

RESEARCH AS DESIGN: DESIGN AS RESEARCH



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BACKGROUND



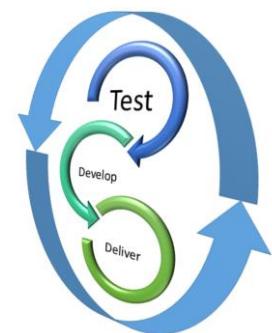
We worked with OSU's office of Institutional Research and Planning to identify new and tenure-track faculty who had not yet achieved tenure, which was a total of 259 members. We interviewed 31, or 12% of the total number who could have responded to our invitation. They were from the following departments/colleges: Business, Construction Management, Design, Housing and Merchandising, Engineering, Entomology, Geology, History, Sociology, Zoology.

We obtained IRB approval to contact all new and tenure-track faculty in order to schedule individualized interviews. Our research goals were as follows:

1. What are faculty needs for research data support relating to data management plans, data analysis and storage, data information literacy, and research impact?
2. What is the library's role in providing some or all of those services and resources?
3. Who else on campus is offering similar services and how can we create partnerships?
4. What training do librarians themselves need in order to provide quality services to support these needs?

METHODOLOGY*

- Do any of your funding sources require you to draft a data management plan? If yes, how do you go about creating this plan?
- What type of data do you generate? What is the size of a typical data set?
- Who performs the majority of the following activities-Data collection; data documentation (metadata); data cleaning; Backing up data; data analysis; data storage and organization; data sharing outside of your research group; data archive or long-term storage; data disposal/destruction associated with your research?
- Does personnel within your department/college typically provide technical support or assistance with your OSU research?
- Does your research include the analysis of data collection by others (also referred to as a secondary data)?
- Do you generate metadata? Could you please describe the system for version control that you have in place?
- How often and how do you share your data with others? What happens to your data after the research project has concluded?
- How important do you think these services (data management planning; institutional repository; data storage; data carpentry; metadata support; research impact (Altmetric and ORCID) might be and how likely would you be to use these services?
- How important is it for your students to learn about data information literacy processes and tools?



DATA ANALYSIS

Entry #	Date Crea	Date Upda	Date	1) What is 2) Do any <u>If yes</u>	<u>Do you as</u>	Are you a<u>if yes</u>	Quantitat	Geospatia	Digital dat	Digital tex
1	2016-04-20 11:23:40		Apr 04, 2016							
2	2016-04-20 11:59:52		Apr 04, 2016	Technology Yes	yes	Themselves	Not Yet	Checked	Checked	Checked
3	2016-04-20 12:16:36		Sociology	No				Checked	Checked	Checked
4	2016-04-20 12:26:54		Feb 17, 2016	business No				Checked	Checked	Checked
5	2016-04-20 12:37:18		Mar 11, 2016	No				Checked		
6	2016-04-20 12:45:48		Mar 11, 2016	No				Checked		Checked
7	2016-04-20 12:53:38		Mar 15, 2016	Entomology No				Checked	Checked	Checked
8	2016-04-20 13:18:32		Feb 26, 2016	CEAT Yes	he wrote the data plan off the top of his head	checked	checked	checked		
9	2016-04-20 13:36:28		Mar 24, 2016	CEAT Yes	He bench outside	nothing in Tulsa	checked		checked	
10	2016-04-20 13:46:31		Mar 18, 2016	Yes				checked		checked
11	2016-04-20 13:53:15		Mar 16, 2016	Engineering Yes	Copied colleague DMP from another prop	checked		checked		
12	2016-04-20 13:57:19		Mar 24, 2016	Yes	NSF			checked	checked	checked
13	2016-04-20 14:06:12		Mar 24, 2016	NIDCD No				checked		checked
14	2016-04-20 14:10:53		Mar 23, 2016	No						
15	2016-04-20 14:15:44		Mar 30, 2016	Arts and Sciences				checked		
16	2016-04-20 14:21:05		Mar 29, 2016	Human Sciences No				checked	checked	checked
17	2016-04-20 14:25:42		Mar 29, 2016	Arts and Sciences No					checked	
18	2016-04-20 14:32:04		Mar 28, 2016	Yes				checked		checked
19	2016-04-20 14:49:16		Mar 23, 2016	management No				checked		checked
20	2016-04-20 14:59:37		Mar 11, 2016	Engineering Yes	to share his no	no	checked	checked		checked
21	2016-04-20 15:11:43		Apr 05, 2016	Human Sciences No	She would follow up	Has gotten (I believe)	checked			
22	2016-04-20 15:23:23		Feb 25, 2016	No					checked	
23	2016-04-21 11:14:45		Mar 21, 2016	Arts and Sciences Yes	Not yet, Spring	no	checked		checked	
24	2016-04-21 11:34:23		Feb 25, 2016	Engineering No					checked	
25	2016-04-21 11:52:26		Feb 26, 2016	History No				checked	checked	checked
26	2016-04-21 12:06:30		Construct	No						
27	2016-04-21 12:18:09		Mar 09, 2016	Yes	not creating plans yet	Cynthia offered the	checked			
28	2016-04-21 12:26:32		Mar 24, 2016	No				checked		
29	2016-04-21 12:46:39		Human Sciences	Not at this time yes						
30	2016-04-21 12:57:11		Mar 09, 2016	Zoology No	Not at the moment but yes		checked			
31	2016-04-21 13:06:45		Mar 09, 2016	Human Sciences No	not at the moment for MSR- so yes in the future		checked		checked	checked

