reports, one for library staff and another to share with campus. The staff report was posted on the intranet, presented to Library staff, and discussed in managers' meetings. In addition, the Library Director and Deputy Director meet monthly with each unit manager and team/task force leader, and monitor how each group responds to the survey findings/comments. The campus report was posted on the Web site along with a "Tell Us What You Think" blog initially populated with responses to some of the LibQUAL+® comments. The blog continues to provide a way for users to provide feedback and that feedback helps unit managers improve service delivery.

Additional mechanisms include: (a) incorporating assessment into strategic planning objectives,
(b) adding an assessment component to the newly-developed liaison and outreach programs, (c) requiring assessment or evaluation plans for both established and new teams and task forces, and (d) ongoing education of Library staff on assessment and evaluation topics.

### Strengths/Weaknesses of the Plan

The assessment plan provides an at-a-glance overview of the assessment and evaluation activities for the next three years. The plan's outline format reflects its evolving nature and lends itself to making adjustments and refinements. However, the plan's flexibility was perceived by some as indicating a lack of direction.

An element missing from the plan is how the DATA Team can assist the Assessment Librarian in its implementation. The DATA Team was loosely organized, and, when the Assessment Librarian was appointed, the group took on a consulting role and moved away from being a working group. However, the increasing number of assessment and evaluation projects requires an engaged and a well-trained working group. While the Assessment Librarian took on the task of training the DATA Team, she relied on Team members to volunteer to work on projects. The time to work on these tasks competed with the members' other duties.

### Lessons Learned

Any assessment effort, particularly those that are outcomes-based, requires support from staff to ensure that the data are collected consistently. If data are to be used to drive decisions, data need to be reliable. Efforts to improve data collection processes, while time-consuming in the short-term, will help to provide the foundation necessary for the Library to move from "old measures" to "new measures."

### Future Direction or Initiatives

The Assessment Librarian will begin her third year in September 2008. The current strategic plan, with its strong emphasis on evaluation and assessment, is effective until August 2009. The number of people actively involved in assessment and evaluation activities will increase as the various units and teams implement objectives related to the strategic plan goal to "create a culture of continuous Library-wide assessment and personal learning and growth." The Library will participate in its third LibQUAL+® survey in 2010. A recent Library re-organization resulted in the addition of 1FTE dedicated to program evaluation. Additionally, the DATA Team will be a project-based group focusing on process evaluation.

## Cornell University

### Institutional and Library Profile

Founded in 1865, Cornell University has fourteen colleges and schools, more than 13,500 undergraduate students, 7,000

graduate/professional students, and 3,000 faculty. The Library system comprises 20 distributed libraries and has a staff of 460.

## Institutional Needs and the Role of Assessment

The Library has a history of using assessment data to support resource allocation and service improvement decisions. Since 2001, the Library conducted four rounds of LibQUAL+®, and numerous local surveys and focus groups; most recently, the Library participated in the ClimateQUAL™: Organizational Climate and Diversity Assessment project led by the University of Maryland Libraries and ARL.

## Organization and Support of Assessment Activities

Cornell Library has had a Research and Assessment Services unit since 2003 whose expertise and primary work were largely in collecting and reporting library statistics and conducting focused research on digital preservation.

A new unit director was appointed in November 2006 and a new mission was developed for the unit renamed the Research and Assessment Unit (RAU). The Director of RAU reports to the Senior Associate University Librarian for Public Services and Assessment. RAU has 3 staff members (2.6 FTE, with one position largely funded by soft money).

## The Assessment Plan

The current mission of the RAU is to assemble and assess data to report on Library performance and to provide evidence and context for Library priority-setting and decision making. Its scope of responsibilities is rather concrete. RAU is charged to:

- report library performance statistics internally and externally;
- build and enhance a data repository (we named it the CUL Data Mart); and
- conduct high-priority, high-impact projects of all kinds on demand.

The mission and scope reflect the identified needs and challenges in the Cornell Library's environment. Because there has been a culture of assessment at Cornell, and because user needs and library priorities are changing more rapidly than ever before, RAU chose to take a course that is designed to ensure agility, responsiveness, and progressively develop a long-term, sustainable assessment program. This adaptive model takes RAU through three transformative stages:

- Stage 1: Learning (year 1- 2): build skill sets, establish workflow, build collaborative network, and learn about existing data and resources locally and nationally.
- Stage 2: Solidifying (year 3-4): fine tune skills and build experience, develop staff's areas of specialization, purposefully build data sets for longitudinal studies, and integrate external assessment resources into library decision-making.
- Stage 3: Maturing (year 5 and on): perform just-in-time assessment tasks, start system-wide, cyclical assessment plans, establish longitudinal analysis routines, spread assessment skills across the library system through training, and transfer mature assessment models from "RAU's lab" into appropriate functional units.

In Stage 1 and 2, RAU creates 6-month milestones as both the goals and measures of success for its own development. RAU frequently reflects on environmental changes, aligns and realigns its priorities, practices its skills in projects, conducts immediate, post hoc reviews, and incorporates lessons just learned into its operations. The ultimate success of RAU comes when the assessment mindset and capability permeate the organization, when assessment becomes invisible and inseparable from every library function, when there is no more need to have a separate assessment unit.

## Mechanisms to Document, Share, and Act on Results

In the past 1.5 years, RAU has developed a set of workflow and internal protocols to ensure that its work is of high quality and timeliness. RAU has partnered with colleagues whom we view as the content experts for various assessment assignments. RAU uses MSProject to manage its task list and timetable, and wiki and e-mail as communication and collaboration tools. It uses shared server space for data storage and its Web site (http://research.library.cornell.edu/rau/) and eCommons (a DSpace implementation at Cornell) to distribute its findings.

Our workflow has both an activity stream and a data stream. Work in the activity stream includes: interacting with the project sponsors to understand the purpose of a task, developing and communicating a project plan, selecting or designing assessment methodology, conducting

research, reporting and distributing findings. The data stream includes activities such as filing IRB approval request, assembling or collecting data, performing data stewardship functions throughout various stages of a project, such as data version control, maintenance and purging. Most of our results influenced the decision making of our sponsors.

