What Do We Want to Know: Completing an Action-Oriented Research Agenda

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Introduction

Because of growing federal and organizational pressures, academic libraries now must demonstrate their value more than ever.[1] The Association of College and Research Libraries (ACRL) has been at the forefront of assessing these demonstrations and recognizes the need for more research on student learning and success, areas critical to the higher education sector. After an open and competitive request for proposals issued by ACRL to investigate this area, a team from OCLC Research and two doctoral candidates from Rutgers University were selected to support this ongoing work. The project team will develop an action-oriented research agenda on library contributions to student learning and success.

This paper provides some of the first published work by the project team on the initial project phase. In this phase, the team has worked to identify current definitions of learning and success, as well as higher education trends and librarians' responses to these trends, by performing a content analysis of relevant literature. This content analysis is preliminary and covers a little less than half of the total documents reviewed. The findings from this preliminary content analysis suggest pathways for additional work within this first project phase and inform the team's progress through the next project stages. The findings communicate some of the initial emerging themes that will serve to structure the writing of the final report, due in May 2017.

Background

One significant challenge in assessing academic library value is the lack of consensus on measures of student learning and success.[2] Often, determining these measures is left up to individual departments, which can result in the assessment practices of libraries being isolated from those of higher education stakeholders. This lack of synergy renders it difficult for libraries to demonstrate their impact in a way that aligns with stakeholder objectives. Perhaps for this reason, or because of it, librarians often are not included in discussions of value within a broader academic context, such as how they might contribute to accreditation standards and affect student retention and achievement.[3]

ACRL issued a request for proposals (RFP) in May 2016 to address these challenges by answering the following research questions:

RQ1. What are the ways that libraries align with and have impact on institutional effectiveness?

RQ2. How can libraries communicate their alignment with and impact on institutional effectiveness in a way that resonates with higher education stakeholders?[4]

Guided by the proposal directives, the project team is engaging in the following stages to answer these research questions:

1. Overview current definitions of learning and success and identify higher education trends that affect academic librarians as well as how librarians respond to these trends.
2. Collect individual and focus group interview data from provosts and academic librarians who are members of an advisory committee for this project and, based on these data, identify extant programs and services that have evidenced effectiveness of or potential for contributing to student-centered outcomes.
3. Identify understudied research areas for newer practitioner-scholars by asking future-focused

research questions and creating a dynamic visualization tool.

These stages, while initially linear, will become iterative as both the research findings and feedback from ACRL members will inform and guide the project. This paper reports on the team's initial findings from the first stage of the project. First, a brief literature review is presented that overviews some of ACRL's work on the value of academic libraries and how it informed the development of the codebook that was used to identify the themes of 194 readings that align with higher education trends and measure student outcomes. Next, an overview of methods is provided, followed by a presentation and discussion of findings from these key studies and thematic pieces. The paper concludes by outlining key takeaways from the work completed to date by the team.

Literature Review

The ACRL RFP specified several of its publications as key documents for review.[5] This literature review provided the team with several themes and factors that formed the basis of an initial codebook (see Appendix A for the codebook). Some of these publications are summarized below to exemplify how these codes were selected.

ACRL's 2010 *Value of Academic Libraries* report provides an overview of how academic librarians articulate value to higher education stakeholders and identifies 10 areas of library value. Areas informing the codebook include: student enrollment, retention, and graduation; success; achievement; learning; and support of faculty teaching. Based on these identified areas, the report concludes with a series of recommended next steps. The steps having most relevance to this project detail the importance of the academic library to not only establish student outcome measures, but also to document and communicate outcome attainment to higher education stakeholders, as well as engage in higher education assessment initiatives.[6] While the determination and establishment of outcome measures must be made, there appears to be a significant need to link these outcomes to a broader higher education context beyond the library walls.