WHY DESIGN THINKING

This process allowed us to:

- Engage in both individual and shared thinking
- Define the elements that were of most importance and interest to our researchers regardless of what we already knew about other trends
- Move from random ideas to cohesive action items fairly quickly thanks to our pre-identified categories which allowed us to keep the conversation moving forward and sustain momentum
- Identify internal training and professional development needs that will allow liaison librarians to collaborate with faculty in an informed and proactive manner

The five phases of the design process:



I have a challenge.
How do I approach it?

I learned something.
How do I interpret it?

I see an opportunity.
What do I create?

I have an idea.
How do I build it?

I tried something.
How do I evolve it?

DESIGN THINKING

1. **Empathy:** Develop a deep understanding of user needs and therefore really comprehend the situation from their point of view. Most often, this takes the form of in-person interviews and asking open-ended questions to tease out what the user's challenges are in a particular context.
2. **Ideation:** Distill insights and needs into a compelling problem statement that can serve as a solution-generation springboard during the later steps. This stage is all about identifying patterns or problem statements as well as both explicit and implicit needs and focusing on generating as many “solutions” to solve them.



DESIGN THINKING



1. **Prototyping:** Narrow down solutions to those that are deemed most feasible and identify what type of feedback might be sought, how it will be recorded, as well as a plan for letting go of what is not working and further developing what is.
2. **Testing:** Refine solutions and make them better based on the additional feedback received until a desired “final” result has been achieved. This final step comprises acting on the feedback received and most importantly, trying again!

DESIGN THINKING @ OSU

1. We split up the faculty responses among the liaisons, the Associate Dean and the head of the liaison program. Each person was responsible for examining responses on the spreadsheet and summarizing the results that were then recorded in a Google Doc for ease of access
2. After that second-level triage was done, we met as a group and wrote each perceived challenge from the summary response onto a different Post It note first individually, then collated as a group



DESIGN THINKING @ OSU

1. Re-frame challenges into “How might we...” questions
2. Draw and be visual
3. Keep all ideas on the table at first
4. Switch to a new brainstorm question every fifteen to twenty minutes
5. Set a goal for how many ideas you want to generate in total
6. Look at each idea:
 - What's at the core of your idea: what gets you excited about it? What is the real need that this is addressing?
 - Make a list of all the challenges and barriers you are facing with your idea. What are you missing? Who would oppose the idea?
 - Think of additional possibilities that might satisfy the needs your idea responds to. For example: how might we raise money to acquire furniture for a certain space?
 - Let go of ideas that feel too difficult to implement, or that you are not excited about

