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Appendix A: Performance

Kristi Palmer

Evaluator

I. A. Evaluator's Comments (Required)

PERFORMANCE 2012

Ms. Coates has spent her first full year as the IUPUI University Library Data Services and Digital Scholarship Librarian actively educating research faculty regarding the National Science Foundation (NSF) Data Management Plan (DMP) requirement, assisting faculty with the creation of DMPs, establishing a DSpace repository specifically designed for dataset access and archiving, leading the organization and implementation of Open Access Week 2012 outreach activities, investigating and working towards implementation of a DOI assignment utility, and developing a Data Services Program Evaluation plan as well as assisting with assessment and evaluation mechanisms for the Program of Digital Scholarship overall.

Ms. Coates is an active member of the Digital Scholarship Team. Her knowledge of data management is unique to the team and her leadership in this area highly valued. In a year and several months she has developed an educational services plan for data management at IUPUI where one did not previously exist. Her advice and insight is sought on a variety of digital scholarship topics completely unrelated to data. As a team leader, I consult with Ms. Coates regularly about issues concerning IUPUIScholarWorks, ETDs, Open Journal System, and scholarly communication in general. Another area of expertise that Ms. Coates retains that I believe is highly valuable to not only DST but also the Library in general is her experience with assessment and evaluation.

With regards to Ms. Coates Public Health Liaison duties, assumed in July 2012, my knowledge of her activities indicates that she is balancing the added responsibility well. She has clearly made one-on-one in roads with faculty and students and continues to develop plans for reaching students through LibGuides and spending her funds efficiently.

Ms. Coates Performance is Excellent.

B. Librarian's Comments (Optional)

II. A. Evaluator's Comments (Required)

PROFESSIONAL DEVELOPMENT 2012

Though not required, Ms. Coates is doing an excellent service to her performance area by participating in research projects and presentations whose outcome will greatly inform and have the opportunity to improve the Library's Data Services Program. Her peer reviewed presentation, "Opportunities in data curation," presented at Electronic Resources and Libraries 2012 Conference has been downloaded over 100 times. She was invited to participate in state-wide workshop, educating research administrators on the NSF's new DMP requirements.

Ms. Coates has three accepted national, professional conference presentations, which will come to fruition in 2013.

Ms. Coates has attended several national conferences one of was a professional licensing/certificate awarding course and was selected as one of seven recipients for the Association of College and Research Libraries e-Learning Scholarships.

Though beyond satisfactory is not a official designation, if it were, Ms. Coates Professional Development would certainly fall into this category.

Ms. Coates Professional Development is Satisfactory.

II. B. Librarian's Comments (Optional)

Kristi Palmer
Evaluator

III. A. Evaluator's Comments (Required)

SERVICE 2012

Ms. Coates is participating on several important University service committees including IUPUI Faculty Council, the IUPUI Faculty Council e-Text Policy Taskforce and the IU Data Working Group. As a part of these groups Ms. Coates has the opportunity to represent University Library's interests on campus and university wide decision making processes.

Ms. Coates has also participated in national, professional service activities including web page editing for the New York Online Access to Health and the Medical Library Association Grants and Scholarships Committee.

Ms. Coates is also participating in an appropriate level of local (ULFO) service committees.

Ms. Coates Service is Satisfactory.

III. B. Librarian's Comments (Optional)

Heather Coates
3rd Year Review, Supervisor's Statement
March 17, 2014

PERFORMANCE

Ms. Heather Coates' career experiences prior to joining IUPUI University Library as the Digital Scholarship and Data Management Librarian have served her well in her current position. As a psychology researcher she interacted with data as it was being collected and analyzed, allowing her to better understand, better support researchers as they come to her now seeking solutions to preserve and share data. Ms. Coates came to University Library with a significant task before her. She entered a position not only new to the Library and the campus, but also to the library profession. With few forerunners before her to serve as tested and proved models, Heather has developed and pursued a library administered Data Management suite of services.

Though only alluded to in her Third Year Review documentation, as Ms. Coates supervisor I can directly speak to the impressive amount of ground laying work that went into creating the data management workshops that have been attended by over 100 faculty and staff both at IUPUI and IU Bloomington. A key component to shaping the services at the Library/Ms. Coates now offers, was determining the data collection, analysis, and management-like services that were already available to IUPUI researchers. This was no small feat and indeed the pooling of this information into a single location was long overdue. Ms. Coates work in this area solved two problems: 1. The ability to easily and knowledgably direct researchers to the correct set of IU services and 2. Identification of what services were lacking and potentially could be offered through the Library. In addressing the first problem, Ms. Coates necessarily sought out and created relationships with research affiliated units on campus. These fruitful connections have helped engrain librarian assisted data management/services within the units and framework with which researchers are already familiar. The highly productive and impactful outcome of this groundwork is the focus of Ms. Coates Third Year Review Statement.

As the Data Management Librarian Ms. Coates has impacted researchers on campus (and beyond) through both one-on-one National Science Foundation (NSF) Data Management Plan (DMP) consults as well as through group workshops on the same topic. Her work directly impacts researchers' ability to successfully receive NSF funds. Continuing with this education based strategy, Ms. Coates has been developing data management curriculum for researchers. Again pulling from her experiences as a psychology researcher as well as her one-on-one interaction with IUPUI researchers, Ms. Coates saw a serious lack of curriculum devoted to data management and sought to resolve this.

Two additional significant projects with which Ms. Coates has expended her Performance based energies is the development of a data repository, IUPUI

DataWorks for preserving and sharing data, and participation in the IU Data Working Group, whose output has had national impact. With this group Ms. Coates helped develop a document for universities looking to support faculty in the creation of NSF DMPs. This document is published as a part of the Association for College and Research Libraries Spec Kit 334.

In addition to her Data Manager role, Ms. Coates also participates in more general support of Digital Scholarship at IUPUI. Of note in this role is Ms. Coates' work with establishing Digital Object Identifier (DOI) minting capabilities at IUPUI. This will allow several University Library Center for Digital Scholarship managed tools (Open Journal System, IUPUI ScholarWorks, and IUPUI DataWorks) to begin creating DOIs connected to shareable pieces of IUPUI created scholarship. A DOI is a widely recognized means of referring to digital objects and its wide implementation means that it is supported by a variety of added service tools. For example, research with a DOI can more easily be tracked for citations, views, and uses across the web.

Finally, It is an acknowledgement of Ms. Coates' expertise but also her ability to successfully accomplish a variety of tasks simultaneously (and I would also suggest evidence of her willingness to be a team player) that Ms. Coates was asked to take on the School of Public Health liaison duties. This work involves intelligent, strategic expending of collection development (purchasing of books, serials, and other research resources related to public health) funds and providing research support to the faculty and students of that School. Just this week the Library received this note regarding Ms. Coates work, "Heather Coates from Digital Scholarship is a star because of her expertise; not only that, she has the kindness to unreservedly put it to use. Through her affiliation with the Richard M. Fairbanks School of Public of Health, Heather has become an invaluable resource, especially to doctoral students. - Isaac. " (IUPUI University Library Stars, <http://www.ulib.iupui.edu/view/stars>).

PROFFESIONAL DEVELOPMENT-Secondary Criteria

Ms. Coates expresses a firm belief in evidence-based practice and her professional development activities reflect this. The data management curriculum development and training pursued through Performance bleeds over into Professional Development. To inform curriculum development Ms. Coates conducted a study which mapped current data management practices across several disciplines to suggested leaning exercises. These exercises were then mapped to a research life cycle model and DMP template. Ms. Coates has already presented on this curriculum development through research at one national and one international conference and also has a manuscript in the process.

Also connected to her Performance work, Ms. Coates is investigating incentivizing data sharing. Understanding what would compel researchers to more freely share valuable research data will directly effect the development of IUPUI DataWorks specifically and more broadly inform data managers, universities, and research

institutions across the United States as they begin to consider data sharing as a necessary step towards receiving research funding. Ms. Coates will be presenting on the initial outcomes of this research at the International Association for Social Science Information Services & Technology Conference in June 2014.

Ms. Coates publishing activities are indicative of her keen interest in evidence-based practice. She has published two critical appraisals of research-based articles. Far more involved than a mere summary of an article, these critical reviews involve analyzing the research process into sharing with the research community the quality and appropriateness (or lack thereof) of the research, data gathering and analysis techniques used for a particular study.