Based on these recommendations, ACRL created an action-oriented project, Assessment in Action (AiA), which built a community of practice around assessment among more than 200 higher education institutions. Findings from the shared assessment methodologies and tools informing the codebook denote the effectiveness of library assessment when libraries collaborate with other campus units, assessment aligns with institutional goals, and mixed methods approaches are employed. Codebook values also incorporate findings that emphasize the contribution of library instruction and spaces, and collaborative instructional activities, instructional games, and multiple instruction sessions, to student outcome measures.[7]

To capture the broader, higher education context of assessment, ACRL also completed an environmental scan[8] and identified trends in higher education.[9] The environmental scan indicates growth of interest among higher education stakeholders in linking the following areas to outcome measures: research data services, discovery services, and the library as a place for student success.[10] These areas are mirrored in the trend report, particularly the importance of the library in supporting digital scholarship. The report also explains how information literacy assessment has changed to include how it contributes to student and institutional-level outcomes.[11] As with the prior pieces in the literature review, these identified areas informed development of the initial codebook.

Methods

After completing the literature review, the team had a list of proposed codes for an initial codebook. These codes are divided between two schemes: (1) thematic codes, which indicate higher education trends to which libraries are responding and (2) factors of inquiry. The factors of inquiry scheme captures the demographics of the literature, such as year written, geographic location of the institution studied, and type of method employed, if the document is a study. Factors of inquiry were collected to make the studies more accessible and findable when using the visualization tool the team will develop at a later project stage. Specifically, these factors can be queried against higher education trends to provide practitioner-scholars with an overview of the current state of research on assessment within a broader higher-education context.

The team then searched in both higher education and library and information science (LIS) databases for literature that aligned with the themes identified in the literature review. Selected higher education databases were Academic

Search Premier, Education Resources Information Center (ERIC), ProQuest Education Journals, and Teacher Reference Center. Selected LIS databases were Library and Information Science Abstracts (LISA), Library Literature & Information Science Full Text (H.W. Wilson), and Library, Information Science & Technology Abstracts (LISTA). Search delimiters narrowed the results to studies conducted since 2010 addressing student outcomes and mentioning libraries.

The team then reviewed the retrieved documents considering the project's key research outcomes and questions, adding and removing documents as necessary. A total of 194 documents were added to the report bibliography and designated as either a key thematic piece (n=53), key study (n=38), other thematic piece (n=43), or other study (n=60). The designations "key" and "other" were based on the alignment of each piece within the thematic coding scheme. Pieces coded as thematic identify a higher education trend or a library response to that trend where no research or study was conducted, e.g., literature reviews.

All documents were imported into NVivo, a qualitative analysis software program. Using the codebook, two members of the project team coded 20% of the documents. Coding was both quantitative, i.e., looking for the presence of a certain word or words to indicate a code, and qualitative, i.e., inferring the meaning of a code. The team members reviewed the codes, discussing any coding discrepancies and revising the codebook to reflect them, and achieved 95% agreement for the factors of inquiry scheme and 99% agreement for the thematic scheme. The two team members then compared coding with a third team member, again discussing any coding discrepancies, and revising the codebook to reflect them. Following this discussion, the team attained 100% agreement for both coding schemes on 20% of the documents. To code the remainder of the documents, the team used NVivo's text query for an agreed-upon selection of words that would identify thematic factors for the studies and thematic pieces. Then a coder reviewed the entire document with the queried words identified to facilitate coding.

All codes are binary, meaning that each reading either has a code of "0" or "1" to indicate absence or presence of a code, respectively. All documents (n=194) had the thematic coding scheme applied to them, while only studies (n=98) had the factors of inquiry coding scheme applied. The next section, which discusses findings, relies on descriptive analysis. Specifically, the total number of codes applied to all the documents was calculated as well as the percentage of documents containing each code. In some instances, basic statistics were also calculated, e.g., mean, median, standard deviation.

Findings

Figure 1: Word cloud of thematic codes for all readings (n=194). Sizes reflect the number of documents in which each theme was present.