### Strengths/Weaknesses of the Plan

The most noteworthy strength of the adaptive approach is its responsiveness to needs. We have been able to translate Library's priorities into concrete tasks and produce results at a time when results are most likely to be used. The 6-month milestones have been excellent in helping RAU to prioritize its activities. It has served as a useful self-assessment tool for RAU to see its own growth, gaps, and development needs. But the adaptive approach has some weaknesses. Because RAU responds on-demand, it has limited control over the content and timing of tasks that come its way. At times this generated considerable stress and anxiety for RAU's staff. Due to the confidential nature of some tasks, RAU is unable neither to publish details in our plan nor to share results. Thus, it has difficulty to promote itself within the Library.

### Lessons Learned

We learned it is easier to plan than execute. While we are determined to shift staff resources from data collection to data analysis, it is difficult to cut back on the annual measures and the time it takes to collect them. We've learned that client-RAU relationships are important and delicate; that sharing data is far more complicated due to politics and technology challenges. We've learned that it takes good planning and vigilance to limit scope creep in a project, that it is hard to say no, harder to recognize the point of diminishing returns, and the hardest to convince ourselves to accept "good enough" data.

### Future Direction or Initiatives

The Cornell Library just welcomed its 11th University Librarian. We anticipate a lot of organizational planning related tasks this year. We are gearing up to renovate one of our largest libraries. RAU has completed several tasks in support of the renovation planning; we anticipate more to come. We will help Library Human Resources as it takes actions to address weak areas revealed by our ClimateQUAL™ results. We will continue to review measures we collect and conduct cost-benefit assessment. We will continue to shift from statistics collection to analysis and improve and promote the Data Mart. We plan to schedule more staff forums to share RAU's work results and to increase RAU's visibility. We have recently conducted a small-scale longitudinal study of our LibQUAL+® survey data. We will do more systematic analysis like this one. We are considering LibQUAL+® for 2009.

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## Conclusion

Although challenges remain for these programs, their institutions will continue to build on successes and lessons learned, adjusting to their unique needs and changing priorities.

Whatever your library's approach is to assessment, if your efforts are to be successful and sustainable, your projects must reflect the institution's priorities, be based on achievable and realistic goals, and have the support from your library's administration.

Please see http://www.lib.uchicago.edu/e/atatarka/aplans.html for links to plans and other documents.

## Endnote

1. Denise Troll Covey, *Usage and Usability Assessment: Library Practices and Concerns* (Washington, DC: Digital Library Federation, Council on Library and Information Resources, 2002), 53.

# Assessment Immersion: An Intensive Professional Development Program for Information Literacy Assessment

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## Abstract
This paper describes the Association of College and Research Libraries' Assessment Immersion Track: Assessment in Practice program, which is intended for librarians active in teaching and learning and those with leadership roles for information literacy program development who want to improve their knowledge and practice of both classroom and program assessment.

## Introduction
The Institute for Information Literacy (IIL) of the Association of College and Research Libraries has created a new program to add to its Immersion program. The Assessment Immersion Track: Assessment in Practice is intended for librarians active in teaching and learning and those with leadership roles for information literacy program development who want to improve their knowledge and practice of both classroom and program assessment.

This program approaches assessment from a learning-centered perspective, building upon the philosophy of "assessment-as-learning," as developed at Alverno College. Formative assessment is emphasized to explore its role in instructional and curricular design, in librarian/faculty skill development, and in development of information literacy programs. Summative assessment tools are explored along with strategies for determining their appropriate application.

## Assessment Immersion Track
The Assessment Immersion Track is based on two crucial assumptions: (1) that assessment requires librarians to clearly articulate their goals, whether those are expressed in terms of the learning that librarians want students to achieve or the impacts/outcomes that information literacy programs will accomplish, and (2) assessment is a developmental process critical to fostering instructional and program development as much as, or more than, instructional or program evaluation. After the program, participants will be able to:

- Define assessment in terms of student learning in order to understand its relationship to good teaching, library viability, and change;
- Formulate a learning-centered philosophy of assessment in order to inform development of information literacy program elements;
- Explore and utilize multiple modes of assessment in order to build a culture of evidence upon which to base programmatic development and change;
- Critically examine a variety of assessment techniques and methodologies in order to evaluate them for application in your institutional setting; and
- Examine the leadership role of the library in a collaborative information literacy assessment effort in order to build support and trust among the stakeholder groups at the institution.

Participants in the program work individually and cooperatively to extend their conceptual understanding of assessment and to expand their toolkit of practical assessment methods. They will emerge with a broader understanding of assessment and how to use assessment as an important tool to guide evidence-based classroom, curriculum and program development. During the program, participants develop a plan for their assessment activities which will form the basis for future engagement with these issues both individually and as a leader of information literacy initiatives at their institutions.

The success of this program depends on developing an engaged, supportive learning community. The faculty and participants will co-create this environment, thus, participants are expected to be self-motivated, experienced librarians. The program is three and a half days long and offers a mixture of structured content sessions and unstructured segments in which participants deepen their experiences with the program content in relation both to assessing classroom learning (with particular attention to the specific challenges of library instruction contexts) and to assessing information literacy programmatic efforts.

Pre-program preparation includes foundational readings, establishing an instructional scenario with student learning outcomes, conducting an institutional environmental scan and document identification, holding interviews with assessment leaders on campus, and writing an assessment SWOT (strengths/weaknesses/opportunities/threats) for the institution. A program listserv and Moodle site support participants before, during, and after the program.

While the assessment program's content builds upon the assessment curriculum presented in the Teacher and Program tracks of the Immersion Program, previous participation in Immersion is not required. Participation is limited to forty-five to ensure an environment that fosters group interaction and active participation.

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# Assessment Tool or Edutainment Toy: Using Clickers for Library Instruction Assessment

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## Abstract

The use of Clickers as a tool for library instruction has been growing in popularity because library instructors view this technology as a mechanism to foster interactivity within library instruction sessions in order to increase overall student engagement. However, a newly emerging area of interest for library instructors is the use of Clickers as a tool for library instruction assessment. This paper posits some of the viewpoints of various instructors using Clickers including the viewpoints of library instructors. The central question considered in this paper is whether Clickers are an effective and feasible tool for library instruction assessment. This examination extends further in considering the value of Clicker systems against the value of traditional paper-based methods for library instruction assessment. An example of a substantial library instruction assessment initiative at the University of Nevada, Las Vegas Libraries is provided as a case for consideration of the current feasibility of Clicker systems for library instruction assessment. Additionally, differing configurations for Clicker systems are outlined as are various alternatives to Clickers currently available in the interest of presenting scalable options for library instructors.

