

## **Action-oriented Research Agenda on Library Contributions to Student Learning and Success**

### **Submitted 10 January 2017 by:**

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### **Executive Summary**

The following action-oriented research agenda investigates how libraries can align with and have impact on student learning and success and communicate to higher education stakeholders. These two areas are addressed by a comprehensive review of selected library and information science (LIS) and higher education literature, and an analysis of interviews conducted with library administrators and provosts from institutions varying in location, institutional sector, and type.

As documented in the project plan, this second draft includes the analysis of 535 selected LIS and higher education documents, a focus group interview with the project Advisory Group comprised of library administrators representing different types of academic institutions within the US, and semi-structured individual interviews with representatives from the Advisory Group members' provost offices.<sup>1</sup> The selection criteria for LIS and higher education documents reviewed are: 1) indexed by LIS and/or higher education databases or identified by the project team or ACRL (e.g., ACRL *Assessment in Action* (AiA) studies, Ithaka S+R surveys, see *Relevant ACRL Documents* section), 2) published between 2010-2016, 3) contained themes identified in the 2010 *VAL Report*, and 4) published in the US, except for studies outside the US deemed relevant by the project team.<sup>2</sup>

Based on the themes identified by the literature and interviews, this report provides recommendations and exemplar cases for impacting student learning and success, and aligning this impact with institutional goals and objectives.

The key recommendations for librarians based on this analysis of the selected LIS and higher education literature and interviews include:

- Identify and articulate both learning and success outcomes when documenting student-centered outcomes. Engaging students in how to redesign library space can demonstrate the library's impact on a learning outcome. Library resource or service usage and its relationship to student retention is an example of the effect of the library's service, collection, and/or space on a success outcome.<sup>3</sup>
- Focus less on service and more on sharing space with other groups both on and off campus
- Bolster collaboration with other campus units or external partners, including consortia, on assessment-based efforts.
- Communicate how library services, collections, and spaces address the larger mission of the institution by becoming better at marketing and customer service.
- Study the assessment and student-centered outcomes of diverse populations across various institutions using multiple methods.
- Develop relationships within different academic service areas, such as teaching and learning, at various levels throughout the institution.
- Continue to develop and foster relationships and engagement with academic administrators and other service providers, such as student services, offices of sponsored programs, teaching and learning, etc.
- Present data in different contexts and representations to make a case with diverse groups of academic administrators.

### **Priority Areas for Future Research**

Priority Areas for future research, which provide the framework for the research agenda, are also included for review and discussion with the ACRL membership and the academic community. These Priority Areas

intentionally are broad to foster discussion and input from academic librarians and to include more specific research questions within each Priority Area. The Priority Areas are:

1. **Communication.** Communicate with those outside of the library and high in the institution's hierarchy. They can offer a bird's eye view of what the library should be doing and be advocates for and supporters of the library if they feel invested in and part of the library.
2. **Collaboration.** Understand that there are different types and levels of collaboration and consider looking at literature from related fields to see what is said about libraries and similar issues facing them. Work with academic administrators, academic services, faculty, students, alumni, and other members of regional and local communities.
3. **Institutional planning.** Go outside of the library to collect data and suggest possible collaborations around common issues. Work with teaching and learning support services and directly with faculty and students to build a culture of assessment using both qualitative and quantitative data for collection, analysis, and reporting.
4. **Learning in college.** Engage with faculty and students for librarian inclusion in developing academic and everyday life support services for students. This area also builds on the first two Priority Areas, communication and collaboration.
5. **Success in college.** Identify the quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation, and work with academic services and faculty to develop ethical collection and reporting methods for individual-level student data that retain individual privacy and confidentiality.
6. **Learning analytics.** Measure, collect, analyze and report "data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs."<sup>4</sup> Library data should be included in the volumes of data collected from multiple systems within the academic institution and statistically analyzed to predict student success.

This second draft provides a research agenda framework for discussion by key stakeholders. There will be several conference presentations outlining this initial report, demonstrating the visualization component, and soliciting comments and suggestions.<sup>5</sup> Your feedback and suggestions are important to the success of this project. Please submit your feedback and suggestions at <http://www.oclc.org/research/forms/feedback-acrl-agenda> by February 17, 2017 as this input will be valuable for informing the final report, expected for public release in late May 2017. The final report will include the full report of all project phases and findings, as well as the research agenda. The research agenda will include the Priority Areas, future-focused research questions, and a summary of the literature that supports each Priority Area. We expect to present the final project results and visualization component at an ACRL Online Open Forum in June and at the ALA 2017 Annual Conference in Chicago, IL.

## **Action-oriented Research Agenda on Library Contributions to Student Learning and Success: Initial Report**

### **Revised and Submitted 10 January 2017 by:**

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This report includes a review of selected library and information science (LIS) and higher education literature and an analysis of interviews conducted with library administrators and provosts from institutions varying in location, institutional sector, and type. This review provides librarians, researchers, and students (see *Appendix A* for a glossary of terms) with best practices for identifying, aligning with, and supporting student-centered outcomes and for documenting and communicating the impact of library services on student-centered outcomes to higher education stakeholders.

### **Introduction**

With growing federal and organizational pressures, academic libraries now must demonstrate their value more than ever.<sup>6</sup> The Association of College and Research Libraries (ACRL) is at the forefront in assessing these demonstrations and recognizes the need for more research on critical elements of the higher education sector such as student learning and success. An open and competitive request for proposals was issued by ACRL to investigate this area and 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 report provides an update of the project from its start in mid-July 2016 through December 2016. In this period, a content analysis of 535 documents from the LIS and higher education literature has been completed. The selection criteria for LIS and higher education documents are: 1) indexed by LIS and/or higher education databases or identified by the project team or ACRL (e.g., ACRL *Assessment in Action* studies, Ithaka S+R surveys); 2) published between 2010-2016; 3) contained themes identified in the 2010 *VAL Report*,<sup>7</sup>; and 4) published in the US, except for studies outside the US deemed relevant by the project team.

Further, an online focus group interview with academic library administrators, who are members of the project Advisory Group, and semi-structured individual interviews with provosts from each group member's institution have been conducted and the transcripts from the interviews have been coded and analyzed. Informed by findings from content analysis of selected literature and interview transcripts, Priority Areas for academic library research have been identified, with an exemplar study represented for each Priority Area. Examples of library programs and services that provide evidence for ways to measure and articulate student learning and success to the academic community are included for possible replication and dissemination.

A database for the visualization tool is being developed to assist librarians, researchers, and students in identifying relevant literature and trends. The visualization tool will be presented to members of the ACRL board following usability testing, which is expected to be conducted in March 2017.

### **Background**

One significant challenge in assessing academic library value is the lack of consensus on measures of student learning and success.<sup>8</sup> Often, determining these measures is left up to individual campus units, which effectively isolates the assessment practices of library stakeholders from those within higher education. Due to this lack of synergy, libraries face difficulty in demonstrating their significance in a way that aligns with higher education stakeholder objectives. Perhaps for this reason, 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.<sup>9</sup>

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 library services align with and have impact on student learning and success?

**RQ2.** How can librarians communicate their alignment with and impact on student learning and success in a way that resonates with higher education stakeholders?<sup>10</sup>

Guided by the proposal directives, the project includes the following activities to answer these research questions:

1. Review current definitions of learning and success and identify higher education trends that affect academic librarians as well as librarians' responses to these trends.
2. Collect individual semi-structured and focus group interview data from provosts and academic library administrators who are members of an Advisory Group 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 academic librarians by asking future-focused research questions and creating a dynamic visualization tool.

These activities, while initially linear, have become iterative as both the research findings and feedback from ACRL members inform and guide the project. This report includes the initial findings from the first two project stages, which consist of a content analysis of selected LIS and higher education literature. In addition, it reports on findings from analysis of interviews with Advisory Group members and provosts at their universities. Finally, the report identifies Priority Areas for future research based on these initial activities. These Priority Areas and related future-focused research questions will be modified based on additional data collection and feedback received before the final report is issued.

The report is structured to guide the reader through the steps taken to derive the Priority Areas before presenting them. First, a brief literature review is provided to overview some of ACRL's work on the value of academic libraries and to describe how this work informed development of a codebook. This codebook was then used to identify the emerging themes addressed in the three different data sources: 535 selected LIS and higher education documents, focus group interviews with library administrators comprising the Advisory Group, and semi-structured individual interviews with their provosts. The report outlines how data from these three sources were collected and how they were analyzed using a codebook, as well as basic and inferential statistics. Next, a discussion of findings from each data source is presented, followed by a comparison between the three data sources. The team then summarizes what was learned by comparing these data sources, and identifies six areas of inquiry. These areas of inquiry are defined and exemplar studies and practices are overviewed for each. The report concludes with a discussion of limitations concerning how the team identified the Priority Areas and next steps.

### **Literature Review**

This literature review outlines four types of value research conducted by librarians, researchers, and students. Each type varies by the library response measured (collection, service, and/or space), how it is measured (library-centered outcome, student-centered outcome), and the intended audience (librarians, higher education administrators). It appears that over time, there has been a push toward studies intended for higher level administrators that examine the effect of library responses on institutional level goals, such as student-centered outcomes. Two of these outcomes, learning and success, are then detailed, including how they are studied outside the library.

