How many seats do we need in our library?

A new utilization-based forecasting model

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Hello!

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Our objective

How can institutions more simply, reliably, and accurately ballpark the amount of user seating they need?

Yes, by analyzing not just the student population and seat allocation of peers, but the utilization as well.

Together, we can build an open database of seating statistics and a standard way of referencing it.

Our agenda

Introduction
Poll
The problem
The patterns in the data
The solution
Next steps and Implications
Evolution of library space and seating

- 2000 LibQUAL+ dimension of ‘Library As Place’
- 2010 ARL Profile narratives -- space
- 2012 ARL Facilities Inventory
- 2016 Library Assessment Conference paper
- Master plans & Design thinking (UX)
- 2017 Small libraries, Smart Spaces, OCLC
- 2018 brightspot + qualitymetrics collaboration
What is the best method to calculate the number of seats needed in your library?

Use a published library standard

Meet our state’s minimum requirements

Target a % of students based on our peer average

Collect evidence on how space is utilized and what inspires its use

Just provide as many seats as we can
What is the best method to calculate the number of seats in your library?

1. Use a published library standard
2. Meet our state’s minimum requirements
3. Target a % of students based on our peer average
4. Collect evidence on how space is utilized and what inspires its use
5. Just provide as many seats as you can
What your peers are saying in our [poll](#) this week...

<table>
<thead>
<tr>
<th>Answer</th>
<th>Count</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect evidence on how space is utilized</td>
<td>42</td>
<td>67%</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>Target a % of students</td>
<td>5</td>
<td>8%</td>
</tr>
<tr>
<td>Just provide as many seats as you can</td>
<td>5</td>
<td>8%</td>
</tr>
<tr>
<td>All of the above</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Use a published library standard</td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>Meet our state’s minimum req's</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

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The Problem

There’s no clear way to answer perhaps the most common library planning question: how many seats are needed?

As the purpose and use of libraries has evolved, answering this question became more complicated: standards have been rescinded, heuristics become outdated, and institutions are left with no good answer.

Problems forecasting seats needed:

1. The ACRL 1995L 25% of student population has been rescinded
2. The Association for Learning Environments (A4LE) 2006 standard of 12% ugrad, 30% grad, 5% faculty is outdated
3. Peer data is often limited; for instance ARL collected only 2012
4. When available, peer data do not account for utilization or seat quality
The Patterns in the Data

We took the ARL 2012 data set including seating data and added student population FTE and weekly operating hours.

In analyzing the relationship between gate count with library expenditures, library seating, and library operating hours, we found no correlation between some aspects and moderate correlations between others.

About the data:

- 2012 ARL dataset (most recent time seating information was gathered, will replace with new data when gathered)
- N = 94 (institutions without gate counts or seat count excluded)
- Added Student Fall FTE from IPEDS & Operating Hours from library websites
- Classroom seats have been prorated based on the % of classroom hours divided by library operating hours
Visits/Student vs. **Operating Hours** \( (r = 0.04) \)

**Operating Hours**
- Median: 118
- Mean: 123
- Weighted Mean (by student FTE): 124
Visits/Student vs. **Prorated Seats Provided** (r = 0.36)

**Annual Visits per Student vs. Adjusted Library Seating Percentage**

- **Prorated Seats/Student**
  - Median: 11.6%
  - Mean: 13.7%
  - Weighted Mean (by student FTE): 12.4%
Visits/Student vs. Library Budget/Student \((r = 0.51)\)

### Annual Visits per Student vs. Library Expenditure/Student

<table>
<thead>
<tr>
<th>Budget/Student</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>$901</td>
</tr>
<tr>
<td>Mean</td>
<td>$1114</td>
</tr>
<tr>
<td>Weighted Mean</td>
<td>$990</td>
</tr>
<tr>
<td>(by student FTE)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visit/Student</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>67</td>
</tr>
<tr>
<td>Mean</td>
<td>77</td>
</tr>
<tr>
<td>Weighted Mean</td>
<td>74</td>
</tr>
<tr>
<td>(by student FTE)</td>
<td></td>
</tr>
</tbody>
</table>
The Solution

Use peer benchmarking data, prorate seat counts to account for classroom seats, and then develop forecast using two new metrics: Visits/Student and Visits/Seat.