## Introduction

The use of Personal Response Systems (Clickers) for classroom instruction has been a subject of debate in the field of education. Many educators view these devices as a tool to foster interactivity in the classroom as well as a tool to measure student learning and comprehension. Others view these devices as a source of distraction for students that hinders their engagement in the classroom. The use of Clickers for classroom instruction requires financial resources as well as time and energy for instructors and students to learn how to use them. The time and money required to use Clickers in library instruction may not always prove feasible in cases where instructors have a very limited amount of time with students already. However, Clickers have potential as an effective tool for measuring the achievement of student learning outcomes in library instruction, even if they are not the only tool or method available for doing so.

## Scalable Options for Clickers

There exists a variety of vendors who supply Clicker systems as well as a variety of configuration models for Clicker systems. In regard to the configurations of Clicker systems, there are currently three major types of configurations that can be employed. The most common configuration is a classroom set whereby the students purchase or are provided the answer keypad devices while the instructor maintains responsibility for the classroom response receiver and the Clicker system software. This configuration is appears to be the option most widely utilized by instructors but there is variation in regard to whether instructors opt to purchase a classroom set of response devices for their students to use or mandate that students purchase their own response devices. There also exists a configuration whereby response devices are entirely Web-based and use of a physical response receiver is not required. Such a system allows students to provide responses through a proprietary virtual response pad which eliminates the need for physical response devices. This option supports the utilization of Clickers in Web-based instruction which particularly benefits library instruction for students taking Distance Education courses. This option requires the purchase of individual licenses or an institutional site license to the virtual system. An example of this configuration can be seen with the TurningPoint system's ResponseWare Web model.[1] Additionally, there exists a configuration which is entirely based on physical response devices whereby an instructor has a master device which can poll students and receive responses from student devices. This option removes the need for access to the Internet as well as a projector for utilizing a Clicker systems thereby

allowing for use anywhere as opposed to within a classroom setting. An example of this configuration can be seen with the TurningPoint system's ResponseCard Anywhere model.[2]

## Clickers versus Alternative Polling Methods

In his publication "Clickers or Flashcards: Is There Really a Difference," Nathaniel Lasry reports on the results of a comparison of Clickers versus Flashcards on student learning contending that Clickers do not provide any additional learning benefit to students.[3] He further claims that Clickers are more beneficial for the teaching side than for learning side of education. Moreover, he provides examples of how Clickers add value to teaching from their ability to automatically record and archive student response data. However, he also acknowledges the cost Clicker use can potentially add for instructors stating that "the capital expense for the purchase of clickers and related hardware may not be available, and passing the expense on to the students may not possible or desirable."[4]

Clickers are a popular method for polling students but there are other methods in addition to flashcards which are less costly. There are polling capabilities in a variety of Web-based tools which can be utilized in the classroom. A very simple approach would be to utilize blogs for polling such as WordPress, which has a polling feature. Another simple approach would be to utilize a Web-based survey tool for polling such as SurveyMonkey. Also, many of the classroom management software applications that are commonly used for library instruction include basic polling capabilities as well. SynchronEyes and DyKnow are but a few examples of such applications that include polling capabilities. Probably the most significant polling alternative which could substitute for Clicker use is a Web-based application called Poll Everywhere which can be used within and outside of PowerPoint and provides students the option to answer polling questions through text messaging or through the Poll Everywhere Web site.[5] The significance of Poll Everywhere is that it is the first polling application allowing students to answer questions with their cell phones by text message.

## Clickers as a Tool for Library Instruction Assessment

If the results reported by Nathaniel Lasly hold true, than Clickers cannot be shown to be a more effective instrument for aiding student learning but can be shown to add value in archiving student response data. This latter function could potentially add significant value in the area of student learning assessment. As such, a key question emerges as to the value of Clickers as a tool for assessing library instruction. The expense consideration outlined by Nathaniel Lasly impacts library instructors especially as the opportunity they have for utilizing Clickers is significantly lower than instructors who have exposure to their students for an entire academic term. The relatively small window of opportunity for Clicker use within a very limited amount of library instruction sessions for individual courses makes the option of passing the expense for Clicker device purchases on to students rather unfeasible for library instructors. As such, libraries typically bear the expense of purchasing Clickers for use in library instruction. This greater-cost–and-less-use scenario positions libraries to have a greater need for considering the value added to library instruction from the use of Clickers against the costs.

In their publication "Clicking your way to library instructional assessment," Suzanne Julian and Kimball Benson focus on the value of Clickers for gathering assessment data.[6] Interestingly, the authors acknowledge that their discovery of the value of Clickers for library instruction assessment was rather serendipitous noting that their original intention was to increase interaction and student engagement in library instruction sessions. The authors highlight the major benefits of using Clickers for library instruction offering that this technology allows for automatic tabulation of student responses which provides a means of instant assessment of class strengths and weaknesses as well as a means to analyze teaching effectiveness. While the authors report that their overall experience with using Clickers within library instruction was positive, they also caution that instructors need to carefully evaluate whether Clicker use adds to the quality of instruction noting that technology such as this can serve as a source of distraction for students. Concern over the extent of class time and student attention devoted to the use of Clickers is common for library instructors. An instance of this concern can be seen in the article "Interactivity in Library Presentations Using a Personal Response System," whereby Evelyne Corcos and Vivienne Monty acknowledge that this technology can require 15 minutes of setup time in a class session.[7] However, similar to Suzanne Julian and Kimball Benson, the main contention for Evelyne Corcos and Vivienne Monty is that the

ability for instructors to tailor lessons to student needs via Clicker polling more than offsets the setup time that is taken away from class sessions.

## Clicker-based Assessment versus Paper-based Assessment

In the ACRL Information Literacy Competency Standards for Higher Education, the section on Information Literacy and Assessment counsels that there are higher order and lower order thinking skills entailed in the learning outcomes and that "it is strongly suggested that assessment methods appropriate to the thinking skills associated with each outcome be identified as an integral part of the institution's implementation plan."[8] A significant challenge to the effectiveness of using Clickers for library instruction assessment is whether the fixed response format of Clickers is appropriate for measuring higher order thinking skills. In his article "Use of Classroom 'Clickers' to Promote Acquisition of Advanced Reasoning Skills," Gregory DeBourgh posits the argument that Clickers support innovative learning activities which promote higher cognition critical thinking and reasoning skills.[9] Although the Clicker system the author used supported only fixed response questions, the author contends that questions can be designed in a manner that elicits higher cognition reasoning skills. He further emphasizes that this sort of deliberate question design is the most important aspect of Clicker use for instructors. In his article "Clicker Sets as Learning Objects," Bergtrom similarly contends that Clickers foster the development of critical thinking skills by engaging students in questions that combine text, graphics, and audio.[10] Furthermore, Bergstrom contends that Clickers cater to diverse learning styles as they support collaborative learning and problem-based learning. Much like Suzanne Julian and Kimball Benson, this author cautions instructors to devote significant time to the development of Clicker questions in order to ensure that the questions support the development of critical thinking skills and are used in a manner that contributes to the learning experience of students.