Following this review, relevant ACRL documents are outlined. These documents were intended to inform the team of themes to look and code for when analyzing relevant documents and interviews. The team kept a list of these themes, which are overviewed in the subsequent *Relevant ACRL Documents* section. See *Appendix A* for a glossary of relevant terms.

### **Assessment and Evaluation Literature**

Evaluation and assessment are two related concepts used to determine the value of academic library collections, spaces, and services. While exact definitions of each vary in LIS and other literature, evaluation

tends to be more holistic,<sup>11</sup> occur on a larger scale, focus on more generalized end results, and be written for a wider audience. In other words, an evaluation perspective will take a big picture or helicopter view of a collection, space, or service in a larger (e.g., institutional) context. Assessment provides a more detailed or “on the ground” view of the same. Another way to describe the difference between the two terms is that the purpose of assessment is to facilitate ongoing improvement of the collection, space, or service being assessed, and the purpose of evaluation is to measure the library’s resources and activities against a pre-determined standard of value. Taking information literacy instruction as an example, an assessment would adopt a more focused examination of whether the students learned how to find and evaluate information. An evaluative approach might incorporate a test or survey instrument, such as the Standardized Assessment of Information Literacy Skills (SAILS).

One way to increase the scope of the assessment in this example would be to compare student learning outcomes to those of other sections, either by section average or individual students. Based on their performance, instruction could be modified for the next class. On the other hand, an evaluation of information literacy instruction would primarily be concerned with whether the students met a certain standard after receiving the instruction. A narrower evaluation might only compare assessments of students’ information literacy skills, perhaps also using SAILS. A broader evaluation might link their results to institutional goals for the attainment of a certain level of information literacy skills, or link information literacy to the attainment of broader critical thinking skills. Because this report examines the influence of academic libraries on student learning and success, it is more concerned with evaluation, which is reflected in the report’s data collection, data analysis, and Priority Areas. However, because the two terms are often used interchangeably and because assessment can provide contextual details to aid in evaluation, assessment studies, most notably the *Assessment in Action* (AiA) studies, are included in the content analysis of 535 selected LIS and higher education documents (see *Relevant ACRL Documents* section).<sup>12</sup>

The past few decades of LIS literature on academic library value can be differentiated based on the use of evaluation and/or assessment activities, and how these activities are reported. The project team has identified four types of value research conducted by librarians, researchers, and students. The first type of value research includes library evaluations based on collection size or amount of other library resources. LIS research published prior to the 1980s tends to fall in this category, but this type of research continues to present day. These evaluations often compare library collection size or composition to national standards, such as the Standards for College Libraries, or, more recently, The Standards for Libraries in Higher Education.<sup>13</sup> They also can include how a library compares to its peers in terms of resources, such as space, budgets, or collection size, similar to the statistics compiled by the Association of Research Libraries (ARL).<sup>14</sup> The results of these evaluations usually are intended for other librarians or administrators rather than the staff, faculty, and students of an institution.<sup>15</sup>

The second type of value research includes assessments and evaluations concerning how students, faculty, and staff in colleges and universities use library collections, spaces, and services. Findings from these activities often are framed in terms of value that only concern libraries. For example, the number of items checked out can be tracked year-to-year and included in an evaluative report as one indicator of the library’s worth<sup>16</sup> based on the assumption that if the items are checked out, they support the mission and goals of the institution for teaching, learning, and research. Librarians also can attempt to increase the number of checkouts through better marketing or buying materials that library users may be more interested in, and then assess those efforts via checkout volumes over time.<sup>17</sup> These results can be and often are reported to librarians within or external to the institution. The reports often are shared with a wider internal audience that includes students, administrators, as well as an external group who may look at these numbers and believe that the library is valuable because it provides materials that people check out. The emphasis on collections can be difficult because of shared collections and shared storage facilities, as well as the availability of online content.

The third type of value research includes assessments and evaluations of how those outside the library perceive and quantify the quality or value of library collections, spaces, and services.<sup>18</sup> The most common types of studies are user satisfaction and return on investment (ROI) studies. User satisfaction studies frequently use the LibQUAL+™ survey instrument to collect responses on library quality in three areas: affect of service, information control, and library as place. These areas were found to have statistical validity

and reliability over several iterations of the survey, which has been in development since the 1990s and used in thousands of libraries worldwide since 2000.<sup>19</sup> While there has been some criticism over what the LibQUAL+™ survey measures and how to interpret the findings, the results of the surveys have been used to aid in library strategic planning, general comparisons of library service perceptions among different groups of users, and benchmarking.<sup>20</sup> Survey results can be mixed with other data, such as funding and collection size data.<sup>21</sup> ROI studies quantify the economic costs of library collections, spaces, and services, and are the most common examples of how the library can be evaluated based on an external standard, which in this case is monetary value. These studies lend themselves to comparing libraries with other units in the academic institution and between institutions. While satisfaction, ROI, and other, similar studies consider the perspectives of those outside the libraries, they may not be as interesting or useful to those outside the library since they do not include user-centered goals or outcomes.

The fourth type of value research includes assessments and evaluations of how library collections, spaces, and services affect user-centered goals or outcomes.<sup>22</sup> For instance, the number of checkouts for each student may be tracked year-to-year and then compared to the grade-point averages (GPAs) of each student.<sup>23</sup> The results would frame the library's value in terms of how its collections may have had an impact on the student's GPA rather than the number of checkouts alone. Libraries also engage in benchmarking activities, such as information literacy instruction, linking these activities to student-centered learning and success. In the past few years, an increasing amount of the literature has focused on the significance of the library to students, faculty, and staff at the academic institution.<sup>24</sup> This increase is based on the overall growth in studies and other literature focusing on the themes of collaboration, communication, learning in college, success in college, and teaching support (see *Data Analysis* section).

#### Learning and Success

Learning and success are two student-centered outcomes prioritized by the ACRL RFP, which is entitled "Action-Oriented Research Agenda on Library Contributions to Student Learning and Success."<sup>25</sup> Like evaluation and assessment, learning and success are two distinct, yet related terms. The Oxford English Dictionary definition of learn is: "To acquire knowledge of a subject or matter; to receive instruction."<sup>26</sup> Students' demonstration of learning can be categorized in terms of the success of their performance. However, learning and success can be difficult to measure. As the International Encyclopedia of the Social Sciences explains:

The major preoccupation of students of learning has been with the experimental manipulation of a variety of variables in an effort to determine their lawful relationship to learned changes in behavior. As we shall see, it is easy to list variables that have powerful effects upon performance in the learning situation. What is not so easy is to determine with certainty whether the effect is upon learning or performance.<sup>27</sup>

In other words, it is difficult to tell if a university unit, such as the library, has affected the student's learning or the student's ability to perform well on a graded event or other indicator of success, such as their eligibility to graduate.

Not only are learning and success difficult to measure, but differentiating the terms also can be problematic. Sometimes one encompasses aspects of the other. For instance, Kuh, Kinzie, Schuh, and Whitt state that student success is "broadly defined to include satisfaction, persistence, and high levels of learning and personal development of the increasingly diverse students enrolling."<sup>28</sup> Another conceptualization puts one in the service of the other. An Advisory Group Member suggested that student learning is associated with attaining learning goals and objectives, and that student success is associated with programs to support attainment of those goals (Advisory Group Member LM13). A third conceptualization looks at the qualitative or quantitative measurability of the terms. Using that conceptualization, student success is defined as "quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation."<sup>29</sup> To maintain the distinction between these terms when coding and analyzing the selected documents and interviews, the team used the third definition to connect "Success in college" to more specific and objective outcomes. "Learning in college" denotes less specific and objective outcomes.

### Measuring Student Learning and Success Outside the Library

Student learning and success also prove difficult to measure outside the library. While a literature review and analysis on these topics are outside the scope of this project, a recent study of actions taken by other units or departments in higher education to influence student learning and success outcomes suggests that others are investigating this topic.<sup>30</sup> Although the study did not include the library, the library could easily contribute to the two most effective practices: supporting and/or collaborating with undergraduate research and creating or redistributing space to facilitate collaborative learning. Findings from the study indicated that actions taken to support and/or collaborate with undergraduate research positively affected critical thinking, attitudes towards literacy, inclination to inquire and lifelong learning, and intercultural effectiveness. Creating or redistributing space to facilitate collaborative learning positively affected critical thinking, inclination to inquire, lifelong learning, and intercultural effectiveness. In addition to giving more support or collaborating with the institutional departments or units that engage in these practices, librarians also can collaborate or learn from those that offer similar resources and services as libraries. Examples include:

1. *Writing centers/courses.* As indicated by the provost interviews, libraries have the potential to collaborate with other departments or units, such as writing centers, by sharing space (see *Provost Semi-structured Individual Interviews* section). A recent study on the influence of university writing centers on first-year students in a business seminar reported that there is relatively little research into the effectiveness of writing centers at universities.<sup>31</sup> This study used multiple quantitative methods and found that students who visited the writing center scored significantly higher than students who had not. Interestingly, this significant effect only applied to students who received higher grades. An earlier study used mixed methods to evaluate the effectiveness of a writing center course at a university.<sup>32</sup> While a survey of the students who took the course found it to be helpful, there was no significant difference in their grades, which the researchers concluded was an indicator that student evaluations were not appropriate measures of effectiveness. An earlier study compared the differences between remedial writing courses, a reportedly understudied service despite their widespread availability, at a community college to those offered at a research university using multiple qualitative methods.<sup>33</sup> The study findings suggested that various factors, such as the curriculum, pedagogy, and level of resources, such as access to tutors or full-time professors, affected student learning. These studies suggest that writing centers/courses are understudied, and that more recent studies are more likely to focus on student success and use multiple or mixed methods.
2. *Advising/tutoring consultations.* A library's reference service can be similar to consulting services, which also are provided by tutoring or advising/career services. Both departments connect students with resources and information. They also can contribute indirectly or directly to students' learning and success. However, evaluating the influence of activities, such as tutoring from one department, on learning and success can be difficult to isolate from similar support from other units.<sup>34</sup> A recent study of mathematics support at nine higher education institutes in Ireland found that students in a survey believed that mathematics supported their retention and other learning and success outcomes.<sup>35</sup> Qualitative analysis of open-ended survey questions also led to the development of themes related to this type of tutoring. Like many large-scale surveys, the individual respondents were anonymous. However, when looking at data in a single institution, it was common to link resources and activities to individual learning or success. A recent article describes ways to improve advising using technology and data analytics.<sup>36</sup> The author reports that "the collegiate advising system...is highly inefficient, error prone, expensive, and a source of ubiquitous student dissatisfaction", but that systems can be improved by utilizing data analytics, specifically by pulling individual student level data from a variety of sources.<sup>37</sup> This study, and the other quantitative studies of departmental/unit influence on student learning and success also suggest that other departments besides the library are comfortable with collecting this sort of data.
3. *Study abroad.* Study abroad programs were related significantly to intercultural effectiveness.<sup>38</sup> It could be a very effective collaborative effort for librarians to work with these programs, and libraries can contribute and collaborate with them because the students involved are a special type of distance student. Another similarity between research on study abroad and libraries is that community colleges are often under-represented, as noted in a recent study, which uses mixed methods to show that studying abroad positively affects learning and academic success.<sup>39</sup> Another

difficulty addressed by a study in this topic of research is what to do when the researcher does not have a control group, or a group that has not received the resources or services given to the group being studied.<sup>40</sup> The researcher used participant age to create two different groups, and because he found that this variable did not have an effect on participant's learning and other outcomes he concluded that studying abroad did have an effect. While the validity of the results can be debated, this study does indicate that others working in the higher education environment are facing challenges similar to those experienced by librarians.

In order to further investigate the topic of measuring student learning and success outcomes outside the library, questions were added to the provost interview protocol asking how all academic units or departments reporting to them measured and articulated their contributions to student learning and success outcomes (see *Appendix C*).

#### Relevant ACRL Documents

In addition to the relevant literature areas outlined above, the ACRL RFP specified several of its publications as key documents for review.<sup>41</sup> The project team read these documents before responding to the RFP, which led to the suggested methods as noted in the RFP proposal.<sup>42</sup> A qualitative analysis of themes in the key documents from the RFP led to the formation of two initial codebooks (see *Appendix D* for the codebooks). The definition of a codebook, as well as its purpose, is described in more detail in the subsequent *Data Collection* section. Three of these publications are summarized below to exemplify how these codes emerged.

ACRL's 2010 *Value of Academic Libraries* report provides an overview of how academic librarians articulate value to higher education stakeholders and identifies ten areas of library value. Areas informing the codebooks 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 to engage in higher education assessment initiatives.<sup>43</sup> 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's walls.

Based on these recommendations, ACRL created an action-oriented project, AiA, which built a community of practice around assessment among more than two hundred higher education institutions.<sup>44</sup> Findings from the shared assessment methodologies and tools informing the codebooks 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, as well as collaborative instructional activities, instructional games, and multiple instruction sessions, to student outcome measures.<sup>45</sup>

To capture the broader, higher education context of assessment, ACRL regularly completes an environmental scan in odd years<sup>46</sup> and identifies trends in higher education in even years.<sup>47</sup> The 2015 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.<sup>48</sup> These areas are mirrored in the "2016 Top Trends in Academic Libraries" report, particularly the importance of the library in supporting digital scholarship. The report also explains how information literacy assessment has changed to include contributions to student and institutional-level outcomes--the fourth type of value research outlined in the previous section, *Assessment and Evaluation Literature*.<sup>49</sup> As with the prior resources addressed in the literature review, these identified areas informed development of the initial codebooks, and are discussed in greater detail in the *Methods* section.

As mentioned at the beginning of the *Literature Review*, the areas identified in this review informed the following data collection methods, which will be discussed next: 1) review of the literature on how library services and resources may influence student learning and success published since 2010; 2) the development of an Advisory Group of academic librarians at diverse institutions in the US to participate in



focus group interviews and to provide feedback on the project; and 3) semi-structured individual interviews with provosts at the same institutions as the Advisory Group Librarians.

### **Methods**

Defined as “any procedure employed to attain a certain end,” a method is used to characterize a research-related goal or goals.<sup>50</sup> The premise of this report is to: 1) determine the ways that libraries align with and have impact on institutional effectiveness, and 2) determine how librarians can best communicate their service alignment with and impact on institutional effectiveness in a way that resonates with higher education stakeholders. A review of the LIS and higher education literature published on these topics within the past five years and interviews with library administrators and representatives from academic provost offices are the data collection and analysis methods used for the initial project activities. A series of criteria used to select relevant LIS and higher education research was developed and a focus group interview and semi-structured individual interviews were conducted and analyzed. Selection criteria for documents include: indexed by LIS and/or higher education databases or identified by the research team (e.g., ACRL AiA studies, Ithaka S+R surveys), published since 2010, contained themes identified in the 2010 *VAL Report*,<sup>51</sup> and published in the US, except for studies outside the US deemed relevant by the research team

Both qualitative and quantitative methods, or mixed methods, were used for the data collection and analysis. The use of mixed methods provides a way of viewing and analyzing the data using different analytical lenses, rather than one lens alone and can serve as a checks and balance of the data collection and analysis methods as well as the findings.<sup>52</sup> The following section is an overview of the mixed methods data collection tools used for the three data sources: LIS and higher education literature, a focus group interview, and semi-structured individual interviews.

### **Data Collection**

#### **Selected LIS and Higher Education Literature**

The team performed a search in both LIS and higher education databases for literature that aligned with the project themes identified in the RFP. 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). Selected higher education databases were Academic Search Premier, Education Resources Information Center (ERIC), ProQuest Education Journals, and Teacher Reference Center. Papers included in the Association of Research Libraries (ARL) Library Assessment Conference (LAC), AiA studies, and reports published by Ithaka S+R also were included in the analysis. Search delimiters narrowed the results to studies published since 2010, containing themes identified in the 2010 *VAL Report*,<sup>53</sup> and published in the US, except for studies outside the US deemed relevant by the project team

The retrieved documents were reviewed based on their alignment with the project research outcomes and questions, and documents were added and removed accordingly. Therefore, the literature review does not represent an exhaustive review of all assessment and evaluation literature, but rather only literature pertaining to student outcomes, libraries, and higher education. A total of 535 documents were added to the report bibliography (see *Appendix E*) and designated as either theoretical (31%, n=166) or research (69%, n=369). Documents coded as theoretical include literature reviews, discussions of a theoretical model or framework, or thought pieces that identify a higher education trend or a library response to that trend on specific library collections, spaces, and services or a combination of these. Such non-study pieces represented what LIS and higher education professionals addressed as emerging and/or important areas to examine. The documents coded as research involve some type of data collection and analysis for measuring outcomes or answering practical or empirical questions and identify a higher education trend or a library response to that trend. The research category includes all AiA studies that have been completed and are accessible from the AiA project page website – a total of 178 studies.<sup>54</sup>

#### **Focus Group Interviews**

To ensure that the findings from this report resonate with professional librarians and administrators in higher education, an Advisory Group was created. The members are academic library administrators from fourteen institutions that include community colleges (n=2), four-year colleges (n=2), and research universities

(n=10) from secular (n=11), non-secular (n=3), public (n=9), and private (n=5) institutions representing the four geographical regions of the US. Eleven Advisory Group members (the other three members have been asked to provide written responses to the focus group protocol; responses are forthcoming) addressed the research questions via an online focus group interview, which was conducted on Tuesday, October 11th from 1:00pm-2:30pm EST.

The focus group interview was conducted virtually using WebEx conference software and audio from the meeting was recorded and transcribed. This conference software enabled both audio and visual, meaning that team members could see non-verbal behaviors, such as facial expressions. The purpose of a focus group interview is “to explore in depth the feelings and beliefs people hold and to learn how these feelings shape overt behavior,”<sup>55</sup> first by beginning with broad discussion and gradually winnowing down to the core research focus.<sup>56</sup> Focus group interviews can be used for multiple purposes; those most relevant to this project are to “examine known research questions from the participants’ perspective”<sup>57</sup> and obtain “participants’ interpretations of results from earlier studies,” namely from the literature review portion of the study.<sup>58</sup> To this end, findings from initial analysis of the literature review themes were used to structure focus group questions. Project lead, Connaway, moderated the focus group interview and ensured that participation was equitable, desired themes were addressed, and the session ended on time. While an interview protocol was developed for the focus group interview (see *Appendix B*), Connaway used the protocol as a guide to engender a free flow of discussion around core themes identified in the ACRL documents and by the literature review.<sup>59</sup> The audio of the focus group interview was then sent to an outside agency for transcription.