Table 1. Number of readings per thematic code (n=194)

Code	*n*	*%*
Service	153	79
Success in college	102	53
Learning in college	101	52
Research support	92	47
Collection	92	47
Assessment	91	47
Collaboration	88	45
Space	80	41
Teaching support	74	38
Communication	60	31
Provision of tech	60	31
Inclusivity/Diversity	47	24
Accreditation	28	14

The thematic coding scheme indicates the presence of higher education trends, e.g., accreditation, provision of technology, and the libraries' response to these trends, e.g., service, collection. All documents were coded for the presence of codebook themes, with Figure 1 and Table 1 indicating how often the themes were discussed in the readings.

As indicated by Figure 1 and Table 1, it appeared that each theme was coded in a little less than half of the documents and most themes were discussed evenly across the documents. This observation was also confirmed by the central tendency statistics, in which the mean (n=83, 43%)[12] and median (n=88, 45%) are close together. Since the median is greater than the mean, the distribution is slightly skewed left, meaning that there are slightly more thematic codes applied to a greater number of documents than indicated by the mean. Codes least frequently applied include: provision of technology (n=60, 31%), communication (n=60, 31%), inclusivity/diversity (n=47, 24%), and accreditation (n=28, 14%). While none of these codes are outliers, which may be defined as data points more than two standard deviations from the mean (s.d.=31, 16%), it can be observed that the codes inclusivity/diversity and accreditation appeared to not be as frequently discussed in the literature. One outlier does exist among the thematic codes—service (n=153, 79%). It may be concluded that this theme is disproportionately addressed as a library response in the literature.

Figure 2: Percentage of documents with each thematic code, divided by whether each is designated as thematic (key, other) or study (key, other).