Formula:

<table>
<thead>
<tr>
<th>Future Students</th>
<th>x</th>
<th>Visits/Student</th>
<th>=</th>
<th>Future Visits</th>
<th>÷</th>
<th>Visits/Seat</th>
<th>=</th>
<th>Future Seats Req'd</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000 students</td>
<td>x</td>
<td>65 visits/student</td>
<td>=</td>
<td>1,950,000 annual visits</td>
<td>÷</td>
<td>600 visits/seat</td>
<td>=</td>
<td>3,250 seats (12% of pop.)</td>
</tr>
</tbody>
</table>
## An Example using Peer Data to Forecast Needs

<table>
<thead>
<tr>
<th>Library</th>
<th>Students FTE</th>
<th>Library Seats</th>
<th>% of Students</th>
<th>Gate Count</th>
<th>Visit / Seat</th>
<th>Visit / Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution 1</td>
<td>27,558</td>
<td>2,044</td>
<td>7.4%</td>
<td>2,000,000</td>
<td>978</td>
<td>73</td>
</tr>
<tr>
<td>Institution 2</td>
<td>28,321</td>
<td>3,627</td>
<td>12.8%</td>
<td>2,398,544</td>
<td>661</td>
<td>85</td>
</tr>
<tr>
<td>Institution 3</td>
<td>63,813</td>
<td>9,280</td>
<td>14.5%</td>
<td>4,450,244</td>
<td>480</td>
<td>70</td>
</tr>
<tr>
<td>Institution 4</td>
<td>34,727</td>
<td>2,129</td>
<td>6.1%</td>
<td>1,618,672</td>
<td>760</td>
<td>47</td>
</tr>
<tr>
<td>Institution 5</td>
<td>32,255</td>
<td>3,975</td>
<td>12.3%</td>
<td>2,331,031</td>
<td>586</td>
<td>72</td>
</tr>
<tr>
<td>Institution 6</td>
<td>27,702</td>
<td>3,320</td>
<td>12.0%</td>
<td>2,266,076</td>
<td>683</td>
<td>82</td>
</tr>
<tr>
<td>Institution 7</td>
<td>25,034</td>
<td>3,010</td>
<td>12.0%</td>
<td>1,297,626</td>
<td>431</td>
<td>52</td>
</tr>
<tr>
<td>Institution 8</td>
<td>22,391</td>
<td>4,716</td>
<td>21.1%</td>
<td>2,105,527</td>
<td>446</td>
<td>94</td>
</tr>
<tr>
<td>Peer Average</td>
<td>32,725</td>
<td>4,013</td>
<td>12.3%</td>
<td>2,308,465</td>
<td>628</td>
<td>72</td>
</tr>
</tbody>
</table>

| Forecasted Need | 35,000 | 3,994 | 11.4% | 2,509,305 | 628 | 72 |

**Source:** Brightspot, QualityMetrics
**Next Step: Share Your Data!**


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### Library Seating Database

**Welcome to Library Seating Database.** The purpose of this spreadsheet is to provide an open-access resource to enable informed peer comparisons.

To use this sheet, simply add and label a row for your institution and then paste in your campus-wide (system-level) data into the "Input" columns. Do not alter the data of others or any formula-driven cell.

### As of December, 2018 or FY 2017-2018

<table>
<thead>
<tr>
<th>Library</th>
<th>Your Email</th>
<th>Weekly Operating Hours (excl. special 24/7 spaces)</th>
<th>Gate Count 2017-2018</th>
<th>Students FTE 2017-2018</th>
<th>Total Library Seats</th>
<th>Area of Classroom Seats (SF)</th>
<th>Area of Library Seats (SF)</th>
<th>Approx % of area Newly Built</th>
<th>Approx % area High Renovation</th>
<th>Approx % area Medium Renovation</th>
<th>Approx % area Low Renovation</th>
<th>Classroom Seats as % of Total</th>
<th>Seats/SF</th>
<th>Seating as % of Students</th>
<th>Visit / Seat</th>
<th>Visit / Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Institution 1</td>
<td>104</td>
<td>1,846,823</td>
<td>32,689</td>
<td>3,488</td>
<td>14,159</td>
<td>80,757</td>
<td>50%</td>
<td>5%</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Institution 2</td>
<td>126</td>
<td>2,298,062</td>
<td>27,938</td>
<td>4,516</td>
<td>7,773</td>
<td>92,268</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Institution 3</td>
<td>101</td>
<td>1,908,036</td>
<td>33,060</td>
<td>3,606</td>
<td>14,871</td>
<td>210,151</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Institution 4</td>
<td>114</td>
<td>831,026</td>
<td>21,153</td>
<td>3,271</td>
<td>12,845</td>
<td>47,831</td>
<td>25%</td>
<td>5%</td>
<td>15%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Institution 5</td>
<td>108</td>
<td>2,637,025</td>
<td>44,428</td>
<td>5,331</td>
<td>10,960</td>
<td>226,383</td>
<td>0%</td>
<td>25%</td>
<td>5%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**QualityMetrics**

**Brightspot**
Implications

Seating data that are easily and opening accessible
  Upload your data (show Google sheet)

Innovative ways of capturing flows and seating
  Heat maps of traffic/utilization as a more accurate predictor in the future of
  seating and other space needs

Space data as measures of extensiveness
  Consider these data for the ARL index

Campus wide perspective on study spaces
  Best case: all study seats / spaces per student campus-wide
Questions?

Thanks!

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