The Advisory Group members who are attending the American Library Association (ALA) 2017 Midwinter Conference in Atlanta, GA in January will participate in one of two brainstorming sessions. The sessions will provide an opportunity for the Advisory Group members to discuss this initial report and to expand upon the identified Priority Areas for the research agenda and suggest other possible Priority Areas not identified in the data collection and analysis of the selected LIS and higher education literature or the interviews with Advisory Group members and the representatives from their institutions’ provost offices. Results of the brainstorming sessions will be used to further define the research agenda and reported in the final project report due May 2017.

### **Semi-Structured Individual Interviews**

Like focus group interviews, semi-structured individual interviews constitute another method intended to elicit in-depth information from individuals who are knowledgeable about a specific subject.<sup>60</sup> Semi-structured individual interviews were conducted by three team members with provosts from each of the Advisory Group member’s institutions. Unlike a focus group interview environment, where the intent is to engender conversation among participants conducive to group input and discussion, the provost interviews were conducted to learn about each individual’s ideas and thoughts on the academic library’s contribution to the institution and on the future of higher education. The interviews were semi-structured, meaning that control of the interview was shared between the interviewer (one of the project team members) and the provosts. In this way, the provosts could re-direct some of the interview topics as desired and the interviewer could probe in areas of interest.<sup>61</sup>

Between the time periods of Friday, November 4th through Friday, November 11th, three team members conducted telephone interviews with fourteen provosts. Two team members interviewed five provosts and one interviewed four. Like the focus group interviews, findings from the literature review informed the development of the provost semi-structured individual interview protocol (see *Appendix C* for the provost interview protocol). On average, interviews were forty-five minutes, with the shortest interview taking twenty minutes and the longest sixty minutes. The interviewers took notes during the interviews and the interviews were audio recorded digitally and sent to an outside agency for transcription. The recording quality of five interviews was not sufficient for transcription so the notes were used to code and analyze these interviews.

### **Data Analysis**

Once the three data sources (i.e., relevant literature, Advisory Group member focus group interview transcript, provost semi-structured individual interview transcripts) were collected, it was necessary to develop a system to describe the context of each data source, as well as to compare the data sources. To

make this comparison, a standard way to describe the data, referred to as “coding,” was developed. Once cods were applied, the team members were able to search for and identify patterns among and between the data sources, referred to as “post hoc analysis.” This section reviews both phases of data analysis.

### Coding

As stated by Connaway and Radford, “To organize and analyze the data collected for a study, it is necessary to place them in categories.”<sup>62</sup> An initial identification of categories occurred before the data collection, when the team reviewed relevant ACRL documents to identify important categories, or themes (see *Relevant ACRL Documents* section).<sup>63</sup> Based on these documents, a codebook was developed to document the themes, definitions were included for each theme, and examples were provided for each theme.<sup>64</sup>

After the documents for the literature review were identified and reviewed, the original codebook was divided into two separate codebooks. The first codebook includes the theme coding scheme, which included the categories identified within the ACRL documents identified in the ACRL RFP and was used to code and analyze all three data sources. The second codebook, which contained the research document characteristics, was applied to the LIS and higher education documents identified as research (see *Selected LIS and Higher Education Literature* section). These codes captured information only found in research documents, including information about the populations studied (type of institution, group studied) and methods used, which can be referred to as the demographic characteristics of the documents. These codes were collected to make the studies more accessible and findable when using the visualization tool the team will develop during a later project stage.

As mentioned above, student learning and success are two distinct terms. When developing the coding scheme, it was decided that any library collection, space, or service objectively tied to a specific grade or outcome was coded as “success.” In this case, objectively means that the variables are measurable. If the library collection, space, or service did not have a measured or measurable effect on the student or their success, then it was coded as “learning.”

Table 1 depicts sample entries from the project theme codebook, which was applied to all three data sources, while Table 2 depicts sample entries from the research document characteristics codebook, which only was applied to the literature review research documents. Refer to *Appendix D* for full versions of both codebooks.

**Table 1. Excerpt from theme codebook**

<i>Higher education trend</i>	<i>Trend defined</i>	<i>Example of library responses to trend</i>
Learning in college (and beyond)	Outcome is focused on the less objective concepts of learning, such as critical thinking. These encompass the outcomes not covered by the Success in college theme, which are “quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation.” <sup>65</sup> Usually not tied to a specific graded assignment or graduation. For more information, please see the discussion on Learning and Success in this report’s literature review section.	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 is focused on the more objective indicators of learning, or	Collections: Physical collections

	“quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation.” <sup>66</sup> These tended to be linked to a specific assignment/semester, such as grades/GPA. It could also be related to whether the student re-enrolled or graduated. For more information, please see the discussion on Learning and Success in this report’s literature review section.	Collections: Digital collections Space: Study spaces Service: Library instruction Service: Collection discovery
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**Table 2. Excerpt from research document characteristics codebook**

<i>Code name</i>	<i>Code definition</i>	<i>Values</i>
Analysis method – Qualitative	How the data were analyzed via qualitative methods.	Content analysis; Other
Analysis method – Quantitative	How the data were analyzed via quantitative methods.	ANOVA; Regression; X2; Descriptive statistics; Correlation; Other

Once the two codebooks were developed, used for coding a sample of the documents, and revised, the three data sources (i.e., documents from the literature review, focus group interview transcript, provost interview transcripts) were imported into NVivo, a qualitative research environment that facilitates the maintenance and application of codes across various data sources.<sup>67</sup> Specifically, NVivo allows coders to highlight sections of text and label these sections with the relevant codes from the codebook that describe it. If a code is renamed or deleted, the change will be updated in NVivo in all sections of the data in which the code had been applied. NVivo also keeps track of the number of times a code is applied and to which data sources the code has been applied. This information was used to complete post hoc data analysis, discussed in the following section.

Another useful feature of NVivo is its ability to determine if team members agreed with one another when labeling sections of text, and the degree of this agreement. Since it is important to ensure codes not be subjectively assigned, multiple team members engaged in coding and measuring the agreement of this coding, which is referred to as “inter-coder reliability.”<sup>68</sup> For each of the three data sources, at least two project team members coded 20% of the data using the thematic codes. For instance, if a data source was ten pages, the team coded two pages of text. Twenty percent of all the literature review documents coded as research also were coded using the research document characteristics codebook. The codes were reviewed, coding discrepancies were discussed, the codebooks were revised to reflect the changes (e.g., making a definition more specific), and the inter-coder reliability for the research document characteristics coding was calculated at 95% agreement and 99% agreement for the theme coding. The coding of the two team members was compared to a third team member’s coding, again discussing any coding discrepancies and revising the codebook to reflect changes. Following this discussion, the team attained 100% agreement for both coding schemes on 20% of the documents. Two team members coded the remainder of the documents. During this latter phase of coding, team members also labeled certain sections of the data as being “juicy quotes,” which are particularly interesting or notable statements. Use of juicy quotes “brings the research to life and enables the reader to hear the participant’s voice, which adds validity to the findings.”<sup>69</sup> Another team member then reviewed the codes, amending them as necessary based on the codebooks.

### **Descriptive Statistics and Post Hoc Analysis**

All three data sources (i.e., selected literature, librarian administrator focus group interview, and provost semi-structured individual interviews) were coded and each data source was divided per its respective unit of analysis. The units of analysis dictate the “what” or “who” that is being studied or quantified,<sup>70</sup> and were

chosen to be the document, the group interview transcript, and the provost interview transcript for the three data sources, respectively. For each selected document, the team was concerned with whether a code was applied or not, not how many times the code was applied. This decision allowed the team to see what themes were being discussed frequently and less frequently across the literature. For provost and focus group interviews, the team was concerned with how many times each theme was discussed, rather than whether a theme was discussed or not. This decision was made given the small sample size of both focus group and semi-structured interview participants. Based on the selected units of analysis, the team was therefore able to determine the number of documents that discussed each theme and the number of times focus group and semi-structured interview participants discussed each theme. To compare how often themes were discussed by each data source, the team took the total number of themes coded for each data source and divided them by the number of times each theme was coded, otherwise known as the proportion of themes assigned across each data source.