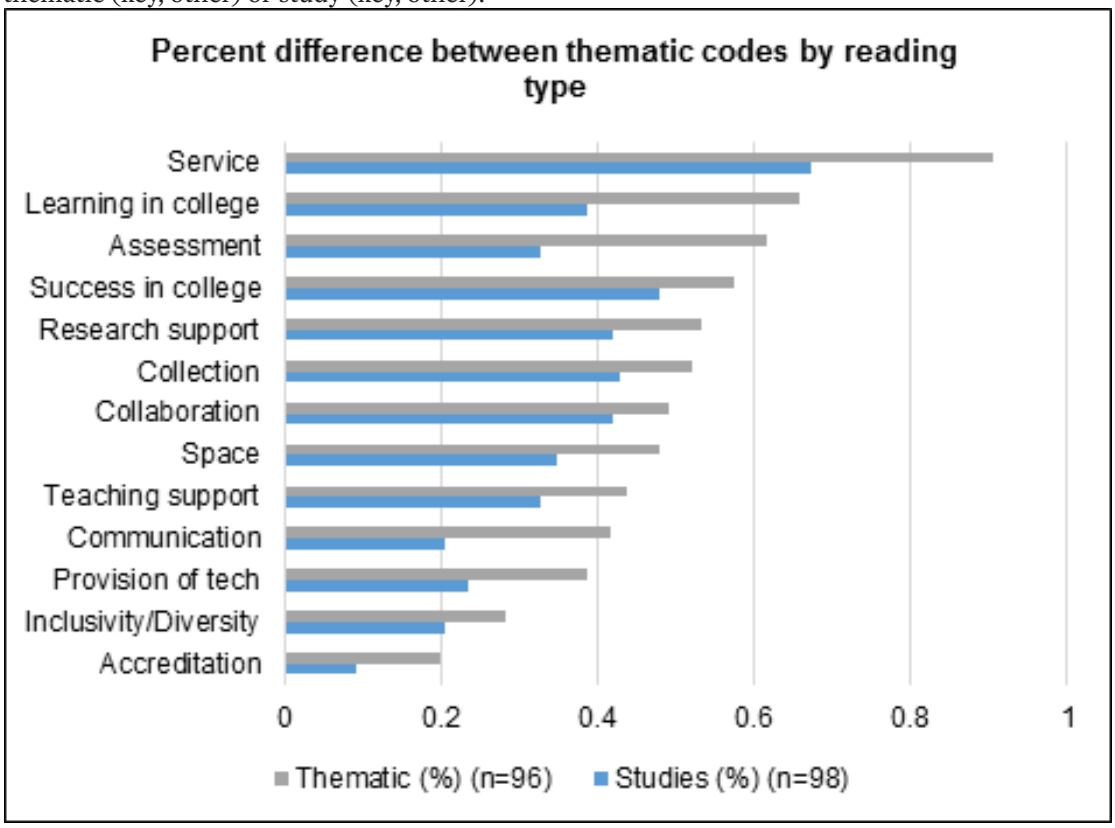


Table 2. Thematic coding changes over time (all values %)

	2010	2011	2012	2013	2014	2015	2016
Accreditation	24	21	7	17	9	18	11
Assessment	52	53	50	43	38	51	44
Collaboration	38	26	37	33	56	64	50
Communication	33	32	20	37	26	36	33
Inclusivity/Diversity	38	16	17	20	18	28	44
Learning in college	43	53	30	40	47	59	61
Provision of tech	33	26	33	33	35	31	22
Research support	43	47	53	60	47	44	28
Success in college	52	32	40	63	35	74	67
Teaching support	24	32	30	50	35	38	61
Collection	43	53	67	60	44	26	44
Service	76	84	73	80	71	56	56
Space	43	16	47	47	35	46	44

One question the team had after reviewing the initial round of thematic coding results was whether application of codes might vary by type of document (study, thematic) and year published (2010–2016). When comparing the application of thematic codes by document type, thematic readings tended to have more thematic codes than studies—approximately 15% more codes (see Figure 2). A likely explanation for this observation is that thematic documents include genres such as literature reviews and lists, whereas studies empirically ground a phenomenon or phenomena observed among one or two themes. Even considering this explanation, there were four codes that have more than a 15% mean difference between thematic and study types: assessment (29%), learning in college (27%), service (23%), and communication (21%).