SERVICE-Tertiary Criteria

Despite being Ms. Coates' Third Criteria area she has participated in and lead a variety of impactful Service activities at the University and Professional levels. Within the University Ms. Coates has served as Secretary of the University Library Faculty Organization, Chair of that same organization's Bylaws Committee (making significant revisions to the Bylaws under her leadership), and participated on the IU eTexts Working Group, IUPUI Faculty Council, Academic Affairs Documenting Impact and Reputation Workshop, and Dean David Lewis' five-year administrative review. Ms. Coates membership far exceeded simply attending meetings and she details the specific contributions made such as gathering and synthesizing review data from stakeholders connected to Lewis' review. Ms. Coates' regional and national, professional level service include: Chairing the Continuing Education Committee for the Midwest Chapter of the Medical Library Association (MLA) and Election to the role of Secretary/Treasurer of the national MLA Research Section. Ms. Coates also served as Co-Chair for Publicity for the Joint Conference on Digital Libraries annual meeting in 2013.

Ms. Coates' discussion of Future Directions shows planned and thoughtful next steps, building upon her accomplishments since her time in rank. She intends to build upon her already established education regiment for researchers developing NSF DMPs, moving the intensive, time-consuming workshops into an online tutorial environment with the intention of increasing efficient and widespread reach/impact. Ms. Coates also wants to focus on raising the awareness of and participation in the reproducible science movement, with shareable data in IUPUI DataWorks as a key component.

SUMMARY

As the manager of the Digital Scholarship Team, it's important that I acknowledge that Ms. Coates' data management skills and knowledge are presently not replicated by any other Librarian on staff. She brings unique and crucial insight to a burgeoning new area of concern for all data collecting researchers. Her presence at University Library allows us to give the university's researchers a leg up in funding applications and in long-term preservation and access to their data. Despite a heavy

workload as the sole Librarian participating in data management, Ms. Coates doesn't hesitate to participate in other Digital Scholarship related work be it through leading a short term project such as Open Access Awareness Week 2012 or by offering valued insight on Digital Humanities projects from a unique data analysis point of view. Additionally indicative of Ms. Coates' team player nature is her work as a liaison to the School of Public Health. As her direct supervisor and colleague I believe Ms. Coates is making excellent progress towards tenure and promotion.

Kristi Palmer
March 17, 2014

Kristi Palmer

Evaluator

2014 Annual Review, Supervisor's Comments

I. A. Evaluator's Comments (Required)

Performance

Ms. Coates continues to thrive in her position of Data Services and Digital Scholarship Librarian. Ms. Coates accomplished a great deal this year including: Data management training; Evidencing scholarly impact workshop and consultations; Advancing DOI implementation and Data literacy, data sharing, and data policy outreach and education. I am particularly impressed with the number and variety of people she has been able to assist through her 3 data management workshops, data topics newsletter, and individual data management and scholarly impact consultations. Her invitation from the Office of Research Compliance to participate in an IU wide group to develop guidance and policy relating to research management is a testament to her expertise in the area. Indeed I would suggest that Ms. Coates work with data management outreach and education will have a positive lasting impact on how research is conducted at IUPUI. A good step forward in getting shareable data into IUPUI DataWorks was Ms. Coates work with the Department of Geography which now requires thesis submitting students to also submit their data.

Ms. Coates is a highly valued member of the Center for Digital Scholarship. She contributes significantly to non-data related projects in support of her Center colleagues. Several Center librarians were interested in conducting data visualization work with the Indianapolis Recorder historic digital newspaper. While the visualization was possible with the dirty OCR, we all knew it would be better with clean OCR. This is a huge job and we knew that manual correcting was not possible. Ms. Coates volunteered to test various methods for automating the clean up. She was able to discover a method that was more efficient (but still rather time consuming) than manual clean up. Her work allowed the group to know the limitations of the research they looked to conduct with the newspaper. Her work helped the Center decide to move to a crowdsourcing functionality for OCR clean up.

Ms. Coates work with outreach and education extends to her liaisons work with the School of Public Health. Despite Ms. Coates significant work load as the only data librarian on campus, she was willing to take on liaison level support of a School. In this role she has created 3 tutorials for courses, presented in courses, provided one on one consultation for students and faculty, spent 70 hours on general reference chat, and supported a \$93,000 budget. This is a significant budget that is difficult to spend in its entirety, I would encourage Ms. Coates to work with Todd Daniels-Howell to determine ways in which to use these funds more fully.

Ms. Coates Performance is Excellent.

Professional Development

As Ms. Coates herself states, the recent fruition of many of her performance related projects has

afforded her the opportunity to write and present on this work. This direct connection between Ms. Coates work and professional development has served both her and the library well. Ms. Coates gave 3 peer reviewed conference presentation (2 at the national level, 1 at state), 2 poster presentations also at state and national levels. She served as a panelist for the ACRL Data Management Forum at the (national) American Library Association Midwinter conference and was invited to present at the Research Data Management Symposium sponsored by the National Network of the Libraries of Medicine. Ms. Coates publications are equally impressive with 2 peer reviewed Review Articles, a single authored articles, "Building Data Services From the Ground Up," in the refereed *Journal of eScience* and an article in the primary, widely read national academic library newsletter, *College & Research Libraries News*.

Additionally this year Ms. Coates completed an 8-week Digital Asset Management Course from the University of Wisconsin and earned a Minde Browning Award in support of her attendance to the Medical Library Association annual conference.

Ms. Coates Professional Development is Excellent.

Service

Ms. Coates is a supportive, fully participatory colleague within University Library. She engages in the library and IUPUI campus through her committee work with University Library Faculty Organization and IUPUI Faculty Organization. She engages with her profession through her national and international level service work with the Association of College & Research Libraries Science & Technology Section Assessment Committee, the International Association for Social Science Information Sciences & Technology Conference Program Planning Committee, and the Medical Library Association, of which she was elected Treasurer.

Ms. Coates Service is Excellent.

I. B. Librarian's Comments (Optional)

Annual Review 2015
 Librarian: Heather Coates
 Supervisor: Kristi Palmer

Performance

Ms. Coates performance as Data Services and Digital Scholarship Librarian continues to be outstanding in her 4th year. She has not only built a data management support service for faculty from the group up within this time, contributed significantly to the general development of the Center for Digital Scholarship and built a national reputation as a result of this and her Service and Professional Development work. Ms. Coates most significant Center related Performance accomplishments this year include:

- Implementing DOI minting within ScholarWorks and DataWorks, a task the Center has been talking about for 5 years
- Holding numerous data management workshops and information session both in student courses and for research faculty
- Developing 7 new data related pages for the Center's redesigned website
- Contributing significantly to the UL Box Charter group and guiding the Center's move from ribbs to Box
- Working with an IU system wide group on creating and IU Research Data Policy. I know that she lead forming this group and identifying the need for such a policy.
- Developing readme template for documenting deposit on SDA and workshops on how IU researchers can use SDA.
- Providing workshops and one-on-one consultations on demonstrating impact in P and T documentation, including referencing altmetrics
- Leading a national Love Your Data social media campaign. Ms. Coates was part of the national level inception of this project but also did a great deal of promotion at the local, IUPUI level.

Ms. Coates is also the subject liaison to the School of Public Health. Liaising with a School is a weighty task, particularly for one primarily connected to other librarian activities. She has done a good job maintain her connection with the students and faculty of Public Health. Ms. Coates participated in the Educational Services Charter Group. While she comments in her FAR that she hasn't made much progress on her Curriculum Development Plan in 2015 I would suggest she has a very rigorous and detailed mapping. She has clearly spent a great deal of time considering the best courses for strategically connecting information literacy skills in the classroom. She has created a great map for the next Public Health Liaison to implement. Given the Library's goals for developing data services, administration recognized that Ms. Coates could not lead this data effort while also liaising for an entire School. In 2016 a newly hired Health Sciences liaison will take on this work, and will have the capacity to devote more time to liaising and spending the significant monographic budget, a task that was ultimately not attainable with Ms. Coates limited time.

Ms. Coates Performance is Excellent.

Service

Ms. Coates is a highly active participant in local department and campus service but also significantly weighty national professional service. Locally she served on the IUPUI ULFO Trustees Teach Award Committee, the IUPUI Faculty Council, and the IUPUI Faculty Council Faculty Affairs Committee. As a member of IUPUI Faculty Council Executive Committee, I am keenly aware of how important it is for Librarians to have a voice at this campus level and am pleased Ms. Coates has taken the time to participate in this important work.

Ms. Coates reputation as a key data librarian professional is evident through her service which includes participation on: ACRL Research Planning & Review Committee, ACRL Conference Papers Committee, SPARC Open Data Advisory Group, IASSIST Conference program committee/reviewer, MLA Research Section of which is the elected Secretary/Treasurer. Additionally she was invited to participate in an NIH review panel for award mechanisms to develop educational opportunities related to big data and data science in librarianship.

While Ms. Coates has chosen Professional Development as her Secondary Area, I believe she would have just as strong a case under Service which is also Excellent.