In her article "Creativity in Assessment of Library Instruction," Janet Williams outlines some alternative assessment methods to multiple choice which can be used for library instruction assessment and provides examples for how these alternative methods can be used for measuring specific ACRL Information Literacy Outcomes.[11] The alternative assessment questioning techniques she outlines include selected response (rank order), constructed response, essay, and complex answers (task/problem based). The majority of the type of exercises the author highlights cannot be answered with a fixed response format common to Clickers. For instance, in discussing the constructed response format, the author provides examples of one to one matching questions and one to many matching questions which would be very difficult at best to design in a fixed response format. Moreover, the examples provided in this article of short answer and essay exercises would require an open response format as opposed to a fixed response format. Thus, the limited answering capabilities of Clickers give weight to the advantage of paper-based assessment in supporting flexibility and creativity in library instruction assessment.

## Clicker-based Assessment versus Paper-based Assessment at the University of Nevada, Las Vegas Libraries

In fall 2007, UNLV Libraries began a pilot project to incorporate a short quiz assignment into the instruction sessions for a Communications 101 course in public speaking which all undergraduate students must complete to graduate. This quiz was designed by library instructors who have routinely conducted instruction sessions for this course. The quiz exercises were developed around key information literacy learning outcomes for the course which were agreed upon by a team of library instructors and the Public Speaking Course Director. Such learning outcomes include defining a speech topic research question, articulating keywords to use in a search, evaluating information sources for credibility, and identifying parts of a citation. The paper quiz was administered by in instruction class sessions lasting one hour and fifteen minutes. The paper quiz had evolved to include exercises with a variety of question response formats including fill in the blank exercises, matching exercises, and short answer exercises. Not one question was in a fixed response format such as true/false or multiple choice and as such, the quiz did not lend itself well for administering via Clickers. Rather, the paper-based quiz assignments were to be completed in the instruction class session and turned into the course instructor for that section. The term instructor of each section was responsible for grading the quiz assignment rather than the library instructor. However, the format of questioning developed for this quiz assignment required extensive time for

grading as compared to a fixed response type of format. The extent of time required for grading the quiz was greater than originally anticipated which has contributed to a significant change in fall 2008 whereby responsibility for grading is placed with the library instructor for each section. The term instructors and the Public Speaking Course Director receive aggregate results for each class from the library instructors as opposed to grading individual student quizzes. The time intensiveness for grading these quiz assignments could be significantly reduced with the use of Clickers since responses can be automatically tabulated and archived for analysis and grading.

It would appear at first glance to make sense for the library instructors to collaborate with the Public Speaking Course Director in transposing this library quiz assignment to a Clicker format. Toward this end, the learning curve for the Public Speaking Course Director would be small as he has already become very familiar and knowledgeable about Clickers, having evaluated various Clicker models as part of a campus working group to select a campus standard model. However, this option would only become feasible if Clickers fully supported the type of questioning utilized for the quiz assignment. The feasibility of this option has seemed unlikely as Clicker Systems have traditionally supported fixed-response questioning formats. The limited questing capabilities of Clickers presents the library instructors with the significant challenge of designing fixed response questions which elicit critical thinking and reasoning skills from students. As was alluded to earlier in this paper, many instructors utilizing Clickers in the classroom report that the design of questions is the most significant challenge for using this technology effectively. However, the consensus of library instructors is that while it may be challenging, it is possible to design questions in a fixed response format that elicit critical thinking and reasoning skills. As such, it is difficult to speculate as to whether Clicker Systems will evolve to accommodate questioning in multiple formats. However, there currently exists evidence that at least some Clicker systems are striving to accommodate a wider variety of questioning formats. The most prominent example is the release by Turning Technologies of a new add on feature to the TurningPoint Clicker system called TestingPoint which is a Microsoft Word application allowing for a wider variety of question formats to be utilized.[12] Turning Technologies claims that their TestingPoint application can support short answer and essay questioning as well as fill in the blank and matching questioning with the use of the TurningPoint Clicker system. Such a development provides a glimmer of hope that Clicker systems may evolve to support a wider variety of questioning formats in the near future which would significantly enhance the benefit Clicker systems could provide for library instruction assessment.

## Conclusion

The capacity of Clickers to add value to the assessment of student learning is likely to become a major differentiator against its polling alternatives as such alternatives already serve as effective substitutes for the basic functions of increasing interactivity and engagement in the classroom. What remains to be observed is the extent to which Clickers and their alternatives will evolve to support a variety of assessment techniques beyond those that utilize a fixed response format. This is likely to become an important consideration for library instructors who widely advocate that assessment methods should not be designed around assessment tools but should remain the driving force behind the selection of assessment tools. Thus far, library instructors have designed critical thinking based questions effectively in Clicker formats but the limited response options of current Clicker systems may serve as a deterrent to those who are committed to using alternative assessment techniques to fixed response questioning. However, some Clicker systems now claim to be able to support a variety of assessment techniques and this trend may continue to gain momentum in the Clicker marketplace.

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## Endnotes

1. Turning Technologies, “ResponseWare Web,” http://www.turningtechnologies.com/highereducationinteractivelearning/higheredresponsewareweb.cfm.

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# It's Just a Click Away: Library Instruction Assessment That Works

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## Abstract
Audience response systems, popularly known as clickers, provide an easy and effective way for librarians to assess multiple aspects of library instruction. Six types of assessment are discussed and clicker questions illustrating possible assessment questions for each type are provided.