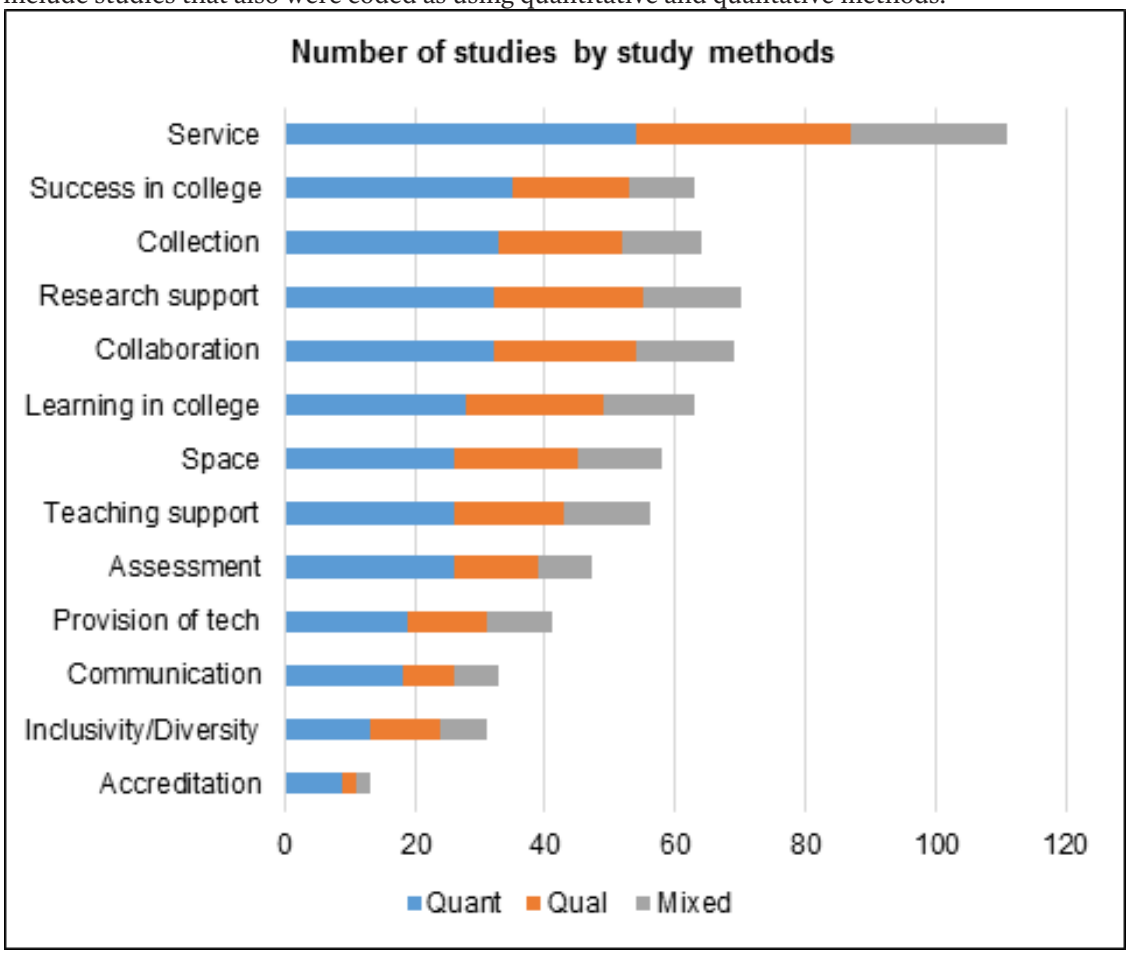
Most variations between the number of thematic codes by year were minor (see Table 2). Categories that appeared to trend in a specific direction over the course of more than two years include collaboration, inclusivity/diversity, learning in college, research support, teaching support, and service. These observations only can be made anecdotally, however, given that a random sample of all relevant literature

would need to be drawn and analyzed and inferential statistics performed to quantify application of any of these codes as trends.

Another part of the team's initial analysis included analyzing studies (key, other) coded using the factors of inquiry scheme. Of the 194 documents, 98 (51%) were classified as studies. Of the 98 studies, 32% focused on multiple institutions (n=31) and, when specified, 28% of the institutions studied were outside the US (n=27). When in the US, 17% of studies took place at institutions in the South (n=17), 15% in the West (n=15), 14% in the Midwest (n=14), and 8% in the Northeast (n=8). Most institutions were public (n=61, 62%), few were private (n=10, 10%). Most also were universities (n=67, 68%), with few colleges (n=6, 6%) and community colleges (n=4, 4%). Many studies employed quantitative methods (n=75, 77%), with half of the studies using qualitative methods (n=50, 51%). A smaller portion (n=32, 33%) employed mixed methods.

The team decided to cross-query some of the factors of inquiry codes, namely study method (qualitative, quantitative, mixed), against the thematic codes. Figure 3 depicts these results. While there appeared to be some variation of thematic codes by method, e.g., more use of quantitative methods in studies measuring assessment, inferential statistics would be required to measure whether any of this variation is statistically significant given the difference in the number of studies using each method.

Figure 3: Number of thematic codes present in studies divided by method. Note that mixed methods studies include studies that also were coded as using quantitative and qualitative methods.



Discussion

The team's initial findings suggest several observations about the current state of library assessment research. As noted in the literature review, librarians often have difficulty articulating their value to higher education administrators

and other stakeholders, and do not appear to be included in discussions related to higher education outcomes, such as accreditation.[13] A review of the current literature suggests that the accreditation, technological provision, and communication themes are among those least present in the readings. While the inclusivity/diversity theme was not prominently discussed in the required ACRL documents, findings from Table 2 denote inclusivity/diversity as an emerging means through which to demonstrate library value. The team has determined that this theme is a fruitful one to explore, however, caution must be given when tying a social justice issue to outcomes ultimately linked to monetary gain.