Professional Development

Ms. Coates continues to flourish as a librarian who both conducts and shares research but also as an early data services librarian eager to share the knowledge, workflows, and standards she's developed. This year Ms. Coates was invited to present at 2 regional conferences. Her refereed work includes 1 national presentation at the premiere academic library conference ACRL and 2 publications. She has a book chapter in press and 2 additional published articles.

Ms. Coates Professional Development is Excellent.

Workshop	Topics	Learning Outcomes	Activities	Products Collected in Box	Case	Worked & Practiced Examples
1: Research Data Management Plans & Planning	Introduction to RDM	Describe key challenges associated with managing digital research data	Discussion of risks associated with irresponsible data management	1-minute paper (Word doc)	N	N/A
		Identify the potential consequences for irresponsible or inattentive data management				N/A
		Understand the life cycle approach to managing research data	N/A	N/A	N	N/A
	Data Management Plans & Planning	Summarize the basic components of US federal funding agency requirements for data management and sharing	N/A	N/A	N	N/A
		Define expected outcomes for data	Map out a research question to generated/available data to analyses planned to expected tables/figures	Data map (Word doc)	Y	Example
	Ethical & legal obligations	Identify your legal obligations as they affect data management and protection	Identify legal and ethical obligations for case study	DMP (Word doc)	Y	Example statements for DMP addressing the various issues
		Identify your ethical obligations for ensuring data confidentiality, privacy, and security				
		Describe intellectual property issues for data that result in a patentable or commercial product	Describe IP considerations that impact data management, sharing, and preservation for data resulting in a patentable or commercial product	DMP (Word doc)	N	Example statements for DMP addressing the various issues

Workshop	Topics	Learning Outcomes	Activities	Products Collected in Box	Case	Worked & Practiced Examples
	Storage & backup	Prepare a comprehensive storage and backup plan	Develop detailed storage and backup plan incorporating available cyberinfrastructure OR Complete a data inventory (personal or research) depending on where they are; Identify 3 actions to improve their current plan.	DMP (Word doc)	Y	N/A
2: Documentation & Metadata	Project & data documentation	Outline planned project and data documentation in a data management plan	Draft a checklist of all documentation to be created throughout the project	DMP (Word doc)	Y	Examples
		Identify metadata to describe the data set	Review and discuss metadata examples; Transform unstructured information into structured metadata	Transform narrative description to structured metadata (Index cards)	N	Examples
		Explain the role of metadata and standards	Identify three functions of metadata for data sharing and reuse	3-minute paper (Word doc)	Y	View examples from subject repositories (DataDryad, NCBI, etc.)
	Organizing data & files	Develop a consistent and coherent file organization and naming convention scheme for all project files	Develop a scheme for folder structure and generating unique descriptive file names	DMP (Word doc)	Y	Examples
		Select appropriate non-proprietary hardware and software formats for storing data	Choose file formats appropriate for your data (spreadsheet, database, hierarchical, etc.) and describe your rationale			Examples
		Create protected copies of files at crucial points in your study	Identify key points at which you need to create a protected copies of your data	N/A	Y	N/A

Workshop	Topics	Learning Outcomes	Activities	Products Collected in Box	Case	Worked & Practiced Examples
		Use versioning software or documentation for tracking changes to files over time	Describe the benefits of logging and versioning in provenance/audit trails	DMP (Word doc)	N	N/A
3: Data Quality	Quality assurance & control	Develop procedures for quality assurance and quality control activities	Define data quality and QA/QC; Identify possible errors and protocol violations; Identify monitoring processes & procedures	Data Quality standards for case (Word doc); Data Collection tool (Word doc)	Y	Sample chart
	Data collection	Describe key considerations for selecting data collection tools	Describe considerations for data collection related to discussions in previous modules	Data Collection Tool (Word doc)	Y	
	Data coding	Use best practices for coding	Develop coding scheme for data collection tool	Coding Scheme (Word doc)	Y	Coding scheme exercise
	Data entry	Use best practices for data entry	Discuss data entry best practices	N/A	Y	Prepared sample files (Excel, SPSS, REDCap)
	Data screening & cleaning	Develop a screening and cleaning protocol and/or checklist	Identify potential errors for case; Develop data safety/integrity checklist reflecting gaps or risks for introducing error	Screening & cleaning checklist (Word doc)	Y	Provide examples of existing screening and cleaning checklist (many found thru Google)
	Automating tasks for better provenance	Explain why automation provides better provenance than manual processes	Run analysis in SPSS and Stata on the same data set; View log files; Describe the benefits of automation in particular for the case	N/A	Y	Demonstration of logs in SPSS v Stata
		Identify effective tools for automating data processing and analysis				
4: Ethical & Legal Issues in Data Sharing & Reuse	Ethical & legal obligations	Identify your legal obligations for sharing and long-term preservation	Identify legal and ethical obligations for case study	Discussion	Y	Provide samples for discussion

Workshop	Topics	Learning Outcomes	Activities	Products Collected in Box	Case	Worked & Practiced Examples
		Identify how ethical and legal obligations affect data protection and sharing	Describe how the implications of ethical and legal obligations shape data rights and access		Y	N/A
	Data protection, rights, & access	Identify tools and platforms for storing, managing, and preserving data	Review shared examples from multiple repositories		Y	N/A
	Data sharing & re-use	Identify the benefits to researchers of data sharing	Compare features of three repositories	DMP (Word doc)	Y	View datasets at Data Dryad and Figshare sites
		Evaluate resources for sharing data and openly or publicly available data				
	Data attribution & citation	Identify two technologies enabling data citation				
	Synthesis	N/A	Identify 2-3 take-home strategies	N/A	Y	N/A

[Suggestion: Create 2 files 1) README-BASIC.TXT 2) README-SUPPLEMENTAL.TXT;
 #1 is 5-10 lines and static, #2 is longer and may be modified during the course of the project

```
[README-BASIC.TXT]
===== HEADER =====
Title (of dataset?):
Series Title (if applicable):
Date of Next Review (to determine if dataset is obsolete or should be
retained):
Primary Contact Name:
Primary Contact Email:
Primary Contact Phone:
Secondary Contact Name:
Secondary Contact Email:
Secondary Contact Phone:
```

Recommended citation for the data: <suggested format: Creator
 (PublicationYear): Title, Publisher. Identifier>

```
[END README-BASIC.TXT]
```

```
[README-SUPPLEMENTAL.TXT]
===== PRIMARY STUDY INFORMATION =====
```

```
Investigator Name:
Investigator Institution:
Investigator Address:
Investigator Email:
Investigator Role (related to this dataset): <e.g., data collection, data
processing/cleaning, data analysis, data visualization, lab coordinator,
site manager, etc.>
Investigator ID (ORCID): <if applicable>
```

```
Investigator Name:
Investigator Institution:
Investigator Address:
Investigator Email:
Investigator Role (related to this dataset): <e.g., data collection, data
processing/cleaning, data analysis, data visualization, lab coordinator,
site manager, etc.>
Investigator ID (ORCID): <if applicable>
```

```
...[repeat as needed]
```

```
Project title:
Funding agency:
Award Number:
Award Period:
```

Date(s) of data collection (single date, range, approximate date):
 <suggested format YYYYMMDD>

Geographic location(s) of data collection (where was data collected?):
<suggested format: city, state, zip code, country>

[KKR/DA recommend removing this, and replacing with optional directory naming convention, i.e. the type of data in each directory, but not a complete file list;
e.g. directory naming convention is INSTRUMENTTYPE-GPSLOCATION-TIMESTAMP;
or a file naming convention used within the directories;
that is, many times people embed metadata into file and directory names and that convention may need to be spelled out for it to be meaningful to others]

FILE LIST

/tools/photocoding.txt
/tools/interview-script.docx
/data/raw/photos/PID1_photo.jpg
/data/processed/photos/PID1_coded.txt
...[repeat as needed]

[KKR/DA recommend removing this as it is unlikely it will be updated, and will be cumbersome to create]

CHANGELOG

[if you change, add, or replace files listed above, note those changes here]

Date <YYYYMMDD>: Archived data on SDA
Date <YYYYMMDD>: Replaced protocol with updated version
Date <YYYYMMDD>: Archived reprocessed data on SDA
...[repeat as needed]

FILE INFORMATION

[here you list any special considerations for software/websites used to create the files, file formats that are uncommon, etc]

ACCESS & SHARING

1. Licenses/restrictions placed on the data (who is allowed to access and use these data?):
2. Links to publications that cite or use the data:
3. Links to publicly accessible locations of the data (if applicable):
4. Links/relationships to other data files/sets:
5. Was data derived from another source?
 - A. List source(s):