### Chico Clicks
California State University, Chico offers a first-year experience (FYE) class (UNIV101) that reaches over five hundred incoming freshman each year. In an attempt to address and correct the lack of statistically significant learning gains within key areas of the course, (including information literacy), in 2007 a grant proposal to transform the course design was developed and funded. One of the proposed interventions involved investigating student use of mobile technologies in the classroom. As part of this investigation, all students enrolled in UNIV101 were required to buy a student response system (popularly known as a clicker). Although there are a number of clicker systems available, UNIV101 decided to use the Response Card XR from Turning Technologies, the same system CSU, Chico had selected for a fall 2007 clicker pilot. As the FYE librarian in charge of delivering and assessing information literacy to the UNIV101 classes, I developed an introductory lecture on how to do college research, which incorporated clickers. This lecture was taught in nine classes and reached over five hundred students. Although I was initially skeptical about the value of using clickers for instruction, I quickly discovered that, in addition to engaging the students, clickers allowed me to easily integrate a variety of assessments into my classes. In this article, I will discuss six assessments clickers made it possible for me to conduct during a traditional library instruction scenario in which a librarian meets with a class for one session.

### Clicker "Nuts and Bolts"
Although the remote control keypad, or clicker, is only one part of a student response system, the word clicker is commonly used to refer to three components: a USB receiver, a keypad, and software. When presented with a question, students press a button on a keypad that sends a signal to a receiver attached to a computer. The software records the responses and displays the collective results as a graph or a chart. Responses can be anonymous or tied to individual students allowing them to be used for quizzes, keeping attendance, or grading on participation. Because the TurningPoint software integrates with PowerPoint, and even allows users to import and add clicker slides to an existing PowerPoint presentation, it is easy to create a presentation that uses clickers. Clicker functions can include setting up competitive game scenarios among teams, and linking demographic questions to other questions. The ability to link questions yields data that reveals not only how many knew the right answer, but also how the answers related to variables such as class level or gender. An important feature of clicker software is the ability to save class sessions and generate session reports from the response data at a later time. These reports can provide valuable data for assessment.

### Assess, Assess, Assess
Libraries have not escaped the demand from university administrators for assessment data. Although these requests are often prompted by the desire to feed the accreditation Gods, there are real questions about teaching effectiveness, student learning, and service that thoughtful assessments can help answer. Because librarians typically have only a short amount of time with their students, conducting meaningful assessments can be difficult. In an effort to provide assessment data, librarians have employed a variety of techniques, including online or paper forms measuring students' perceptions of the instruction session, pre and post-tests to measure student learning, and focus groups to ascertain the perceived value or use of the instruction received over time. More recently, standardized methods of assessment, such as Project Sails[1] and the Educational Testing Service's

iSkills test,[2] have been used to assess student proficiency in information literacy and technology. All of these methods can deliver valuable assessment data, but they also can involve significant investments of time and/or money. With a one-time investment, clickers offer an easy, quick, and fun way to assess a variety of topics within a library instruction classroom setting. As I continue to use clickers in my teaching, I am certain I will discover additional uses for them, but I think that the six assessments outlined below are an excellent start.

## Assess Audience

"Know your audience" is one of the first rules of public speaking. Librarians can get to know their audience by starting each class with clicker questions that give them important information about the students in that class. I imagine I am not the only librarian who has had the experience of walking into a class I thought was lower division, only to discover during the course of my presentation that half of them were seniors; or, having been told by an instructor that the class was just starting their research, discovering halfway through the session that the majority of students had already finished their papers. In both of these instances, had I known that information at the start of class I would have tailored my presentation accordingly. Classroom instructors have access to a great deal of information about their students through roll sheets, common management systems, and the assessment opportunities that weekly interaction brings. Librarians however, typically know only the course name and number and, if lucky, the research assignment the class is working on. Asking clicker questions to get to know the classroom audience takes only a few minutes of class time because the data does not need to be discussed so the questions and responses move quickly. But having this information about an audience at the start of class can have a tremendous impact on the relevance and value of the information presented. Librarians using clickers at Brigham Young found that asking students where they were in the research process yielded the most valuable information for their teaching.[3]

**Examples of Possible Assess "Audience" Clicker Questions**

| My Class Level Is: | I Would Describe Where I Am in the Research Process As: |
|---|---|
| 1. Freshmen | 1. Haven't picked a topic |
| 2. Sophomore | 2. Have a topic but haven't started my research |
| 3. Junior | 3. I've found a few things but need more |
| 4. Senior | 4. Completed my research |

## Assess Prior Knowledge

Because students possess varying degrees of experience and expertise in conducting library research that correlate as much to previous assignments and instruction as to class level, simply knowing the class level of a group of students does not provide the librarian with a clear picture of their research expertise. Using clickers to ask questions that measure what students already know before coming into the class, allows librarians to adjust their lecture and activities to meet the needs of the majority of the students. I have had students complain at the start of a class that they were in the library the week before with their English class for the same presentation with another librarian, with some going as far as to ask if they have to stay. In the past, when I was feeling uncertain about what the students already knew about research, I would attempt to find out more by asking a question and then asking for a show of hands. In addition to being difficult to interpret quickly, students may not raise their hands if they are unsure of the answer. Because the results to clicker questions are displayed anonymously, students are more likely to participate and respond honestly. Instead of having to quickly count hands, the librarian has a quick and clear percentage, or number, from which to gauge the prior knowledge of the students in the class. Being able to see their responses and the correct answer on the screen, also clearly reveals to the students that they may not know as much as they thought they did and that they could benefit from additional instruction. Like questions aimed at assessing the audience, questions to determine prior knowledge don't take a lot of time. They are intended to inform the librarian (and the students) about what is known or not known, and not to lead into discussion. Their

value lies in helping librarians focus on what is important to the students in that class, without wasting time on repetitive instruction. It is clear that the effective use of clickers requires that librarians be flexible and willing to change the information presented based on the responses they get from the students.[4] Fortunately, most librarians I know, given the choice, would gladly choose teaching on the fly over teaching to a group of disinterested or sleeping students.