When comparing the application of thematic codes to thematic documents versus studies, it becomes clearer that assessment and communication are two topics deemed important as themes, but are not often empirically measured, as would be indicated by being themes present in studies. Another topic that appears to be discussed more than it is empiricized is learning in college. This finding may relate to Oakleaf's observation that librarians have trouble documenting non-quantitative outcomes.[14]

The team noticed that collaboration was an emerging thematic code in the readings selected for content analysis. The importance of collaboration between librarians and individuals outside of the library, e.g., faculty, administration, also is addressed in the required ACRL documents. The smaller portion of studies employing mixed methods approaches also confirms findings from the literature review of required ACRL documents that few assessment-oriented studies choose mixed methods. Given the richness of findings found in assessment studies using mixed methods,[15] their absence from empirical assessment work suggests an ongoing, problematic gap.

Although observations only can be drawn at this initial round of data analysis, the team's ability to query across different coding schemes (thematic, factors of inquiry) depicts the building blocks for the visualization tool that will be built at a later stage of this project. Much like the team could display the results for queries such as *How many studies measuring success in college use mixed methods?* (n=10, 10%), the library practitioners will be able to run their own queries to not only aid in discovery of relevant literature, but also to assist the librarians in drawing their own conclusions and inferences about what should be done to address the current landscape of library assessment.

Conclusion

The preliminary analysis of the literature suggests that librarians are not empirically measuring issues of interest as indicated within the thematic literature. These topics include outcomes such as accreditation, communication, and the provision of technology. These preliminary findings help to explain why librarians have difficulty articulating value to the academy—they do not seem to be focusing on the same topics within the studies they conduct as those emphasized as important within thematic pieces that they write. The latter often are geared toward higher education administrators, indicating the disparity between what librarians are doing versus what topics are of importance to higher education administrators and decision makers. One topic that may be easy for librarians to address is the provision of technology. With the importance of data management and technology for teaching and learning, librarians could offer faculty, students, and researchers ways to integrate technology into their workflows and the library could offer the infrastructure. In addition, librarians do not seem to be focusing on communication, which is crucial when advocating for any cause, including the library.

Another interesting preliminary finding is the minimal amount of empirical methods associated with the study of assessment and communication in the literature. To articulate the value of services offered by the library to the academic community, both qualitative and quantitative data are needed to demonstrate this value. Yet the analysis of the literature indicates a small number of assessment-oriented studies use mixed methods. This gap is something that LIS education and continuing education programs could address in course offerings. If librarians were educated to use mixed methods, they would feel more comfortable using them to articulate the value of their services to the academic community. The minimal use of mixed methods is surprising since the library literature indicates a disproportionate number of papers addressing library service. Again, to measure the effectiveness of library services, it is critical to augment the discussion with data.

Although there are gaps in the literature, there also are themes addressed that indicate that librarians are aware of some of the trends in higher education.

These include assessment, research support, teaching support, learning in college, success in college, and collaboration. These are important in higher education and on the librarians' radar. This inclusion of these themes in the literature indicates that librarians have identified areas where libraries can make a difference. Now they may need to focus on how to measure the effectiveness of these efforts to articulate the value they bring to the academic community.

Notes

1. Association of College and Research Libraries, *Value of Academic Libraries: A Comprehensive Research Review and Report*, researched by Megan Oakleaf (Chicago: Association of College and Research Libraries, 2010), http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/val_report.pdf; The Chronicle of Education Editors, "An Executive Summary," *The Chronicle of Higher Education* 62, no. 25 (2016): B4; Laura Saunders, "Academic Libraries' Strategic Plans: Top Trends and Under-Recognized Areas," *The Journal of Academic Librarianship* 41, no. 3 (2015): 285–291; ACRL Research Planning and Review Committee, *Environmental Scan 2015* (Chicago: Association of College and Research Libraries, 2015), http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/EnvironmentalScan15.pdf.