===== OPTIONAL =====

RESEARCH AIMS

METHODS

General methodology (experimental, observational, model, simulation, etc.):

Instruments used for collecting data:

DATA-SPECIFIC INFORMATION (If this information is documented in other files archived with the data, please specify below)
[KKR/DA:This section especially requires input from user community]

1. Metadata schema applicable to this dataset (if applicable): <e.g., Ecological Metadata Language, Health Level 7, FGDC Content Standard for Digital Geospatial Metadata, etc; please provide the full name of and a link to the standard>

2. Parameters and/or variables used in the data set

- A. Name:
- B. Description:
- C. Units of measurement:
- D. Name:
- E. Description:
- F. Units of measurement:
- G. Name:
- H. Description:
- I. Units of measurement:

3. Column headings for tabular data

- A. Full name (spell out abbreviated words):
- B. Definition:
- C. Full name (spell out abbreviated words):
- D. Definition:
- E. Full name (spell out abbreviated words):
- F. Definition:

4. Codes or symbols used to record missing data

- A. Code/symbol:
- B. Definition:
- C. Code/symbol:
- D. Definition:

5. Other specialized formats or abbreviations used:

6. Additional related data collected that was not included in the current data package:

===== CREDITS =====

Template provided by Indiana University UITS Research Storage, Indiana University Bloomington Libraries, IUPUI University Library

REDACTED: 3 pages from another
faculty member's grant proposal to
which I contributed.

DataCite Property	Dublin Core dSpace field label	Notes & DataCite allowed values	XSLT Line #
Identifier	dc.identifier.uri	DOI (Digital Object Identifier) registered by a DataCite member	
IdentifierType	???	<i>Controlled List Value: DOI</i>	
Creator	dc.contributor.author		
nameIdentifier	dc.creator.other	Use for ORCID identifier	
nameIdentifierScheme	dc.creator.???	ORCID is preferred	
Title	dc.title		
Publisher	dc.publisher		
dateIssued	dc.date.issued		
dateCreated	dc.date.created		
dateCollected	dc.coverage.temporal		
PublicationYear	dc.date.available		
resourceTypeGeneral	dc.type	<i>Controlled List Value:</i> Dataset Model Software Workflow	
Description	dc.description		
Rights	dc.rights		
rightsURI	dc.rights.uri	Creative Commons	
Subject	dc.subject		
Language	dc.language.iso		
RelatedIdentifier	dc.relation.isReferencedBy dc.relation.isPartOf		
RelatedIdentifierType		<i>Controlled List Value</i>	

DataCite Metadata Schema 3.1: http://schema.datacite.org/meta/kernel-3/doc/DataCite-MetadataKernel_v3.1.pdf

Edinburgh DataShare schema: http://www.disc-uk.org/docs/Edinburgh_DataShare_DC-schema1.pdf

Tutorial	FSPH MPH Competencies	APHP Core Competencies for Public Health	ACRL Information Literacy Standard	MPH Core Course(s)	Student Product Assessment [Planned]
Introduction to Library Research	6, 7	1A11, 6A1, 2A1, 5A8, 6A6	1.1, 2.1, 2.2	All; Recommend completion during first semester	Quiz
Navigating the literature: Developing a research question	6, 7	1A11, 6A1, 2A1, 5A8, 6A6	1.1	All; Recommend completion during first semester	Quiz; Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Identifying key concepts & keywords	6	1A11, 2A1, 5A8, 6A6	1.1, 2.1, 2.2	All; Recommend completion during first semester	Quiz; Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Databases & subject terms	6, 7	1A5, 2A1, 6A6	1.2, 2.1	All; Recommend completion during first semester	Quiz
Navigating the literature: Basic searching techniques	6, 7	2A1, 2A4, 5A8, 6A6	2.1, 2.2, 2.3, 2.4, 2.5	All; Recommend completion during first semester	Quiz
Navigating the literature: Advanced searching techniques	6, 7	2A1, 2A4, 5A8, 6A6	2.2, 2.3, 2.4	Social & Behavioral Science in Public Health US Health Care Systems & Health Policy	Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Accessing the full-text	6, 7	2A1, 2A4, 6A6	2.1, 2.5, 5.1, 5.2	All; Recommend completion during first semester	Quiz
Evaluation & critical appraisal	1, 3, 4, 10, 11	1A6, 2A4, 6A5, 6A6, 6A7, 8A4	2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1	All; Recommend completion during first year	Critical appraisal summary submitted to Librarian or Course Instructor for evaluation (Rubric)
Synthesizing the evidence	1, 3, 4, 10, 11	1A6, 2A4, 6A5, 6A6, 6A7, 8A4	2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.1	All; Recommend completion during first year	Synthesis matrix submitted to Course Instructor for evaluation (Rubric)
Attribution, Plagiarism & Citation Styles (existing guides)	9	1A5, 6A5	2.5, 3.1, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3	All; Recommend completion during first semester	Rubric provided to instructor for evaluating references in existing course assignments
Contributing to the conversation: Peer review & dissemination	12	1A5, 6A5, 6A7, 8A4, 8A8	3.6, 5.1, 5.2	All; Recommend completion during first year	Rubric to evaluate contribution to discussion (either in-person or online)

Proposed Plan for Integrating Library Support for Information Literacy Skills into the MPH Curriculum

Tutorial/Resource	Learning Objectives (Students will be able to)	Student Product Assessment [Planned]
Introduction to Library Research	<ul style="list-style-type: none"> Describe the process of library research. Recognize terminology to library resources and services. 	Quiz
Navigating the literature: Developing a research question + Start Your Research Guide	<ul style="list-style-type: none"> Refine it and formulate a research question from a topic of interest. Apply strategies for focusing and broadening a research question into a question that is answerable based on the available literature. Recognize that the research process is messy and iterative. 	Quiz; Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Identifying key concepts & keywords + Start Your Research Guide	<ul style="list-style-type: none"> Identify the key concepts contained within a research question. Brainstorm synonyms and identify alternate terms used within the literature to represent identified key concepts. 	Quiz; Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Databases & subject terms + Start Your Research Guide	<ul style="list-style-type: none"> Identify two search features of literature databases. Identify core public health research databases available at IUPUI. Identify and use subject- and discipline-related terminology in the information research process. 	Quiz
Navigating the literature: Basic searching techniques + Start Your Research Guide	<ul style="list-style-type: none"> Use Boolean operators & filters appropriately. Use iterative/recursive search techniques. Interpret and use citations to find the full-text item. 	Quiz
Navigating the literature: Advanced searching techniques + Start Your Research Guide	<ul style="list-style-type: none"> Construct searches that retrieve primary sources central to the research question. Construct searches that appropriately combine subject headings and keywords with other advanced database features such as filters. 	Exercise submitted to Librarian or Course Instructor for evaluation (Rubric)
Navigating the literature: Accessing the full-text	<ul style="list-style-type: none"> Use the Find It button in databases and Interlibrary Loan system to retrieve resources not directly available within the database record. 	Quiz
Evaluation & critical appraisal	<ul style="list-style-type: none"> Evaluate resources for authority, accuracy, reliability, coverage, and timeliness. Identify possible biases within an information source. 	Critical appraisal summary submitted to Librarian or Course Instructor for evaluation (Rubric)

Proposed Plan for Integrating Library Support for Information Literacy Skills into the MPH Curriculum

Tutorial/Resource	Learning Objectives (Students will be able to)	Student Product Assessment [Planned]
	<ul style="list-style-type: none"> Evaluate research methods within studies. Identifies research biases within studies Apply evaluation criteria in the identification and use of key sources of information (e.g., journal impact factors) 	
Synthesizing the evidence	<ul style="list-style-type: none"> Apply strategies for note-taking and information organization. Apply tools and strategies for synthesizing information from two or more sources in support of a thesis or argument. 	Synthesis matrix submitted to Course Instructor for evaluation (Rubric)
Attribution, Plagiarism & Citation Styles (existing guides)	<ul style="list-style-type: none"> Attributes and cites sources appropriately according to disciplinary and publisher guidelines. Makes informed decisions about whether to retain author rights for future use of research output. 	Rubric provided to instructor for evaluating references in existing course assignments
Contributing to the conversation – peer review & dissemination	<ul style="list-style-type: none"> Develop awareness of publication lifecycle Recognize the financial forces driving the availability of information Contribute to associations and networks related to the discipline Participate in the academic process of one's discipline (e.g. discovery, proposal, funding, research design, dissemination, etc.) Select appropriate open venues to share findings with peers 	Rubric to evaluate contribution to discussion (either in-person or online)

Tutorials completed in 2015

1. Navigating the literature: Developing a research question
2. Navigating the literature: Identifying key concepts & keywords
3. Navigating the literature: Databases & subject terms

Tutorials planned for 2016 completion:

1. Navigating the literature: Basic searching techniques
2. Navigating the literature: Advanced searching techniques
3. Navigating the literature: Accessing the full-text
4. Evaluation & critical appraisal
5. Synthesizing the evidence

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Core MPH Courses

- S500: Social & Behavioral Science in Public Health
- H501: US Health Care Systems & Health Policy
- E517: Fundamentals of Epidemiology
- A519: Environmental Science in Public Health
- B551: Biostatistics for Public Health I

FSPH MPH Competencies (<http://pbhealth.iupui.edu/index.php/prospective-students/master/mph/competencies/>)

1. Use biostatistical methods to analyze and report public health data.
2. Specify approaches to assess, prevent and control environmental and occupational hazards to human health and safety.
3. Use epidemiologic methods to collect, study, analyze and report the patterns of disease in human populations for diverse audiences.
4. Identify and analyze the components and issues of leadership, including financing and delivery of public health services and systems.
5. Apply policy process, development and analysis methods to address current national, state and local public health issues.
6. Identify social and behavioral science factors, theories and models and develop, implement and evaluate interventions designed to positively affect health behaviors in populations.
7. Collect and disseminate public health data through the use of technology and media.
8. Explain how human biology influences health and public health practice.
9. Exhibit high standards of personal and organizational integrity, compassion, honesty and respect for all people.
10. Use systems methods to analyze the effects of political, social and economic influences on public health systems at the individual, community, state, national and international levels.
11. Demonstrate the impact of diversity and culture on public health across discipline areas.
12. Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of public health data.

Council on Linkages Core Competencies (selected as appropriate targets for information literacy instruction)

- Analytics/Assessment Skills
 - 1A5. Identifies sources of public health data and information.
 - 1A6. Recognizes the integrity and comparability of data.
 - 1A11. Uses information technology to collect, store, and retrieve data.
- Policy Development/Program Planning Skills
 - 2A1. Gathers information relevant to specific public health policy issues.
 - 2A4. Gathers information that will inform policy decisions (e.g., health, fiscal, administrative, legal, ethical, social, political)
- Community Dimensions of Practice Skills
 - 5A8. Identifies community assets and resources.
- Public Health Sciences Skills
 - 6A1. Describes the scientific foundation of the field of public health.
 - 6A5. Describes the scientific evidence related to a public health issue, concern, or intervention.
 - 6A6. Retrieves scientific evidence from a variety of text and electronic sources.

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- 6A7. Discusses the limitations of research findings (e.g., limitations of data sources, importance of observations and interrelationships).
- Leadership and Systems Thinking Skills
 - 8A4. Identifies internal and external problems that may affect the delivery of Essential Public Health Services.
 - 8A8. Describes the impact of changes in the public health system, and larger social, political, economic environment on organizational practices.

ACRL Information Literacy Competency Standards (<http://www.ala.org/acrl/standards/informationliteracycompetency>)

Standard One

The information literate student determines the nature and extent of the information needed.

Performance Indicators: The information literate student...

1. defines and articulates the need for information.
2. identifies a variety of types and formats of potential sources for information.
3. considers the costs and benefits of acquiring the needed information.
4. reevaluates the nature and extent of the information need.

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators: The information literate student...

1. selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.
2. constructs and implements effectively-designed search strategies.
3. retrieves information online or in person using a variety of methods.
4. refines the search strategy if necessary.
5. extracts, records, and manages the information and its sources.

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.

Performance Indicators: The information literate student...

1. summarizes the main ideas to be extracted from the information gathered.
2. articulates and applies initial criteria for evaluating both the information and its sources.
3. synthesizes main ideas to construct new concepts.
4. compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.
5. determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.
6. validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.
7. determines whether the initial query should be revised.

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

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Performance Indicators: The information literate student...

1. applies new and prior information to the planning and creation of a particular product or performance.
2. revises the development process for the product or performance.
3. communicates the product or performance effectively to others.

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators: The information literate student...

1. understands many of the ethical, legal and socio-economic issues surrounding information and information technology.
2. follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.
3. acknowledges the use of information sources in communicating the product or performance.

An early draft of an institutional research data guidance document has been redacted because it has not yet been reviewed by key stakeholders.

Appendix B: Professional Development

B.1

B.1: Webometrics for all products shared on [Slideshare](#)

Presentation	Views	Downloads
Altmetrics for Team Science	1699	56
Building the Future of Research Together	474	4
Case studies for open science	35	8
Citation & altmetrics - a comparison	834	38
Clinical Data Management: Strategies for unregulated data	823	17
Current trends in psychology research - how can they improve library practice?	4870	0
Data Management Lab: Data management plan instructions	1025	4
Data Management Lab: Data mapping exercise example	5802	5
Data Management Lab: Data mapping exercise instructions	913	4
Data Management Lab: Session 1 Slides	811	4
Data Management Lab: Session 2 - Documentation Instructions	376	2
Data Management Lab: Session 2 slides	495	2
Data Management Lab: Session 3 Data Coding Best Practices	310	2
Data Management Lab: Session 3 Data Entry Best Practices	458	2
Data Management Lab: Session 3 Data Review Checklist	496	4
Data Management Lab: Session 3 Slides	745	2
Data Management Lab: Session 4 Review Outline	680	3
Data Management Lab: Session 4 Slides	696	7
Data Topics Series: Ensuring data quality	743	12
Data Topics Series: Practical Data Management Plans	472	2
Data Topics Series: Preventing data loss	545	2
Gathering Evidence to Demonstrate Impact	754	16
Good data practices for graduate students	453	2
Improving user engagement in a data repository with web analytics	583	3
Meeting the NSF DMP Requirement June 13, 2012	582	4
Meeting the NSF DMP Requirement: March 7, 2012	1008	13
Midwest Medical Library Association 2015 Big Data Panel	600	7
NIH Data Sharing Plan Workshop - Handout	544	1
NIH Data Sharing Plan Workshop - Slides	744	13
NSF Data Policies webcast February 29, 2012	416	3
Teaching data management in a lab environment (IASSIST 2014)	680	3
The exchange of social support via social networks of maternal caregivers for children with Autism Spectrum Disorders (ASD)	729	4
Totals	30,395	249

B.2: Webometrics for all items deposited in IUPUI ScholarWorks

Product Title	Views	Downloads
Academic Historians in Canada Report Both Positive and Negative Attitudes Towards E-books for Teaching and Research	87	25
Autism Spectrum Disorders: Wading through the controversies on the web	32	38
Big data	28	13
Building Data Management and Repository Services: The IUPUI Approach	239	59
Building data services from the ground up: Strategies and resources	55	17
Building the Future of Research Together: Collaborating with a Clinical and Translational Science Award (CTSA)-Funded Translational Science Institute to Provide Data Management Training	108	47
Clinical Data Management: Strategies for unregulated data	193	356
Data Services: Making it Happen	598	338
Demonstrating impact as a practitioner-researcher	5	2
Developing a data management lab: Teaching effective methods for health and social sciences research	480	116
Developing incentives for data stewardship and sharing: Library engagement beyond liaison relationships	141	28
Ensuring research integrity: The role of data management in current crises	70	36
Exploring the Disconnect Between Information Literacy Skills and Self-Estimates of Ability in First-Year Community College Students	170	91
From Cultural Heritage to Research Innovations: Digital Scholarship Services for a Changing University	197	130
Improving data management in academic research: Assessment results for a pilot lab	187	59
Improving user engagement in a data repository with web analytics	302	109
Integrating patient-centered care and evidence-based practices: What is the prognosis for healthcare?	1	3
Librarian roles in data curation	310	88
Library and Information Science Research Literature is Chiefly Descriptive and Relies Heavily on Survey and Content Analysis Methods	22	12
Meeting the NSF Data Management Plan Requirement, IFRA 2012	212	65
Mining the Indianapolis Recorder: An Exploratory Study of a Digital Humanities Dataset	305	174
Opportunities in data curation: Integrating the library into the research process	500	220
Practical data management: Enabling graduate students and staff to function as ethical actors	590	222
Promoting sustainable research practices through effective data management curricula	385	257
Surveying North American Academic Library Websites for Instructional Outreach and Delivery Reveals a Broad Range of Approaches Employed	39	10
Teaching data literacy skills in a lab environment	180	49
The exchange of social support via social networks of maternal caregivers for children with autism spectrum disorders	317	1186
Training researchers how to manage data to produce better results, enable reuse, and provide for long-term access	110	95
	5863	3845

Evidence Based Library and Information Practice

Guidelines for Writing Evidence Summaries

Revised February 2014

Evidence Summaries are brief critical appraisal reviews of current research articles. The summary follows a standardized format to ensure consistency and ease of use for readers. All evidence summaries undergo double-blind peer-review by at least two reviewers before being considered for acceptance by the Associate Editor (Evidence Summaries). Typically, revisions are required before the Evidence Summary is accepted.