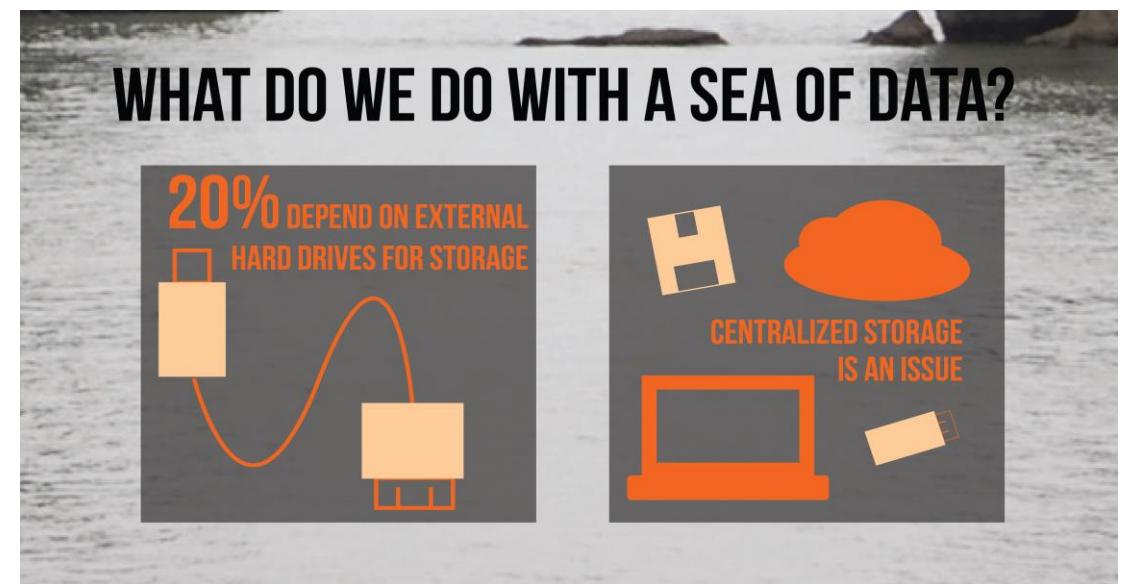
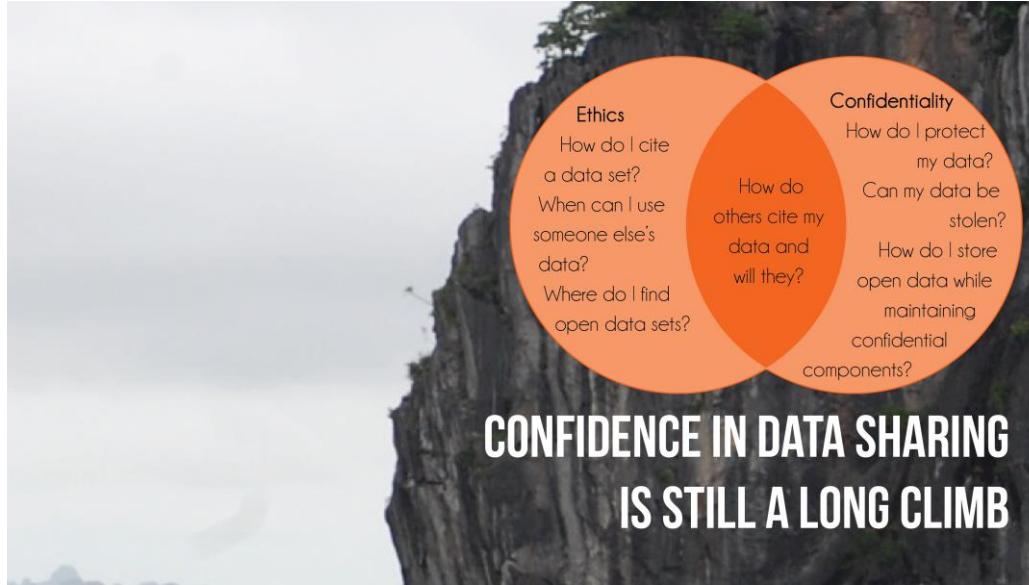
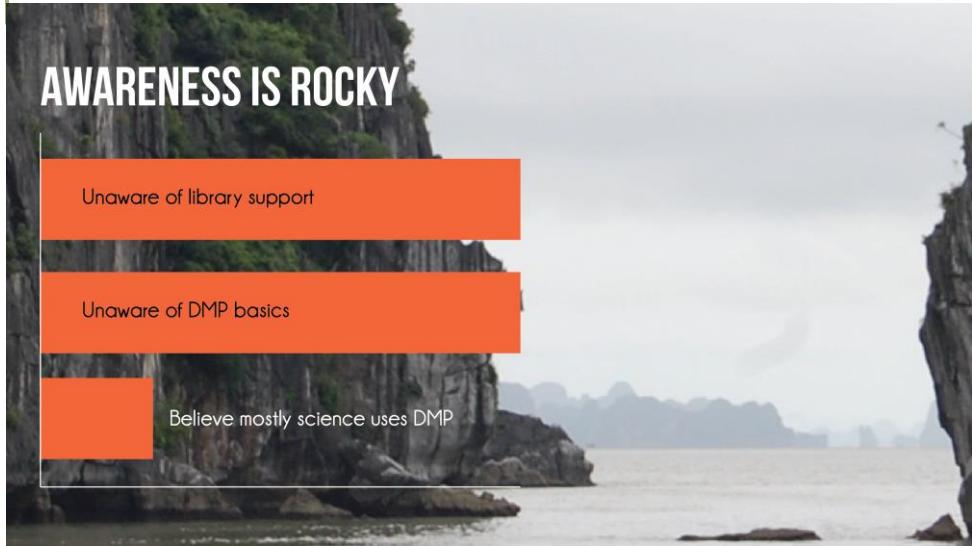