**Examples of Possible Assess "Prior Knowledge" Clicker Questions**

| | |
|---|---|
| You Are Looking for a Book about Ernest Hemingway. What Kind of Search Would You Perform in the Library Catalog?<br><br>1. Title search<br>2. Author search.<br>3. Subject search | To Find Scholarly Journal Articles on a Topic, the Best Place to Search Is:<br><br>1. A periodical database<br>2. Craigslist<br>3. The Library Catalog<br>4. Browse the stacks |

## Assess Understanding of Concepts

Because librarians typically only meet with a class one time, it is important students understand the material covered. However, despite my best efforts, I have frequently had former students come to the reference desk, tell me I had taught their class, and then ask me a question about how to do something that I thought I had covered thoroughly in their class session (at least they remembered to come to the Reference Desk for help). There are many possible reasons for the above scenario. The student could have been tired, or day dreaming, but it is also possible that concepts or procedures that seem easy to me are more difficult than I had thought for students to grasp and that I need to spend more time teaching them. Using clickers in class allows librarians to present concepts and then to immediately test whether the students heard or understood what was taught. If a large number of students do not answer a question correctly, it can be taken as an indicator that the concept needs to be presented again, perhaps in a different way. Clicker quizzing and immediate feedback can help to promote student learning by providing a quick measure of understanding. It can also minimize dozing or daydreaming in class since the students are more engaged when they are being asked to participate using clickers.

**Examples of Possible "Assess Understanding of Concepts Knowledge" Clicker Questions**

| | |
|---|---|
| Enclosing one or more search words within quotation marks (e.g., music downloading) ensures that your search will only retrieve records that…<br><br>1.Have been approved by the RIAA<br>2.Are about music downloading<br>3.Appear next to each other in that order<br>4.Appear next to each other in any order | Searching for psycho* in the PsychINFO database WILL NOT retrieve records with the word…<br><br>1. psycho<br>2. psychology<br>3. psychosis<br>4. psychiatry<br>5. psychosomatic |

## Assess Application of Critical Thinking Skills

The end goal of library instruction is to ensure that students can apply the skills and concepts they have learned to real research needs. It's one thing to be able to name the three Boolean operators, but another to be able to use them appropriately in a search. Multiple choice clicker questions can be used to assess deeper understanding and higher order thinking required for critical thinking.[5] Asking clicker questions that measure critical thinking skills helps the librarian not only to determine if students have understood the concepts demonstrated, but also to judge if they can apply them effectively to information seeking situations. Because our library instruction classroom does not have enough computers for every student, hands-on activities that encourage application of skills

require that students break into small groups. Within these groups I often notice that the students who are not the keyboard operators are less involved in the process and may not be gaining the experience they need to successfully do research outside of the classroom. Although not a substitute for hands-on computer activities, developing clicker questions that address critical thinking allows every student a chance to think and participate, not just the student seated in front of the computer keyboard. Another option is to develop task based competitive scenarios where students break into teams, do research, or evaluate information, and then come back to answer clicker questions about their task. This creates a fun, competitive, yet non-threatening environment for students to learn and to demonstrate what they have learned.[6] Additionally, questions addressing critical thinking can be used to encourage discussion within class.[7] Before responding to a clicker question, students can break into small groups or teams to discuss the question and determine the right answer. After the polling is complete, librarians can continue with the lecture or address the topic in more depth, based on the percentage of correct answers.

**Examples of Possible Assess "Application of Critical Thinking Skills" Clicker Questions**

| | |
|---|---|
| Which of the following searches would be likely to retrieve the greatest number of articles in a library database?<br><br>1. grunge<br>2. grunge and Seattle<br>3. grunge or Seattle | The Journal of Joyce Carol Oates: 1973-1982. New York, Ecco, 2007.<br><br>1. Journal<br>2. Newspaper<br>3. Book<br>4. Web Site |

## Assess Students' Perception of Library Instruction Session

Student feedback can be used to assess their perception of the value of the class content and/or the librarian's teaching effectiveness. At CSU, Chico we have tried several iterations of a paper evaluation form, but inevitably each has waned in popularity and usage. Reasons for this include librarians not wanting to spend valuable time on assessment, forgetting to conduct the assessment, or feeling that the answers don't vary enough to provide useful information. Unfortunately at the end of class most students have one foot out the door and see filling out a paper assessment form as the thing that stands between them and freedom, making it likely they will hurry through the process and not give their answers thoughtful consideration. Because the clicker questions are part of the presentation, they do not appear as one last thing tacked onto the session that has to be completed before students are allowed to go, hopefully making it more likely that they will think about their responses. Additionally, when the questions are integrated into the presentation, it would be difficult for the librarian to forget to ask them. Using clickers saves time over paper evaluation because there is nothing to be handed out, filled in, and collected. Graphical representation of the student responses is not appropriate in this type of assessment and can be left off, which also cuts down on the time required. The response data can be analyzed at a later time by running a session report. Since the clicker software collects the data, tabulates the results, and generates reports, the investment of librarian time is minimal. As an added bonus, gaining student feedback about a session using clickers is "green" because there is no paper or photocopying required.

**Examples of Possible Assess "Students' Perception of Session" Clicker Questions**

| | |
|---|---|
| The librarian presented the subject matter in a clear understandable and organized manner.<br><br>1. Strongly Agree<br>2. Agree<br>3. Neutral<br>4. Disagree<br>5. Strongly Disagree | The most valuable thing I learned in today's class was:<br><br>1. How to find a journal article<br>2. How to request an Interlibrary Loan<br>3. How to limit my library catalog search to specific formats<br>4. How to e-mail articles to myself<br>5. How to create e-mail alerts for articles |

## Assess Teaching

Using clickers, librarians can assess their teaching effectiveness both in the classroom and outside of the classroom. In the classroom, seeing the students' immediate responses gives the librarian the opportunity to question them as to why they chose one answer over another. Their explanations can point out ambiguities in the questions, or help the librarian identify parts of the presentation that were confusing. After teaching a class with clickers, the session response data can be saved, and reports can be generated for a single class or merged for multiple classes. These reports provide valuable data that librarians can study and use to increase their teaching effectiveness. Like many teachers, I am constantly experimenting and changing how I present information to my students. Because I don't have the opportunity to follow up on their progress, I never know if these changes actually enhance learning. By looking over the session reports, I can study every question and see how students responded. If the percentage of students giving an incorrect answer to a question is higher than I would like, I can use that information to review and revise my lecture. Clickers also give librarians the opportunity to conduct experiments to compare different ways of teaching. For example, if I have developed a new method to teach how to construct effective search statements, I could decide to teach half of my classes one semester using method one and the other half using method two, keeping track of days and classes in which I used each method. At the end of the semester I could run individual reports for all of the classes (or merge the data for group one and group two) and, based on the responses to the clicker questions I asked related to constructing search statements, I would have data that could help me determine which method of teaching was more effective.