For each summary, the following components must be present:

1. Descriptive **title** indicative of what we can learn from the original research study. Title should be less than 25 words, with no subtitle. Avoid beginning the title with “Research demonstrates that...” or “Study concludes...” Suggested elements to include in the title include population, setting (geographic region), methodology (only if unique), important finding(s)/conclusion(s).
2. **Citation** for the article being reviewed. Use APA format and include the DOI if available. If the DOI is not available, use a stable URL.
3. **Reviewer’s name and contact information.** Please omit when submitting for peer review, and insert in revised Evidence Summary once it has been provisionally accepted for publication).
4. **Structured Abstract** which includes all the following components:

Objective – The objective of the study in one or two sentences.

Design – Type of research study design used. This does not need be a full sentence, e.g., grounded theory, survey questionnaire, observational study, randomized controlled trial.

Setting – Environment and geographic region in which the research took place, e.g., large public library in Quebec, Canada, corporate information centre in the United States, small community college in Australia, Hospital in rural United States. Do not provide the specific name of the institution or organization. Rather, the setting is meant to convey the context so that the reader can decide if it is comparable to their own. This does not need to be a full sentence.

Subjects – the number and characteristics of the subjects / participants / informants / respondents in the study, e.g., 75 senior citizens who were homebound. This does not need to be a full sentence. For subjects, the exception to the rule of beginning sentences with a numeral is made.

Methods – A brief paragraph on the research methodology. Do not restate the design, setting, or subjects, e.g, students were randomized into two

groups, with one receiving computer assisted instruction and the other receiving traditional lecture/demonstration. At the end of the term students were asked to complete a skills test.

Main Results – State the main outcome(s) of the research study, e.g., e-books were favoured two to one over print books by young adults participating in the focus group. This should be a few sentences, possibly a paragraph.

Conclusion – State the conclusion and practice implications for this research study (as reported by the study authors), e.g., Based on the research results, signage in the library was improved and replaced. A follow-up study will be conducted to further examine impact of the change.

Note that while the structured abstract does not have a word limit, it is meant to be a brief and accurate description of the main points of the study without additional analysis. Writers are advised to avoid tables and lists unless absolutely necessary. Structured abstracts which are deemed too lengthy will be returned to the Evidence Summary writer for resubmission before peer review is undertaken.

5. Commentary

The Commentary is meant to provide the Evidence Summary writer with the opportunity to critique the original research study and report, and suggest further implications for practice.

The first paragraph should place the research/article in the wider context of research available on this topic.

The next several paragraphs should address the strength of the evidence presented. Writers should refer to a critical appraisal checklist or tool, and include a citation to it, to ensure all important elements of assessment have been taken into consideration.

The commentary section should not restate the main results or conclusions of the study. It should provide a balanced and fair critical appraisal of the important elements of the methodology that impact the reliability, validity, and applicability of the results. Please avoid the temptation to identify and criticize every potential flaw in the study's design.

The last paragraph should address the significance of the research/article to library and information practice as well as the practice implications for librarians and information professionals. This should be more thoughtful than, for instance, “this research has implications for school librarians” and instead should provide some insight into how the evidence could be used. This may also include, for example, the usefulness of the method or the originality of the research.

The suggested **word count** for Commentaries is **350 to 450** words.

References are optional. Only sources other than the article being critically appraised are included in the list of references. A maximum of five references should be included. Do not use in-text citation to the article being reviewed. Instead, refer to the original article as “the study” and the author(s) as “the author(s)” or “the researcher(s)” rather than using their names in order to avoid confusion.

Note that for evidence summaries, the *Evidence Based Library and Information Practice* style publication guidelines apply. This includes the format (font, spacing, removal of citation software coding) and style. Guides for formatting evidence summaries, in-text citations, and Reference lists in *EBLIP* style can be found in the *EBLIP Publishing Manual*:

<http://eblipmanual.pbworks.com/w/page/48673121/EBLIP%20Publishing%20Manual>

Manuscripts submitted that do not meet the evidence summary or style guidelines will be returned immediately to authors for corrections before resubmission.

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Appendix C: Service

Top Trends in Academic Libraries 2016

Introduction

Every other year, the ACRL Research Planning and Review Committee produces a document on top trends in higher education as they relate to academic librarianship. The 2016 Top Trends report discusses research data services, digital scholarship, collection assessment trends, content provider mergers, evidence of learning, new directions with the ACRL Framework for Information Literacy, altmetrics, emerging staff positions, and open educational resources.

Coates contribution



Research data services (RDS)

The latest survey of U.S. and Canadian college and research libraries reports that the number of libraries offering research data services has remained flat.¹ This is somewhat unexpected based on responses to the survey conducted by Fearon et al.² in which nearly a quarter of respondents indicated plans to offer a range of data services. Consistent with previous surveys, Tenopir et al. found that RDS are more common in 4-year and research universities than 2-year institutions. Many libraries currently providing RDS have taken a traditional approach by offering informational and consultative services that align with existing liaison and reference roles; far fewer are offering technical services.

Data policies and data management plans

Following through on the 2013 OSTP Memorandum,³ many federal funding agencies released their Public Access Plans in 2015. An informal group of library-based data specialists created a comparison chart of these plans, available in Figshare.⁴ Thøgersen compares the policy elements in federal funding agency plans and the Interagency Working Group on Digital Data (IWGDD) report,⁵ while Briney et al. analyzed institutional research data policies. Supporting faculty and administrators in navigating these policies is an important opportunity for libraries.⁶

Professional development for librarians providing RDS

Most libraries are shifting existing staff into data positions rather than hiring new data librarians, creating a growing demand for professional development opportunities.⁷ The range of professional development opportunities for librarians to educate themselves in good data practices increased throughout 2015 and will continue to grow in 2016, chiefly as a result of two initiatives. The first includes two NIH BD2K awards to develop a MOOC⁸ and two curricula for teaching research data management.⁹ The second is the creation of an ACRL Research Data Management Roadshow, which will take the form of a day-long workshop designed for library administrators, subject liaisons, and other specialists.

Digital Scholarship

To advance the educational and research processes, libraries are developing digital scholarship centers, often in partnership with other campus units. These centers extend traditional methods of research by applying new technologies such as GIS data, visualization, and big data across the curriculum. Digital asset management, digital preservation, training, consultations, and tools for digital scholarship are among the suite of services and resources provided. Keener identifies challenges associated with creating space for collaborative research relationships in digital scholarship: the role of librarians as collaborators/service providers, program planning for

diverse constituencies, and continuous skill development.¹⁰ ACRL's Digital Scholarship Center Interest Group provides a forum for engaging on this topic.

Recognizing that a library's success in meeting its mission is best informed by outreach and engagement, many libraries actively seek feedback from their constituents. User experience (UX) work informs website, service, and resource development. Harvard University has opened a User Research Center (URC) to coordinate UX work across the institution's libraries and to make evidence-based decisions that lead to more effective programs and services. Among the tools in the URC are a screen-monitoring system, eye-tracking device, monitors and a wall screen for observing user activity, and portable devices for off-site projects.¹¹

Cornell University and Ithaka S+R recently partnered to study the day-to-day practices of academic researchers and the associated implications for library services, resources, and spaces. The resulting report "A Day in the Life of a (Serious) Researcher: Envisioning the Future of the Research Library" discusses the following themes: information seeking, academic activities, brainwork, associated academic activities, library resources, space, and self-management.¹²

Collection Assessment Trends

There has been a remarkable shift to the incorporation and integration of more continuous, ongoing, flexible and sustainable review of collections rather than ad-hoc project based models.¹³ "Rightsizing" the collection has become a norm.¹⁴ There is an increasing need to establish more holistic and agile approaches (both qualitative and quantitative) to manage budgetary constraints while ensuring that collections are "responsive" and committed to institutional research and curricular requirements and needs. In doing so, libraries have established new collection analyst positions, employed new tools (e.g., visualization, predictive analysis), heretofore untapped (or undertapped) data sources (EZProxy logs), and the leveraging of external partners and actors, such as consortia and non-profit consultants and tools¹⁵ and Ithaka S+R's What to Withdraw Tool.¹⁶

Of particular interest is the growth of post-assessments that have appeared regarding the utility of the common journal "big deals."¹⁷ Other collection assessment trends, as illustrated by recent conference panels and presentations (e.g., Charleston Conference and Electronic Resources and Libraries), have included re-evaluation of pay-per-view models for recurring resources, assessment of gold open access content within traditional subscription journals, and re-evaluation (or "tune-ups") of the increasingly common demand-driven acquisition models.