BRAINSTORMING PROCESS



The data specialist or re-purpose position ③
Training SUPPORT
Preparing online instr-type class
TITLE live ⑫ ②
Data certificate - Cohort ⑧
Peer training
Campus license Lynde.com
UG Res. Office training for ②
Student researchers + mentors
Training Exchange Wother ②
campuses

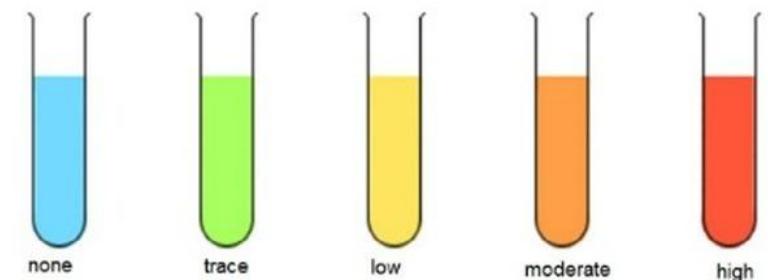
RESULTS-CHALLENGES



RESULTS-SOLUTIONS

Priority Level 1

- Link to existing data sets and repositories from library website and see what existing training videos and learning objects we can borrow
- Join Center for Open Science and create an OSU landing page
- Develop a library/institutional policy for ShareOK (OSU's institutional repository) to enable faculty to upload and store datasets to comply with federal grant requirements
- Create a campus-wide research data committee that would engage campus partners in the following activities:
 - Consulting and access to a referral network both within the libraries and across the university of dedicated experts
 - Centralize research data services and resources
 - Offer workshops and training
 - Ongoing researcher engagement and needs assessment
 - Define cyberinfrastructure planning and support
 - Offer programming and events such as a data forum



RESULTS-SOLUTIONS

Priority Level 2

- Develop a data certificate-possibly offer stipends for faculty to participate
- Develop a training exchange program with other institutions
- Provide training for both graduate and undergraduate students and faculty mentors via Office of Undergraduate Research and in collaboration with the Graduate College

Priority Level 3

- Hire a data specialist position
- Integrate data information literacy as part of concurrent enrollment course and explore offerings throughout the curriculum for both graduate and undergraduate students
- Coordinate an OSU data forum to bring together researchers on campus
- Coordinate a data conference for regional/national programming
- Create an OSU data center to store all types and sizes of data
- Obtain an institutional membership to Globus



DISCUSSION

1. Developed internal training for outreach and workshops
2. Reached a small, but we feel representative, sample
3. Allowed us to make deeper connections
4. Forced us to think beyond the website/workshop models
5. Liaisons really do make a difference
6. Closing the loop is very important



THANK YOU!



Resources:

1. <http://dschool.stanford.edu/>
2. <https://www.ideo.com/post/design-thinking-for-educators>
3. <https://library.educause.edu/resources/2014/6/7-things-you-should-know-about-design-thinking>

Questions?

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