2. ACRL, *Value of Academic Libraries*; Judith Broady-Preston and Alison Lobo, "Measuring the Quality, Value and Impact of Academic Libraries: The Role of External Standards," *Performance Measurement and Metrics* 12, no. 2 (2011): 122–135; Joseph R. Matthews, "Assessing Organizational Effectiveness: The Role of Performance Measures," *The Library* 81, no. 1 (2011): 83–110; Jason M. Vance, Rachel Kirk, and Justin G. Gardner, "Measuring the Impact of Library Instruction on Freshman Success and Persistence," *Communications in Information Literacy* 6, no. 1 (2012): 49–58.

3. Moe Hosseini-Ara and Rebecca Jones, "Overcoming Our Habits and Learning to Measure Impact," *Computers in Libraries* 33, no. 5 (2013): 3–7; Jon R. Hufford, "Can the Library Contribute Value to the Campus Culture for Learning?" *The Journal of Academic Librarianship* 39, no. 3 (2013): 288–296; Amanda B. Albert, "Communicating Library Value: The Missing Piece of the Assessment Puzzle," *The Journal of Academic Librarianship* 40 (2014): 634–637.

4. Association of College and Research Libraries, *Request for Proposals: Action-Oriented Research Agenda on Library Contributions to Student Learning and Success* (Chicago: Association of College and Research Libraries, 2016), http://www.acrl.ala.org/value/wp-content/uploads/2016/04/ACRL-RFP-for-action-oriented-research-agenda.pdf.

5. Ibid.

6. ACRL, *Value of Academic Libraries*.

7. Karen Brown and Kara J. Malenfant, *Documented Library Contributions to Student Learning and Success: Building Evidence with Team-Based Assessment in Action Campus Projects* (Chicago: Association of College and Research Libraries, 2016), http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/contributions_y2.pdf; Association of College & Research Libraries, *Assessment in Action: Academic Libraries and Student Success*, http://www.ala.org/acrl/AiA.

8. ACRL Research Planning and Review Committee, *Environmental Scan 2015*.

9. Association of College and Research Libraries Research Planning and Review Committee, "2016 Top Trends in Academic Libraries: A Review of the Trends and Issues Affecting Academic Libraries in Higher Education," *College & Research Libraries News* 77, no. 6 (2016): 274–281.

10. ACRL Research Planning and Review Committee, *Environmental Scan 2015*.

11. ACRL Research Planning and Review Committee, "2016 Top Trends in Academic Libraries."

12. All numbers rounded to the nearest one.

13. ACRL, *Value of Academic Libraries*; Broady-Preston and Lobo, "Measuring the Quality, Value and Impact of Academic Libraries"; Matthews, "Assessing Organizational Effectiveness"; Vance, Kirk, and Gardner, "Measuring the Impact of Library Instruction on Freshman Success and Persistence"; Hosseini-Ara and Jones, "Overcoming Our Habits and Learning to Measure Impact"; Hufford, "Can the Library Contribute Value to the Campus Culture for Learning?"; Albert, "Communicating Library Value."

14. ACRL, *Value of Academic Libraries*.

15. Brown and Malenfant, *Documented Library Contributions to Student Learning and Success*.

Appendix A: Codebook

Thematic coding scheme
Identify the appropriate library response (collection, service, or space) discussed and that can be inferred based on the codebook definitions.

All trends and studies in this report deal with student outcomes. However, trends may involve other stakeholders as indicated below.