ILS and Content Provider/Fulfillment Mergers

Greater consolidation of journal vendors continues, with potentially significant impacts on pricing, collection budgets, and institutional negotiation. A recent PLOS article analyzes the share of output published in the journals of the major scientific publishers and discusses the economics of scholarly publishing.¹⁸ In the area of collections discovery we see the increasing consolidation of vendors,¹⁹ and in particular, the acquisition of traditional fulfillment service providers (e.g., Yankee and Coutts) by content platform providers such as EBSCO and ProQuest, and the acquisition of library system vendors (e.g., ProQuest's purchase of Ex Libris). As Roger Schonfeld notes, "there has been a broad shift among content platforms, not only aggregators but publishers like Elsevier and Nature, to invest in tools and systems."²⁰

Although these mergers and acquisitions do bring about the possibilities for greater efficiencies, innovation, and integration, they limit the marketplace significantly and their repercussions are hard to predict. For example, YBP invested considerable resources in creating interoperability with ALMA (the ExLibris ILS). YBP was subsequently acquired by a competitor with its own discovery service (I.e., EBSCO's EDS). A potential concern on the YBP front is its neutral stance among publishers, aggregators and librarians, which may be questionable with the recent acquisition.

Evidence of Learning: Student Success, Learning Analytics, Credentialing

Student success continues to be an important focus for higher education institutions where the trend towards performance-based funding and accreditation criteria includes an emphasis on learning outcomes, retention, and matriculation. The March 2015 Conference of the American Association for Colleges and Universities had as its themes: Diversity, Learning, and Student Success.²¹ In July 2015, the U.S. Secretary of Education Arne Duncan laid out a vision for the future of higher education where student success and student outcomes are achieved, and costs of higher education, drop-out rates, and the length of time-to-degree are lowered.²²

There are various methods for boosting student success—from forming learning communities, support and incentives for completion, peer tutoring, flipped classroom techniques, adaptive learning modules, or programs for first-year students, first generation students, transfers, veterans, or other student populations. Libraries, as key partners in higher education, participate in student success strategies and also conduct their own studies, assessments, and initiatives. One important initiative is ACRL's Assessment in Action (AiA) program which examines the impact of the library (instruction, reference, collections, space, and more) on student learning/success. Brown and Malenfant summarize some of the lessons learned and highlight sample libraries' contributions.²³ In 2016, ACRL also published *Putting Assessment into Action: Selected Projects from the First Cohort of the Assessment in Action Grant*.²⁴

There is growing interest in mining available data systems to analyze the learning process and to make improvements in teaching, learning, and/or the student experience. Institutions are using this "learning analytics" approach to track individual student's interactions and academic progress. A good overview of the field has been released by the Learning Analytics Workgroup.²⁵ See also the Code of Best Practices for Learning Analytics.²⁶

Questions about the value of traditional academic degrees relative to the current job market and the cost of higher education has sparked interest in credentials that give credit for shorter increments of educational attainment than the standard two-year or four-year degree program offerings. Credentials offer the opportunity to reduce social inequality by providing alternative paths to educational training and skills-building through low-cost and less time-intensive options.²⁷ For academic libraries the credentialing trend presents opportunities to award badges or certificates for discrete sets of knowledge that libraries provide such as information literacy and digital media competency, etc..²⁸

The quality and value of these new types of credentials are still a question mark for students and employers alike. In October 2015, the Lumina Foundation, the Center for Law and Social Policy (CLASP) and its Center for Postsecondary and Economic Success (C-PES) and the Corporation for a Skilled Workforce sponsored a National Credentialing Summit.²⁹ Lumina has also funded

the Comprehensive Student Record Project, which focuses on the development of extended transcripts to document non-classroom activity.³⁰ The American Council on Education has released reports that call for a less fragmented credentialing system (Everhart et al. 2016a) in higher education and for better communication about the value of students' competencies.³¹

New Directions with The Framework for Information Literacy

Digital Fluency in the Framework

ACRL's recently adopted information literacy framework recognizes information as an ecosystem and encourages librarians to pursue a broader agenda based on the new information literacy concept as a "set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning."³²

Several new models or ideas of information literacy have been either explicitly or implicitly, partially if not all, incorporated into the New Framework. One is the metaliteracy model proposed by Mackey and Jacobson.³³ They consider the influence on the learning process of social media and social networking and call on librarians to acknowledge these interactive digital and networked social resources and learning spaces and their meanings of enabling learners to collaborate, participate, produce, and share. Savin-Baden points out that digital fluency means not only being able to use the most recent social media and networking technology to produce and share, but also acquiring the ability to understand complex issues such as identity management and commodification of participation.³⁴

The Framework for Information Literacy for Higher education is not without criticism even though it is based on many existing information literacy theories and has gone through a rigorous drafting and public hearing process. The threshold concepts and theory that the framework was based upon have not been experimentally or empirically tested, so this is an area to monitor for activity and knowledge growth.

Critical Information Literacy in the Framework

Critical Information Literacy (CIL) problematizes and politicizes notions of information literacy as a series of steps to follow and outcomes to achieve, and "places librarianship within a critical theorist framework that is epistemological, self-reflective, and activist in nature" (Garcia 2015). In his review of the CIL literature, Tewell argues that it is "perhaps indicative of critical IL's influence upon the profession at large [that] the forthcoming ACRL Framework for Information Literacy for Higher Education accounts for perspectives far more critical than those indicated in the previous Standards that the task force was charged with revising."³⁵ Instead, the Framework (ACRL 2015) "appears to reject North American higher education's climate of continual standardized assessment measures by moving away from easily quantifiable outcomes."³⁶

The Framework also emphasizes the concept of "information privilege," which involves "making people more aware of the structures of power, money, and privilege surrounding information,"³⁷ and Beilin claims that the Framework "has opened up the possibilities for action and maneuver on the part of instruction librarians," and that makes it in some sense a progressive document.³⁸ Thus, the Framework has, in some librarians' view, a political element absent from the earlier Information Literacy Competency Standards.

Altmetrics

The penetration of altmetrics in both publisher and repositories is increasing rapidly, though the main providers of altmetrics have remained stable: Altmetric, ImpactStory, and Plum Analytics. Citations are one result of a complex series of information use behaviors that include previously invisible precursors like reading, bookmarking, saving, annotating, discussing, and recommending articles. Social media platforms such as Twitter and Mendeley provide data (e.g., altmetrics) to expose these precursor behaviors.³⁹ These data may be valuable as leading indicators of impact, but first we must achieve a deeper understanding of the systems producing these data.

Several recent publications identify current challenges in using altmetrics data for research evaluation purposes. These include the need for specific definitions, strategies for improving data quality from providers, promoting use of persistent identifiers, transparent methods for calculating specific output types, use cases for various stakeholder groups.^{40 41} Although many technical and implementation issues remain, the uptake of altmetrics is growing.

Emerging Staff Positions

In the Spring of 2015, the School of Information at San Jose State University analyzed 400 recent position postings for library and information science professionals. General trends that emerged: familiarity with technology and technical support, focus on the user experience, support for virtual services, digital humanities, and knowledge management. The corporate sector is also increasingly interested in professionals with these skill sets. Collaboration, teamwork, and communication were among the most common skills across all position descriptions. Job seekers are encouraged to keep abreast of emerging technologies, data analysis and visualization, and geographic information systems.⁴²

Open Educational Resources (OER)

Open Educational Resources (OER) are experiencing a watershed in higher education in the United States, as articles in major news media drive public awareness of the high cost of college-level textbooks. This growing public awareness may drive a boarder range of infrastructure to address not only the development of OERs on campuses but solutions to address hosting and discoverability of OERs. In February 2016, Amazon announced the development of an OER platform aimed at the K-12 market and higher education seems a likely next development.⁴³

OERs are not limited to the tradition textbook format - they include a range of course materials including entire courses, lesson plans, modules, and recorded lectures. The savings to students can be substantial and multiplied across a large course demonstrate a real value, particularly when the OER is shared with other institutions and is constructed to be easily updated and reused. Annand notes that open resources require faculty expertise, time, and infrastructure and financial support from campus or external sources, so even as OERs save students money at the institutional and policies levels sustainability is an important issue.⁴⁴ The benefits of OERs extend beyond the fiscal impact, recent research has indicated that OERs are viewed positively by both faculty and students and that they contribute to student success.^{45 46}

Libraries in higher education are collaborating across campus to promote and support OERs. Jensen and West identify the following leadership opportunities for libraries in OERs “supporters in policy, help in finding quality materials, and professional development around copyright, open

licensing, and integrated course design.”⁴⁷ In a 2014 report, Kazakoff-Lane identified a similar set of opportunities and provides more details on the barriers to faculty adoption of OERs and MOOCs and the ways that libraries can be collaborators.⁴⁸ Some ways that libraries have manifested this leadership include faculty incentive programs such as the ones at UCLA and Emory University and advocating for OER, often in partnership with other campus units.⁴⁹ There are statewide initiatives such as SUNY Open Textbooks which amplify the resources of many campuses. A few campuses have achieved degrees that rely entirely on OERs, an example being Tidewater Community College where the library has become a partner in the OER endeavor after the launch. Librarians can also help faculty to find existing OERs for reuse and assist them with locating source materials for inclusion in OERs. Issues such as copyright and open licensing fit within the thread of Open Access publishing and author rights, areas where some academic libraries have already taken leadership roles on their campuses.