Within each data source, the team also calculated basic descriptive statistics (e.g., mean, median, mode, and standard deviation). This process broadly summarized and described the data, giving the team insight when deriving the findings. Post hoc analysis techniques were also used to search for trends and patterns within the three coded data sources. Such techniques allowed for additional findings and discoveries beyond what could be uncovered using descriptive statistics.<sup>71</sup> The three post hoc techniques used in this report are:

1. *Linear regression.* To observe and assess trends related to how the proportion of themes coded in the selected documents changed over time. Linear regression (line fitting) was applied and coupled with significance testing via F-tests. By measuring the goodness of fit of a statistically significant linear model to the proportion data and considering the slope of the resulting model, prevalence of a theme could be assessed over time as increasing (positive slope), decreasing (negative slope), or stable (roughly zero slope).
2. *Two-proportion z-tests.* To identify significant differences between the proportions of times that codes were applied among the three data sources. Two-proportion z-tests<sup>72</sup> are ideal for making this determination, as they compare two groups (here, data sources) sampled from separate, independent populations (e.g., from focus group interviews, from a literature search). Some online resources provide examples as well as Microsoft Excel workbooks containing formulas and worksheets for performing z-tests.<sup>73</sup> In the Findings section, we use a significance level of  $\alpha = 0.01$  (equivalently,  $p < 0.01$ ) to identify statistically significant differences in proportions. While the p-value is useful in determining whether differences exist between a proportion of codes applied to each data source, it is not the only measure that can be used, and it does not indicate the degree of difference (effect size) or the likelihood of differences occurring (probability). P-values, therefore, should be viewed as indicators that observations are “on the right track.” In this analysis, reporting p-values was used to bolster the observation of differences in proportions of each code among the three document sources.
3. *Benjamini-Hochberg procedure.* To ensure that the differences found between the proportions of times that codes were applied among the three data sources were sound. Post hoc analysis must accommodate for multiple comparisons, as the chances of making false discoveries increases with each hypothesis test. The Benjamini-Hochberg procedure was applied to p-values prior to significance testing to adjust for false-discovery rates.<sup>74</sup>

The *Findings* section includes an independent examination of the expressed codes for each data source to identify the emerging themes. The differences between the codes of each data source also are addressed.

## Findings

This section examines key findings from analysis of three data sources, i.e., selected LIS and higher education literature, the focus group interview transcript, and provost interview transcripts. These key findings include:

- *The selected literature focused on service, collaboration, and learning in college.* Institutional planning was discussed more in theoretical documents than the research documents, which signifies that librarians and researchers are not addressing this key theme in their work. Documents from the higher education literature examined service less than those within the LIS literature,

suggesting a disproportionate focus on this theme among librarians and LIS researchers. The AiA studies were compared to the non-AiA studies, finding that the former sampled from more varied populations and used mixed methods more frequently than non-AiA studies. AiA studies focused more on collaboration, communication, and instruction than non-AiA ones. However, these were all requirements of the AiA projects.

- *Focus group interview participants, who are library administrators, prioritized service, collaboration, and communication.* Like the AiA studies, participants also addressed collaboration and communication. However, participants contextualized the need to link both collaboration and communication to the institutional mission of the university, rather than isolate both themes within the library.
- *Provosts valued communication and institutional planning.* Provosts' valuing communication aligns with the priorities of the AiA studies and library administrator focus group participants, however provosts discussed institutional planning to a greater degree than these other data sources. Specifically, provosts further emphasized the importance of librarians communicating how the library contributes to institutional goals by marketing, customer service, and sharing space with other groups, both on and off campus.

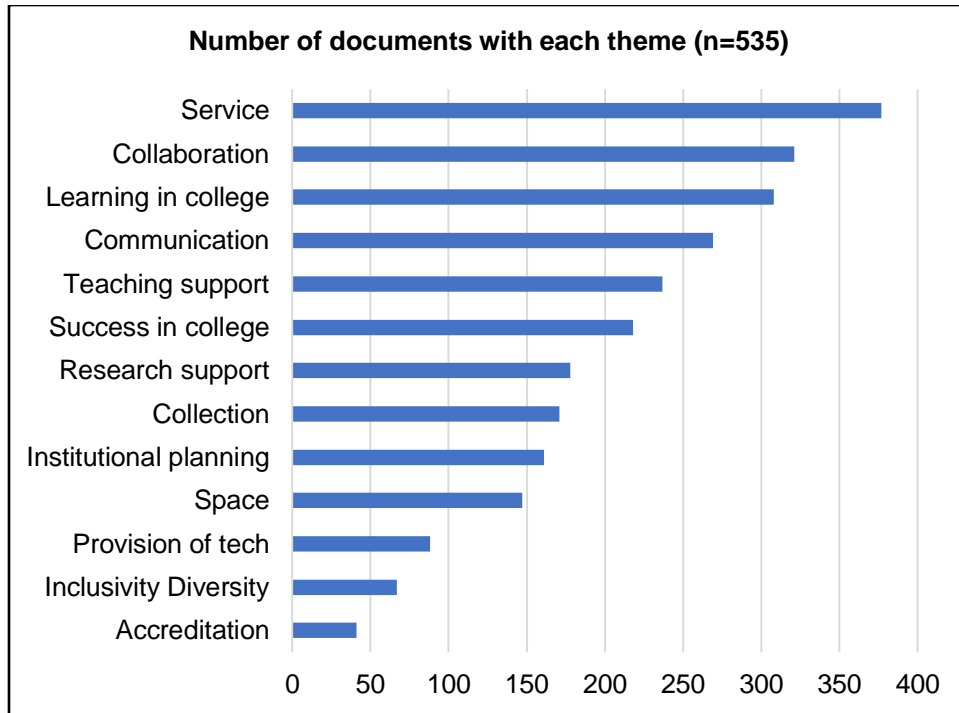
The empirical basis for these findings is discussed below in more detail.

#### Selected LIS and Higher Education Literature

As stated in the *Data Collection* section, a total of 535 documents were coded using the theme codebook (see *Appendix D* for the theme codebook for a list of all theme codes). Figures 1 and 2 depict the number of documents with each theme. On average, a code was applied to 37% of the documents (n=199). Themes that are more than one standard deviation (+/- 19%, n=102) from the mean indicate some of the themes most and least frequently discussed by the literature. Themes most discussed are: service (n=377, 70%), collaboration (n=321, 60%), and learning in college (n=308, 58%). Those least discussed are: provision of technology (n=88, 16%), inclusivity/diversity (n=67, 13%), and accreditation (n=41, 8%).

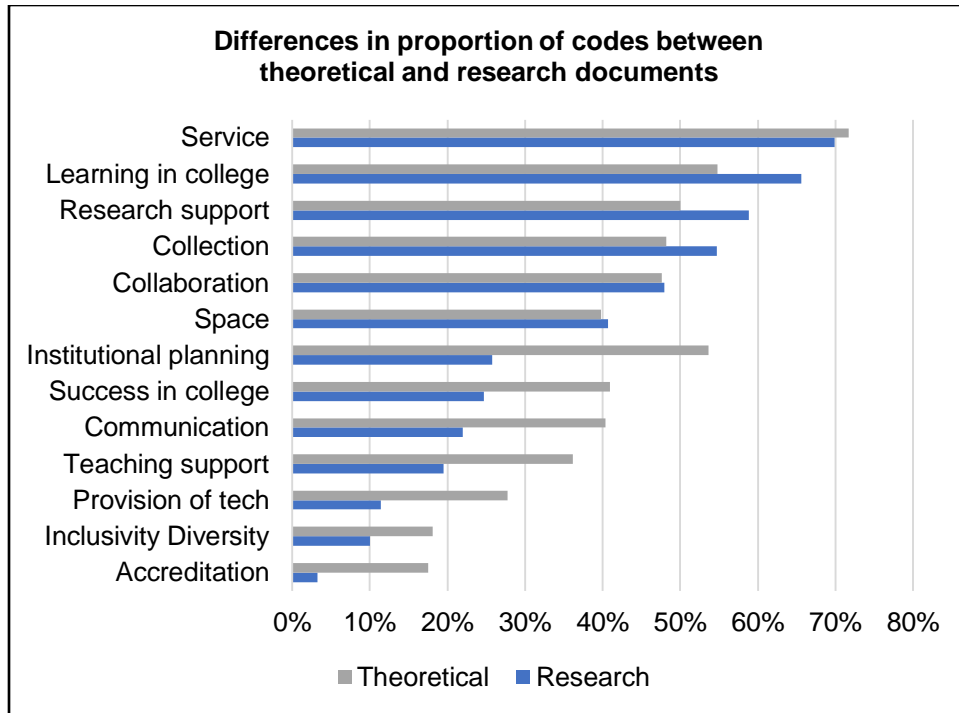


**Figure 1:** A WordCloud depicting the number of documents coded as each theme.



**Figure 2:** A histogram depicting the number of documents coded as each theme.

Next, a comparison of the frequency of codes was performed based on whether a document was coded as theoretical, representing an area or areas identified as important to focus on by librarians and researchers and supported by prior research (e.g., literature reviews), or research, indicating both empirical and action, or practical research. An overlap between the frequency of codes applied to theoretical and research documents indicates that librarians and researchers are addressing significant themes within higher education, whereas little to no overlap indicates that what librarians and researchers are articulating *should be* done differs from what *is* done. Since research documents (68%, n=369) outnumber theoretical documents (32%, n=166), their proportions were compared. This comparison is depicted by Figure 3.