Higher education trend	Trend defined	Example of library responses to trend
Students		
Learning in college (and beyond)	Outcome was focused on the less objective concepts of learning, such as critical thinking. Usually not tied to a specific graded assignment or graduation.	Service: Library instruction Space: Collaborative working space for students Collections: Repository of online tutorials not linked to a specific class
Success in college (for multiple student groups)	Outcome was focused on the more objective indicators of learning, such as GPA or grades. Usually tied to a specific graded assignment or graduation.	Collections: Physical collections Collections: Digital collections Space: Study spaces Service: Library instruction Service: Collection discovery
Students/Faculty		
Research support	Outcome was tied to research outside of a class.	Collections: Physical Collections: Digital Service: Data storage Service: Consultation Service: Teach data management Service: Teach data mining methods Service: Collection discovery Space: Research (as opposed to learning) commons
Faculty		
Teaching support	Outcome was viewed from an instructor perspective, and it deals with a specific course.	Service: Library instruction Service: Help instructors manage pedagogical and curricular changes Collection: Online repository of syllabi Space: Faculty development center

Higher education trend	Trend defined	Example of library responses to trend
Institution		
Accreditation	Accreditation-related student outcomes	Service: Help institutions meet federal guidelines/requirements
Assessment (driven in part by affordability of higher ed)	Institutionally identified student outcomes (can be co-coded with learning and success)	Service: Educate library and other employees Service: Align with institutional mission
Provision of technology	Outcome also dealt with hardware/software that affect student outcomes	Service: Provide expertise for data management Space: Provide hardware and software in Makerspaces
Other thematic codes (does not have to align with library service, space, or collection)		
Inclusivity	(Possibly) marginalized groups	First generation college students; People of color; Commuters; Distance learners; English as a second language; Lower socioeconomic level
Collaboration	Librarians work with other institutional departments to impact student outcomes or with other institutions	Collaboration could be intra-institutional (e.g., with institutional planning unit; faculty) or inter-institutional (e.g., with multiple institutions)
Communication	Librarians communicate impact or other aspects of value with stakeholders	

Factors of inquiry coding scheme

Code name	Code definition	Values
Year	Year study was published	2010–2016
Geographic location	Major geographic regions as defined by census at: http://www.census.gov/econ/census/help/geography/regions_and_divisions.html or outside of the US where the study was performed; Do not code if institutions were in different regions	Northeast; Midwest; Outside the US; South; West
Type	Type of institution where the study was performed; Do not code if multiple institution types were studied	College; Community college; University
Sector affiliation	Whether institution was public, private, secular, or non-secular; Do not code if multiple institutions are not the same	Private; Public
Multiple institution	Code if study involved multiple institutions	Multiple institutions

Code name	Code definition	Values
Outcomes	Specific student outcomes that are are tied to a more objective qualitative or quantitative indicator of learning for a specific assignment, class, or graduation. Can choose up to 2.*	Enrollment; Graduation; Learning; Retention; Student engagement; Student success
Library service	Library service studied	Collections; Discovery; Instruction; Reference; Space (physical or digital)
Library measurement	How the library service was measured	Usage; Attendance
User measurement – Qualitative	How the user data were collected via qualitative methods. Interviews include individual and group interviews. Can choose up to 2. Reference interviews are considered content analysis.**	Interviews; Surveys; Other
User measurement – Quantitative	How the user data were collected via quantitative methods. Interviews include individual and group interviews. Can choose up to 2.	GPA; Persistence; Pre-/post-test; Retention; Survey; Rubric; Other
User measurement – Student type	Status of participants. Can choose up to 2. Other includes faculty/staff.	Undergraduate; Graduate; Other
Analysis method – Qualitative	How the data were analyzed via qualitative methods. Can choose up to 2.	Content analysis; Other
Analysis method – Quantitative	How the data were analyzed via quantitative methods. Can choose up to 3.	ANOVA; Regression; X2; Descriptive statistics; Correlation; Other

*Additional other categories may be added in the notes section of the study, and separated by pipes (The straight line that you get when you hit Shift + \). Example: If there were more than 2 outcomes, code Enrollment and Other, and in the notes write “Other outcomes are Graduation|Learning|Student engagement”

**Note: When the researchers use a rubric to evaluate student work, the analysis method is considered only quantitative if they only discuss the numerical values assigned to student work. If they report qualitative findings (e.g., themes) from the student work, then the qualitative analysis method may also be used (e.g., content analysis).