In 2015, the ACRL Board formed a task force to serve as an advisory group to the Choice Editor and Publisher as an OER review service is evaluated and planned. For libraries wishing to learn more about OERs, ACRL's Scholarly Communication Toolkit (<http://acrl.ala.org/scholcomm/>) includes links to blogs, handouts, and presentations.⁵⁰

Members of the committee

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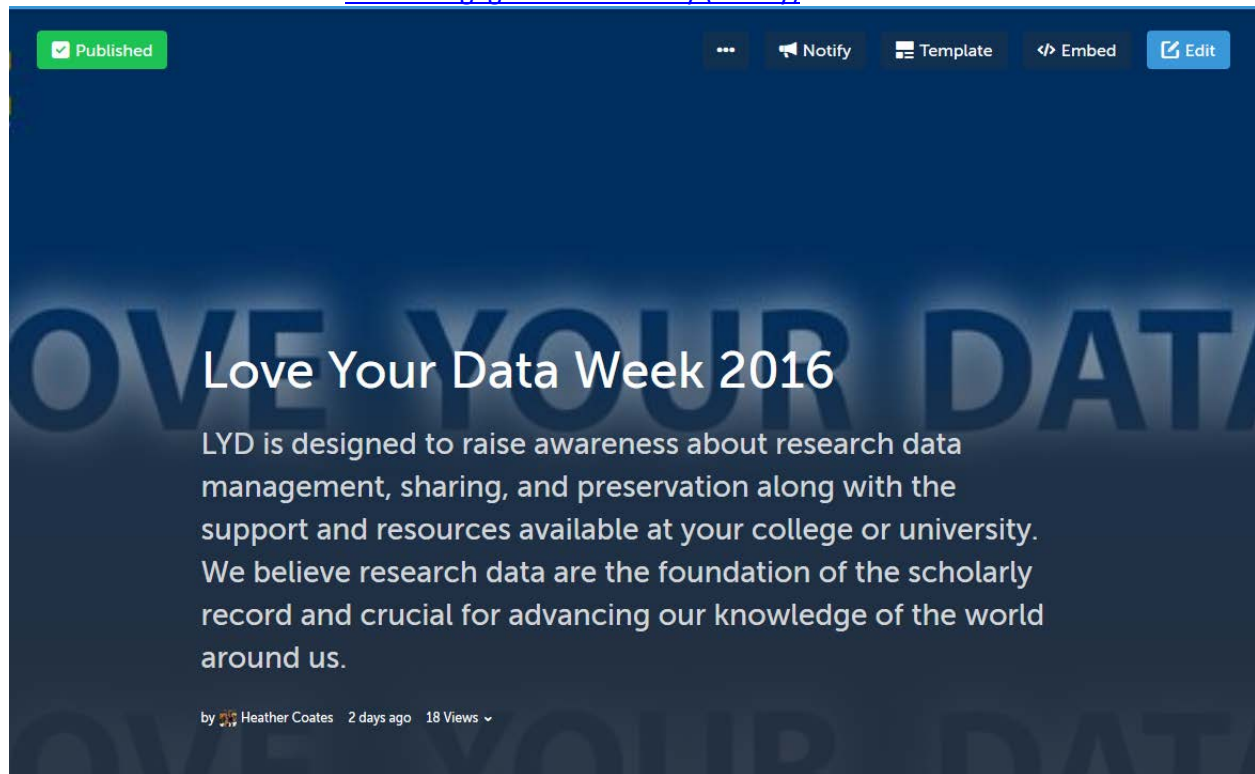
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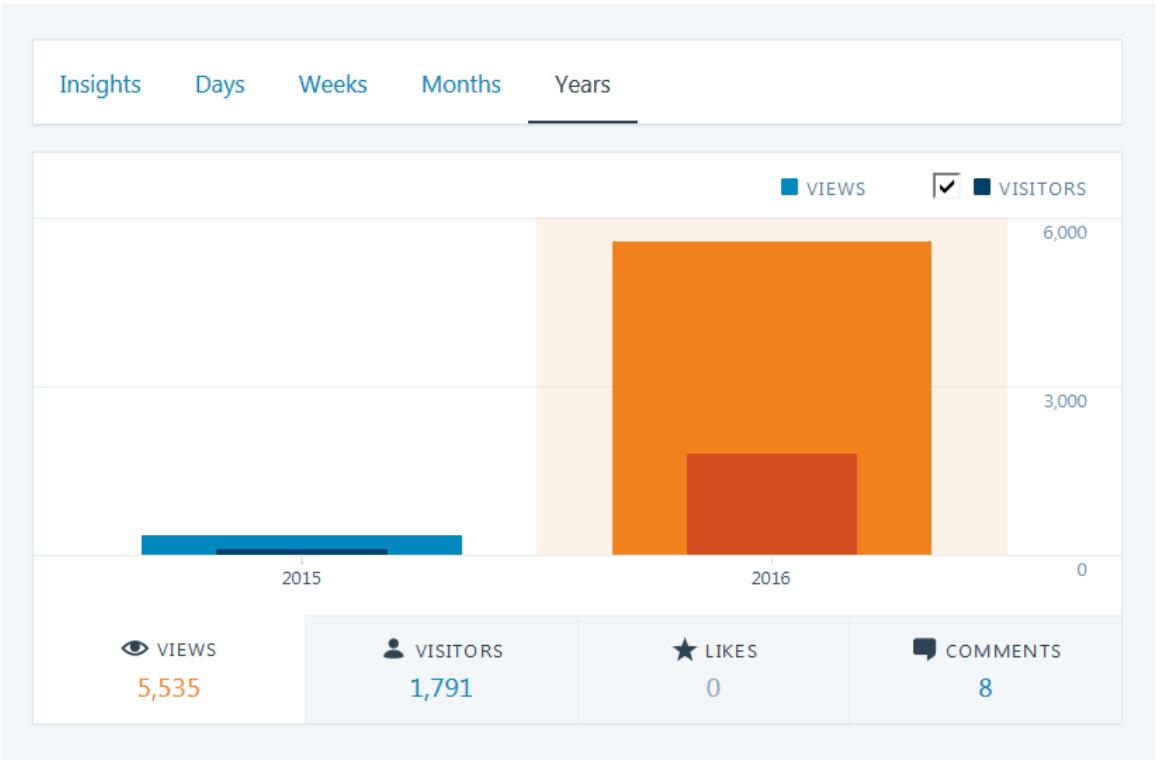
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Love Your Data Week 2016: [Online engagement summary \(Storify\)](#)



C.2: Love Your Data Week Wordpress site webometrics



Page views and geographic distribution of site traffic

Stats for 2016

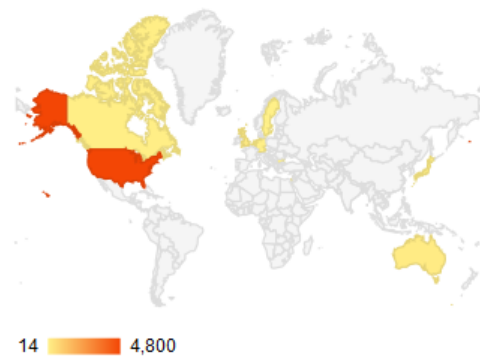
Posts & Pages

Title		Views
Home	↗	2,238
Monday	↗	859
Tuesday	↗	741
Wednesday	↗	554
Thursday	↗	450
Friday	↗	413
Logistics	↗	280

Referrers

Referrer		Views
✓ Twitter		490
✓ Search Engines		338
Facebook		111
✓ library.usu.edu	...	44
✓ library.arizona.edu	...	42
✓ lib.utk.edu	...	31
✓ dataabinitio.com	...	29
current.ndl.go.jp/node/3073	...	23

Countries



Country	Views
United States	4,800
Australia	167
United Kingdom	152
Japan	79
Canada	75
Netherlands	41
Germany	37
Israel	22
Sweden	16
Bulgaria	14