## What's in It for Students?

In addition to being a useful assessment tool for librarians, clickers are also popular with students. A survey conducted at CSU, Chico in the spring of 2008 showed that students believed that clickers increased their engagement, encouraged participation, created a sense of community, helped to measure how much they understood of the material being covered, and enhanced learning and critical thinking.

**Results of 2008 CSU, Chico Clicker Survey for Selected Questions**

| QUESTION n=49 | Agreed | Disagreed | Neither |
|---|---|---|---|
| Clickers made class more engaging | 44 | 1 | 4 |
| Clickers made me more willing to participate in class | 37 | 3 | 9 |
| Clickers created a stronger sense of community with classmates | 28 | 5 | 16 |
| Clickers improved my own understanding of how well I comprehended the lecture content | 37 | 3 | 9 |
| Clickers enhanced my learning in this class | 37 | 5 | 7 |
| Clickers made me think more critically in class | 31 | 8 | 10 |

In a study done at the York University, Glendon Campus in Toronto to determine if clickers increased student participation, it was found that when two library instruction classes were taught by the same librarian, one with clickers and one without, but both covering the same material, the students found the session that used clickers to be more enjoyable and better organized.[8] It is difficult to think of another form of assessment that is fun for students as well as informative for librarians.

### Next Steps

After my positive experience using clickers in UNIV101, the University Librarian agreed to purchase a set of 30 clickers for library instruction use. Since all students are not required to buy clickers, purchasing a set for the library was the only way to ensure that students will be able to participate if a librarian wants to incorporate them into their class. The clickers I purchased for the library differ from the clickers used in the CSU, Chico pilot project in that they do not have an LCD panel and can only be used with multiple-choice questions. This makes them easier to operate and will not require any class time to be spent instructing students on how to operate them, an important factor for library instruction where librarians only meet with a class once. Eight librarians attended a workshop to learn how to create clicker slides and run reports. Next semester I will be using clickers in my library instruction and encouraging other librarians to develop and share curriculum and question sets.[9]

## Conclusion

Not everyone feels that clickers enhance student learning or belong in a college classroom.[10] But most instructors agree with Corcos and Monty that the benefits from using clickers outweigh the negatives and that even if students don't necessarily learn more, they enjoy the class more.[11] Because using clickers in library instruction can make a subject often perceived as dull more fun for students while also offering unprecedented ways for librarians to assess who their audience is, what they know, what they have learned, and their own teaching effectiveness, I feel they hold tremendous value for the assessment of library instruction.

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## Endnotes

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# Conference Perspectives: A Look Back and a View Forward

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## Abstract
In the conference's closing plenary session, the four panelists and the moderator commented on some of the key findings and observations presented during the conference and shared their thoughts concerning future directions. Their remarks reflected their roles within the profession—as a library dean, practitioner, or professor.

## Conference Perspectives
The four panelists and the moderator commented on some of the key findings and observations presented during the conference and shared their thoughts concerning future directions. Their remarks reflected their roles within the profession—as a library dean, practitioner, or professor. Deborah Carver cited three themes which emerged over the course of the three days: the importance of qualitative research, the need to tie assessment efforts to local interests, and the opportunities that exist in the masses of data that are already being generated through our systems. Qualitative assessment builds and strengthens relationships with the library's users. It provides an authentic voice which can add clarity and local flavor to quantitative data. The ARL Index is an excellent example of quantitative data that will be illuminated with the addition of qualitative descriptions provided by ARL deans and directors.

During the plenary session and throughout the conference, speakers stressed the need to measure what is important to the institution. What data are of interest to the university's administration? Collecting and analyzing the data that is most pertinent to the organization will help ensure that is used in future planning. For many research institutions, the ARL Index has been an important indicator of a library's strengths, but if the index is *not* the critical factor in measuring success, the library would be wasting energy focusing too heavily on that number. In addition to gathering the data that matters most, Carver reflected on the opportunities that exist to analyze data generated from catalog searches, fund accounting systems, proxy logs, and open URL resolvers.

Carver mentioned one area that she did not hear addressed in any of the sessions she was able to attend. In her experience, libraries still have a tendency to count, measure and analyze what happens—rather than looking at *the lack* of activity. For example, libraries tend to focus on the number and types of questions that are asked at the reference desk. But we know less about the undergraduates who never ask a reference question or never use library resources. In summary, Carver acknowledged those institutions that have mature and sophisticated assessment programs, but for the most part libraries are still engaged in rather basic assessment techniques, and the outcomes are mostly related to low-hanging fruit and one-time changes. It is far more challenging to integrate the assessment program into the broader strategic planning process, so that it is actually one of the primary drivers of the organization's plan.

Research conducted by Ithaka suggests that data is often inadequate at the point of need for administrative decision-making, and that urgency, rather than strategy, still drives many of our actions. As Rick Luce stated in the opening session, effective assessment—assessment with meaningful results—takes discipline and patience. For Carver, there is ample reassurance that libraries are on the right path towards improving their assessment efforts.

Debra Gilchrist's experience was framed by several key phrases used in the opening session: "accountability is local," "performance measures are our vital signs," "come into alignment," "accelerate our relevance," and "stay ahead of the game so we stand a chance of influencing the future." Within the community college environment, assessment efforts are focused on student success, and all libraries are searching for what they contribute to seven principle areas: retention, student engagement, transfer/goal attainment, access to education, student self-efficacy, and affordability. With these issues in mind, Gilchrist took creative license with the comments from the plenary speakers and combined them into one outcome that could guild community colleges: *Accelerate our relevance by aligning the library's vitality with the seven core issues of institutional significance in order to demonstrate the library's impact and influence the futures of our students and our colleges*.

Gilchrist attended several sessions focused on the assessment of information literacy programs, which she found to be thought-provoking and engaging on many levels. Those sessions ranged from using ETS's iSkills™ as a beginning benchmark of students' abilities, developing integrated assessment methodologies, benefitting from focus groups, and employing clicker technology as a means of measuring learning.

Looking forward, Gilchrist advocates for a new phrase or term to replace 'assessment,' which tends to focus too much on the process of collecting and analyzing data. Rather than an assessment team, she suggests forming an 'outcomes team' or an 'impact team' which connote a more positive, rewarding, and affirming process. A positive and trust-based culture is critical to our success. Gilchrist also called upon the assessment community to make use of and contribute of the research related to student retention, engagement, and learning outcomes. For example, we can use standard assessment techniques to determine ten changes that students would like to see occur in the library. Beyond that, can we use published research and design research studies to help us determine how to prioritize those ideas so we can select actions that will have the most positive impact on student success? The community college libraries in Washington will take a step in this direction, thanks to a recent LSTA grant. Over the next four years, they will build on the work of Bonnie Gratch Lindauer at City College of San Francisco to identify the libraries specific contributions to student success.