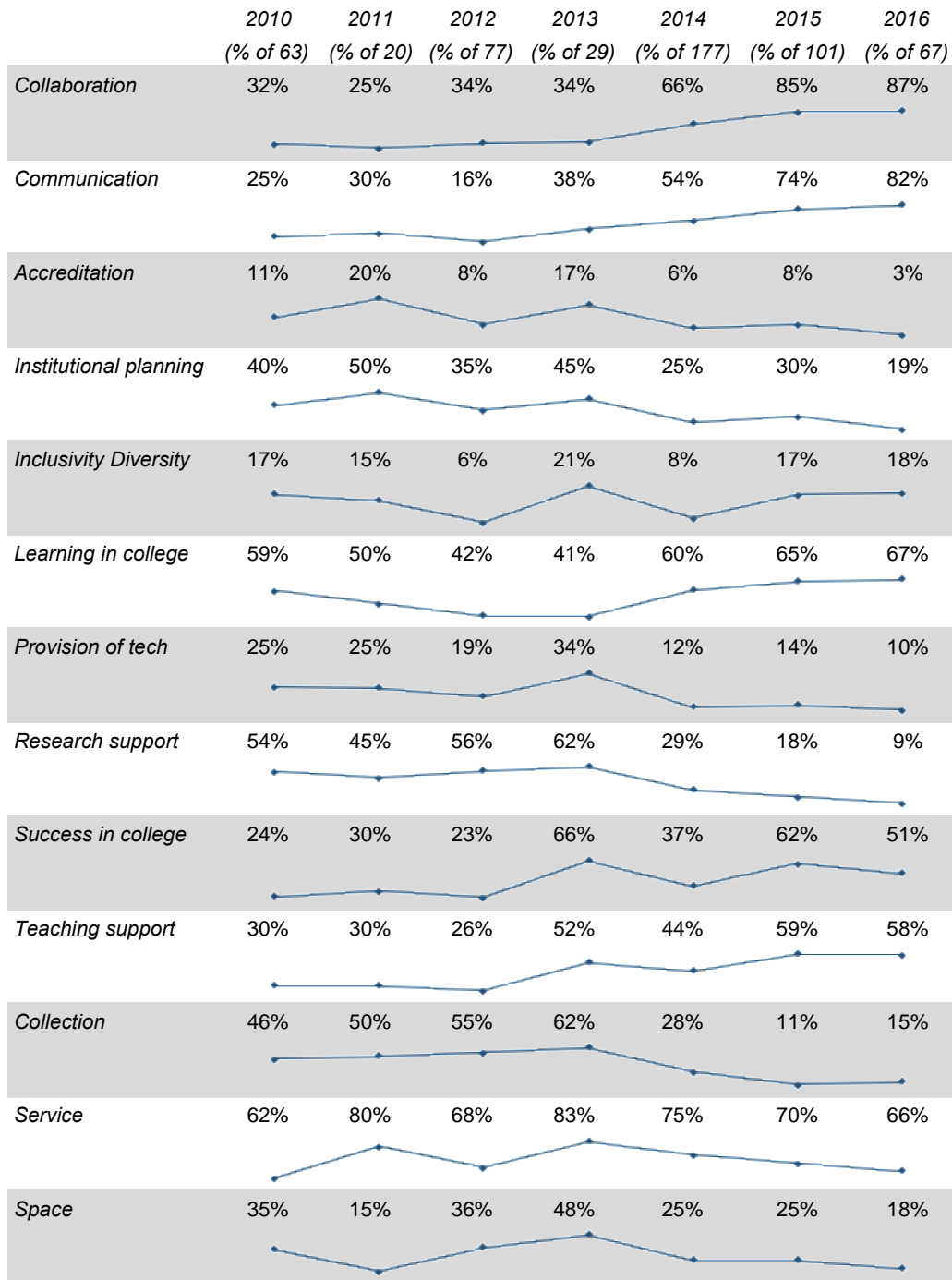
**Figure 3:** Differences between the percentage of codes applied to theoretical compared to research documents.

On average, theoretical documents contain 7% more codes than research documents. This observation may be explained by the fact that theoretical documents include literature reviews and predictions of future trends. Therefore, discussing one document will include more themes as compared to a research document, which empirically investigates one or two themes. Institutional planning is discussed 28% more in theoretical documents than in research documents and is more than one standard deviation of difference from the mean (+/- 12%).

The team also wanted to determine if the proportion of themes applied changed over time. Table 3 depicts the proportion of themes coded by year. Themes discussed more over time are: collaboration, communication, and teaching support. There were a few themes that experienced a significant decrease in the proportion of codes applied over time, however the p-value determining their significance was higher ( $p < 0.05$ ). This indicates that while these themes still were very likely to trend downward over time, there is less evidence for this observation as compared to those themes that increased over time. Themes that appeared to decrease over time are: institutional planning, research support, and collection.

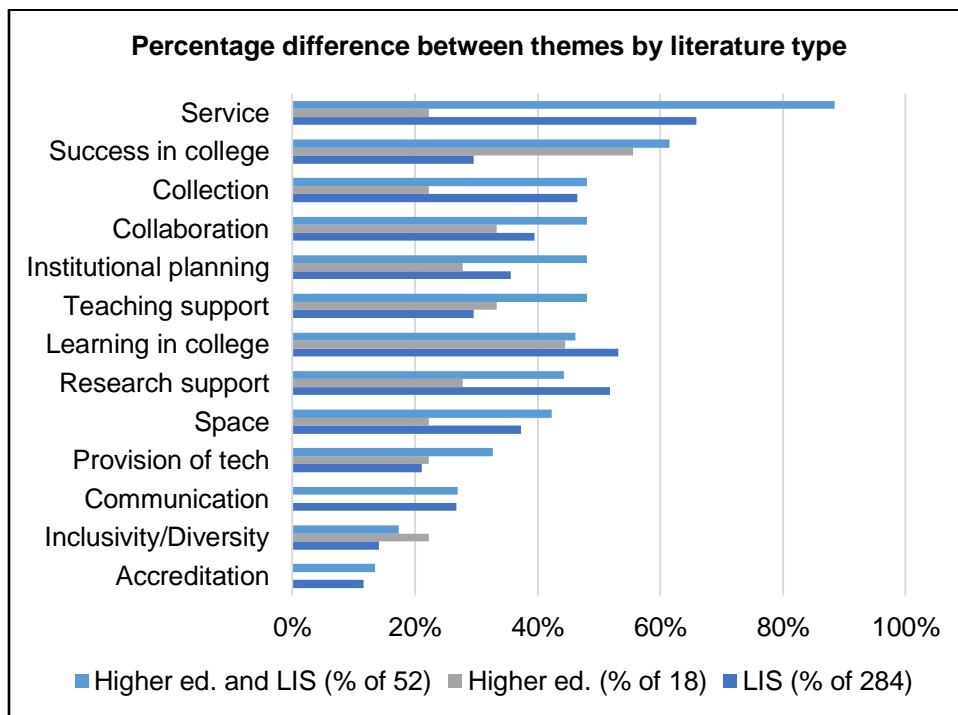


**Table 3. Proportion of themes coded over time**



Following this comparison of literature review documents by type (theoretical or research) and year, the differences in proportion of themes discussed in documents from the higher education literature versus the LIS literature were compared. It should be noted that the search terms used for the database searches included the word “library” and its derivatives. For this reason, this comparison only can inform of differences in the proportion of themes between what is being said about student learning outcomes as *related to libraries* within the higher education literature versus the LIS literature, not student learning outcomes in general.

Documents labeled as higher education literature were those retrieved from higher education databases that were not indexed by LIS databases and reports from Ithaka S+R. For this reason, a total of 354 documents of the total 535 documents (66%) were reviewed when making this comparison given that the team retrieved documents for review that were not indexed by databases (e.g., AiA studies). Five percent of documents were designated as higher education literature (n=18). Fifteen percent (n=52) were designated as both higher education and LIS literature since they were indexed by both databases. The remainder of the documents (n=284, 80%) were from LIS literature. Figure 4 illustrates the percent difference between themes coded in the higher education literature, the LIS literature, or both the higher education and LIS literature.



**Figure 4:** Percentage of documents coded by theme, divided by whether each is from the higher education literature, the LIS literature, or both.

Higher education literature has less documents coded for service (22%, n=4) as compared to LIS documents (66%, n=187) and higher education and LIS literature combined (88%, n=46). The LIS documents have less codes for success in college (30%, n=84) as compared to higher education and LIS literature combined (62%, n=32).

#### Analysis of Studies within the Selected Literature Review

Along with the theme codes, the research document characteristics codes were applied to documents coded as research, about 68% (n=369) of all documents. These latter codes provide more insight into the study details.

Per the selection criteria for the selected literature review, the studies mostly were conducted in the US (79%, n=290) and distributed evenly throughout the four regions: South (22%, n=83), Midwest (22%, n=80), West (18%, n=65), and Northeast (17%, n=62). The majority examined universities (72%, n=266), followed by colleges (11%, n=39), and community colleges (7%, n=27). Fourteen percent (n=51) of studies spanned multiple institutions. Most institutions were in the public sector (67%, n=227). Populations studied were graduate students (41%, n=151), undergraduates (39%, n=143), and other groups, such as faculty (27%, n=98).

In defining methods for this project as “Any procedure employed to attain a certain end,” methods are the specific actions and/or tools employed during data collection and analysis.<sup>75</sup> The most popular data

collection methods were quantitative (79%, n=292), specifically surveys (41%, n=151) and rubrics (28%, n=102). Qualitative methods were less used (28%, n=102) with the most popular method being interviews (18%, n=65). The most popular data analysis methods also were quantitative (86%, n=316), most of which used correlations (52%, n=191) and descriptive statistics (37%, n=136). Qualitative analysis methods also were used (71%, n=262) with content analysis being overwhelmingly employed (69%, n=254).

Research approaches are defined as “plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation.” These approaches fit into three categories: qualitative, quantitative, and mixed methods.<sup>76</sup> The quantitative approach was most often used (92%, n=338), followed by qualitative (73%, n=271), and mixed method (67%, n=246). Many studies also employed multiple methods (80%, n=296). See *Appendix A* for a glossary of definitions over-viewing the difference between mixed and multiple methods.