In concluding her remarks, Gilchrist challenged the audience to strengthen our leadership role in assessment—not only to validate existing services and to illustrate our current contributions—but to help shape emerging pedagogies, trends in higher education, and institutional change. As we become more strategic about our outcomes assessment work, we can stay "ahead of the game so we can influence the future."

Paul Beavers came to the conference intent on identifying practices that can produce more convincing and accurate measures of the library's contribution to student learning and its success as a service organization. As a practitioner, one of his responsibilities is to promote a culture of assessment. Practical examples are essential in garnering the trust and cooperation of library staff. Even if those examples produce benefits that might be considered low hanging fruit, the successful outcomes at one institution can inspire library staff at another. It is important for all staff to view assessment as a means of fostering individual as well as organizational success, and not merely a concern of administrators and accrediting agencies.

Beavers was struck by Susan Gibbons' remarks in the first plenary session where she encouraged practitioners to "borrow the methodologies, but not the conclusions." Accountability is local, and what matters most are the desires and concerns of *your* campus' students and faculty. The conference went on to bear this out providing a wealth of presentations on how assessment and evaluation have been used to improve instruction, reference services, Web design, and collections in many different library settings.

In addition to providing many practical examples, the conference both renewed Beavers's enthusiasm and challenged his notions of library assessment. In the opening plenary, the audience was encouraged to engage their local communities in defining a utopian learning experience. By taking

this elevated approach, we will place the goal of excellent service, rather than financial or managerial efficiency, at the heart of our assessment program. Beavers commented that the most powerful effect of assessment was its disruption of the library community's conventional wisdom and common thought patterns. Conversations between and among library professionals are necessarily limited by the values and concerns of library culture. Our attempts to think outside the box will always be colored by our training and our experience. In the rapidly changing world we live in today, we need to set aside our perspective visions and allow our researchers, instructors, and students to express their needs and insights. Building upon that foundation we can create utopian libraries that will serve our clients and allow us to make real and valued contributions to education and research. The conference convinced Beavers that we can both meet the practical day-to-day challenges of assessment, and use those tools to help us ensure that libraries remain essential institutions of learning, teaching, and research well into the 21st century.

As a faculty member, Peter Hernon does not see a role for library education in teaching assessment at the master's level. He does, however, see the need to cover evaluation techniques and evaluation research. Hernon believes that we tend to equate the two processes—evaluation and assessment—but they are very different. For example, instructor feedback on assignments constitutes evaluation. Evaluation is often focused on improving services. Assessment is meeting the requirements of stakeholders such as accrediting bodies or the federal government, and the focus is more on student learning outcomes. Assessment considers how the library contributes to the goals of the institution. For Hernon, much of the conference focused on evaluation, not assessment. He encouraged the audience to view assessment from the perspective set by stakeholders such as accrediting bodies: national, regional, and program. Key publishers that are covering the topic of assessment include Libraries Unlimited (particularly recent books by Joe Matthews), Stylus, and the Middle States Commission on Higher Education (particularly *Student Learning Assessment: Options and Resources,* 2nd Edition, 2007).

Within higher education in general, there is a need to focus more on student learning goals and assessment at the program and institutional level, using direct methods that document actual learning. True assessment presents a challenge for all of higher education. The ARL/UVa/UW conference may have the potential to become a leading venue for research and practice in the area of assessment.

Reflecting on the library curriculum, Hernon is concerned that graduate programs are not adequately preparing students to be good researchers. He also expressed doubts about existing library instruction programs which emphasize information literacy. Hernon believes the emerging focus needs to be on digital literacy, visualization skills, and listening abilities.

Hernon urged practicing librarians to develop partnerships with faculty as our campuses shift their attention from teaching to learning. For libraries, this is an opportune time to become involved in our institution's assessment processes and programs, because most colleges and universities are in the beginning stages of assessment and there is much to learn. Librarians are already focusing on skills and abilities that reach beyond a student's use of the library to include critical thinking and problem solving. Librarians, faculty, administrators, and accrediting agencies must work together to make substantial progress.

Crit Stuart, ARL's Director of Research, Teaching, and Learning, provided another overview of the conference. Regarding our infrastructure, it is critical to involve more librarians and staff in assessment strategies, data gathering, and interpretation of quantitative and qualitative data. To contain the business of these activities into one person's or team's portfolio, rather than draw in library colleagues from throughout the organization, falls short of our potential. To engage is to inspire.

Stuart stressed the need to complement numeric data wherever possible with asking 'why' and 'how' in order to produce a deeper understanding. To do assessment effectively, we are required to 'think as well as count.' Formulating the questions to explore can be challenging. Divining meaning in the data we generate is difficult. Stuart suggests the need to devote more time and energy to skills development in data interpretation and analysis, and not presume that we know how to do this expertly.

## Conclusion

Most of those who attended the conference came to

identify and borrow intriguing assessment methodologies that can be adopted for, or adapted to, our local environments, but in most instances we should avoid the trap of appropriating others' solutions whole hog. Each campus culture, mission, and environment is unique, and our assessment strategies and outcomes must resonate locally.

The ultimate beneficiaries are our students and faculty, not the library organization. Stuart expressed concern that perhaps too often, our vision and goals drift to outcomes that place the library at the center of our efforts. Reflecting comments made during the opening plenary, he cautioned the audience to beware the self-serving pitfall.

Assessment is a catalyst for organizational change, and its impact is commensurate with the bar we set, so when in doubt, set the bar high. The university mission is evolving, and much more focused on accountability. Our assessment efforts should complement the institutional mission whenever possible, and demonstrate our relevance to the university. Are we spending our library money, resources, and efforts in a way that is having the biggest 'bang for the buck' on our individual campuses? Probably not always. Assessment could be providing the answers.

Finally, our assessment should result in developing and supporting staff to effectively meet their customers' needs. We emphasize being curious, listening, and then being creative and daring with our solutions. Our assessment efforts are, ideally, heartfelt and effectively tap into our user communities and the ocean of needs, behavior, wisdom, and insight they will share with us if invited.

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ISBN 978-1-59407-814-9