Given that the data collection and analysis of this report has proceeded iteratively, literature has been added for review based on comments by the ACRL board and other valued stakeholders. One significant addition from prior drafts was the addition of 178 AiA studies. The findings from analysis of these studies have been folded into all prior discussion of selected documents, except for the discussion of theoretical documents (all AiA studies were labeled as research documents) and when comparing documents retrieved from LIS databases to those from higher education ones. In examining the findings before and after this addition, it was noted that some key themes and study demographics that AiA studies addressed were not prevalently identified in non-AiA studies. These differences are now highlighted.

### **Differences in AiA Studies Versus Non-AiA Studies**

The AiA program was developed through a collaborative planning grant, which involved “senior librarians, chief academic administrators, and institutional researchers.”<sup>77</sup> Participation in the program required librarians to collaborate with at least two team members outside of the library. AiA studies all are within the US except for six in Canada, whereas 11% (n=40) of non-AiA studies collected are outside the US. This latter finding can be attributed to the selection criteria of literature reviewed for this project, which emphasized studies within the US, with a few exceptions from Australia and the UK. AiA studies are more evenly dispersed throughout the four areas of the US (Northeast, 25%, n=43; West, 20%, n=34; Midwest, 28%, n=48; South, 26%, n=45) as compared to non-AiA studies, which are less representative of the Northeast (9%, n=19).

In terms of the populations studied, by both institution type and group focused on within the institution (e.g., undergraduates), AiA studies focus more on community colleges (6%, n=22) and colleges (8%, n=31) than non-AiA studies (1%, n=5; 2%, n=8, respectively). AiA studies also focus more on private institutions (18%, n=67) than non-AiA studies (8%, n=30). Both study types primarily examine universities (non-AiA, 38%, n=141; AiA, 34%, n=125). Regarding the groups studied, AiA studies focus less on undergraduates. Thirty-three percent (n=120) of non-AiA studies examine undergraduates, while six percent (n=23) of AiA studies do. Instead, AiA studies have a more evenly dispersed focus in the study of graduates, undergraduates, and other populations.

In the analysis of theme coding, AiA studies focus more on communication (48%, n=178) and collaboration (48%, n=178) than non-AiA studies (25%, n=91; 39%, n=143). On the other hand, AiA studies focus less on space (4%, n=13) and research support (1%, n=2) than non-AiA studies (36%, n=134; 48%, n=176). Since all AiA studies were conducted between 2014 and 2016, AiA studies likely account for the observed increase in the focus on communication and collaboration, and the decrease of focus on research support over time. Although AiA studies focus more on collaboration than non-AiA studies, the latter are more collaborative across institutions, with 24% (n=50) of non-AiA studies conducted at multiple institutions, as compared to only 1% (n=1) of AiA studies.

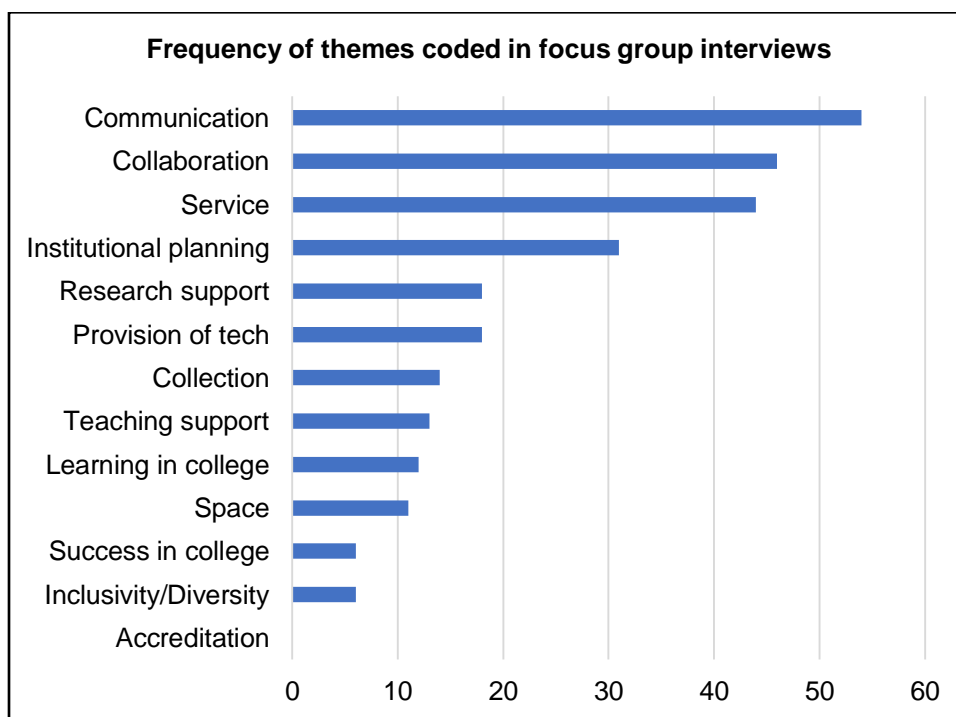
In terms of types of library responses studied, AiA studies focus much more on instruction as a library service (37%, n=135) than non-AiA studies (17%, n=64). This observation plays out when examining quantitative data collection methods used, with AiA studies more often employing rubrics (22%, n=82) to assess instructional effectiveness than non-AiA studies (5%, n=20). Regarding methods in general, AiA studies experience a heightened use of quantitative data collection methods (53%, n=195) versus non-AiA

studies (26%, n=97), whereas non-AiA studies employ more qualitative data collection methods (20%, n=74) than AiA studies (8%, n=28). Both types of studies emphasize quantitative data analysis, but the type of analysis employed varies. Specifically, 37% (n=165) of non-AiA studies employ descriptive statistics as a quantitative data analysis method, whereas no AiA studies coded use this analysis method. Instead, 45% (n=166) of AiA studies employ correlations whereas 7% (n=25) of non-AiA studies do. AiA studies also demonstrate a heightened use of mixed methods (45%, n=166) as compared to non-AiA studies (22%, n=80). See *Appendix A* for a glossary of definitions overviewing the difference between mixed and multiple methods.

As previously discussed, the themes of collaboration and communication were addressed more frequently in the AiA studies than in the non-AiA studies. These themes also were addressed by the focus group participants in this project.

#### Focus Group Interviews

Figure 5 depicts the frequency of themes coded within the focus group interview transcript of the Advisory Group members of this project. On average, a theme was coded 21 times (8%) within the transcript. Themes more than one standard deviation away from the mean (+/- 6%, n=17), representing those most or least discussed by focus group participants are: communication (20%, n=54), collaboration (17%, n=46), and service (16%, n=44), all frequently discussed, and accreditation (0%, n=0), which was not addressed.



**Figure 5:** Frequency of themes coded in focus group interviews.

On first pass, it may be surprising that the focus group interview participants did not discuss student learning (4%, n=12) and success (2%, n=6), compared to how often these themes are mentioned in the literature (learning, 58%, n=308; success, 41%, n=218). However, as explained by one participant:

I think probably each of us would have some example of our shared strategic initiatives around enhancing students' success. And promoting innovation and teaching and learning. I think those are probably common across all of our institutions. I think what's underlying all of this is that all of us see our work as directly tied to the mission of the university. And it is what makes academic libraries unique in some ways, but also so successful that academic libraries, in my personal opinion, are those that are directly connected to the mission of their unique institution (Advisory Group Member LM13).

As perceived by this participant, the library's role in enhancing student learning and success is perceived by librarians to be inherent to the mission of the academic library. This participant felt that solely being concerned with fulfilling library-oriented goals would detract from the effect they would be able to have at the university level. This observation may be explained by the fact that the participants are administrators in their academic libraries, therefore their focus is to be strategic and targeted on high-level library goals. It also likely accounts for why themes that implied making connections and establishing relationships outside of the library--collaboration and communication--were among those most frequently discussed (communication, 20%, n=54; collaboration, 17%, n=46).

However, making such connections is not as simple as having a conversation with one specific group or implementing the same strategies to make connections across various ones. Rather the type of outreach beyond the library necessary for its success relates to recognizing and adapting to the unique "ecosystem" of relationships within the specific institution (Advisory Group Member LM14). As stated by the following participant:

There's one other thing I was uh, when I was sitting here thinking about every, a lot of what's come out is that we're not islands, not that we ever were, but I think part of our success in reaching to students and faculty is the way we collaborate with others....one thing I will say is I think it needs to be sort of multi-level communication from the provost to those relationships you have with other units like the centers for teaching and learning to the academic units to the individual relationships that, that librarians and staff have with faculty and students. You know, all of those levels reinforce each other, and any alone doesn't quite work as well. (Advisory Group Member LM03)

As indicated by this participant, establishing multi-level communication requires collaboration. Specifically, librarians must recognize how the multiple stakeholders within their specific university ecosystem interrelate and leverage their relationships to attain "shared goals," rather than just library-oriented ones (Advisory Group Member LM07). Some examples of how focus group interview participants achieved successful collaborations that resulted in communicating value are:

- Partnering with departments to support university-required student research projects by offering instructional courses, publishing research in a student-run journal and institutional repository, and hosting relevant campus events, such as research competitions (Advisory Group Members LM06)
- Inviting campus meetings and gatherings to take place in the library building, which increases visibility of the library's space and services among administrators (Advisory Group Members LM08)
- Working with the student government association to advocate to the administration on the library's behalf (Advisory Group Member LM01)
- Partnering with faculty members to institute an embedded librarians program, which results in the former advocating on the latter's behalf (Advisory Group Member LM12)
- Establishing a marketing communication program that considers the best approaches to engage different user groups, e.g., using social media to market to students (Advisory Group Member LM09)
- Completing a two-year pilot study with grant funding to build use of special collections materials into course curriculum, using the feedback from faculty and staff to make a case to the provost to continue the program (Advisory Group Member LM01)
- Examining the learning goals and influential practices articulated by other departments to see where potential synergies are present (Advisory Group Member LM07)
- Collaborating with the career office to articulate library effects with student learning outcomes (Advisory Group Member LM07)

A common thread throughout these examples is that the library's alignment with institutional planning and communication of value not only pertains to the library, but also captures how the library is integrated within the larger university system. As stated by a focus group interview participant, when considering the library and librarians as "university citizens" (Advisory Group Member LM13), "it is easier to capture the senior leadership attention, because what they see is the library as a partner in the academic enterprise, helping

other units to achieve these goals that at the highest level have been identified” (Advisory Group Member LM07). It also should be noted that the library response to engendering collaboration and communication efforts was service-based (16%, n=44), rather than collections (5%, n=14) or space (4%, n=11).

Privacy only was mentioned once, but is an important area of exploration. This topic is particularly fraught in the areas of assessment and academic libraries since there is a lack of established best practices and standards addressing the methods and contexts that may threaten the privacy of students.<sup>78</sup> For this reason, privacy, when broadly defined, can be viewed by librarians in some instances as less of an ethics issue and more of an impediment, as articulated by the following participant:

I think that in order to really truly be able to look at, and be able to tell those stories, and to come up with those snippets of information that will resonate with other leaders, we have to be willing to do types of data collection that libraries have shied away from in the past. And I think that involves tracking user behavior in a way that we've seen in a couple of the different studies that have looked at retention. But I think that there are ways of extrapolating and growing that out a little bit more so that we are dealing with large datasets, and we could...We could still keep it anonymous when we look at it in aggregate, right? I think that we have to be able to be willing to have conversations on campus about tracking user behavior in ways that libraries just haven't done. (Advisory Group Member LM14)

This is in stark contrast to the level of detail that would be available with some of the data dashboards mentioned by three of the provosts in the semi-structured individual interviews that are discussed in detail in the following section of this report. As one provost explained:

We're creating dashboards that's institutional, programmatic and... course level. And, you know, having an intervention assigned to each...You know, each department will have its own interventions to increase, you know, basically numbers that are associated with completion. Umm, and we'll keep track of those through uh, software program what else, that is available to me as well as everybody, you know, at different levels with different permissions. So that'll probably roll out January. (Provost Interviewee PP12)

Although arguments for using individual level data have been made and in some cases put into practice, certain dashboards can anonymize data or only make it available to specific levels.<sup>79</sup> The University of Wollongong and University of Minnesota are highlighted as two exemplar cases because they have successfully navigated the line between privacy/confidentiality and using individual level data. Unfortunately, because the provosts were not asked direct questions about privacy, future research may need to address how those involved in assessment outside the library handle this topic, and what practices and norms have been established.

Some of the themes addressed in the focus group interviews also were discussed by provosts. However, provosts also emphasized how these themes could be integrated with the themes of institutional planning and space, which will now be overviewed.

#### Provost Semi-Structured Individual Interviews

Figure 6 depicts how frequently themes were discussed in the provost semi-structured individual interviews. On average, a theme was coded 88 times (8%) across all provost interview transcripts. Themes that have frequencies more than one standard deviation (+/- 1%, n=53) from the mean indicate those considered most and least important to provosts interviewed. Those considered important to provosts are: communication (17%, n=199) and institutional planning (14%, n=159). Accreditation, on the other hand, was not discussed frequently by provosts (2%, n=18).

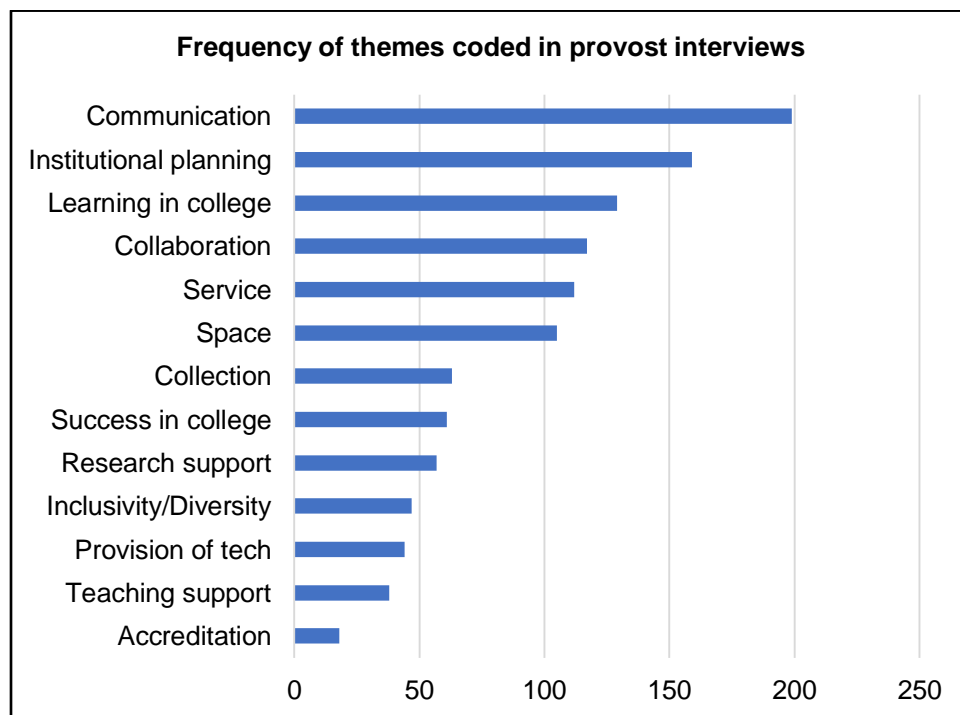
One key observation made by provosts is the difficulty faced by librarians in getting the attention of potential users and stakeholders. In some cases, the provosts themselves do not perceive the library as relevant to immediate needs. One provost stated, “The library is viewed as a service body. People communicate with them when they need to” (Provost Interviewee PP13). Other provosts recognized the value of the library,

but recognized the challenges it faces in dispelling “myths” that others hold about it. As stated by one provost:

The big myth since I, I think I mentioned earlier, is that, that many faculty don't engage with the library, because they feel that, "Well, the library's online." Right? Students can access everything from a distance. (Provost Interviewee PP04)

To demonstrate value, this provost contended that the library needs to communicate its importance. However, communication is not viewed by the provost to be significant in and of itself. This point is exemplified by the following anecdote from the same provost of a “not helpful” communication strategy:

Uh we, a number of years ago, before I started, and I started here in this position in September so...Of 2015. Been here over a year. Uh, there was some agreement and I don't know how this came about but to buy huge TV screens. They're big ones. Like, I don't know. I can't tell you. They're just huge. And put them in our library umm, as a means of sharing information for students. And so they're inter--interactive screens. Uh, so what...You know, what resources are available to students and, and then it also advertises other things going on on-campus. Like award winners and that sort of thing. Well, we've got 'em by the main entrance of these libraries and I have yet to see a single student interested in those things. [chuckle] Okay? So these passive forms of communication are not helpful. Umm, I would say another email is not helpful. Even a newsletter that's, you know, beautiful, by email, probably not helpful. (Provost Interviewee PP04)



**Figure 6:** Frequency of themes coded in provost interviews.

Instead of such passive communication, librarians need to become good at “customer service” (Provost Interviewee PP07). It instills buy in from other campus stakeholders, who can become the library’s “champions,” “boosters,” and “prophets” (Provost Interviewee PP02). As noted by one provost:

So I think the key for units like the library, since they are dependent upon the deans, whether it's for special things or just in that general sort of central cost pool assessment, they have to be able to sell to the deans that this is something valuable that the deans want to be a part of, and the deans are going to be impacted by their faculty feeling like that this is a worthy thing because if we

use money for one thing, we can't use it for something else. So I think customer service...becomes really important in this kind of environment. (Provost Interviewee PP07)

To fulfill this role, provosts suggest the importance of collaborating with faculty and students, such as introducing a liaison program. As conveyed by one provost, it is very important for libraries to "establish themselves as a critical link or a critical piece" early on by having "intentional interventions" (e.g., in orientations, by going to classes or convincing instructors to bring classes to the libraries, online or on campus) (Provost Interviewee PP05). The goal of the library should be to go beyond its role as "a service body" and instead be integrated into the lives of its potential users (Provost Interviewee PP13). As stated by one provost:

I think that for so long they've had sort of a role of support rather than integration into work, and I think with the new leadership and the new vision that it is much more of a partnership rather than just sort of a support as needed, so it's much more proactive in its orientation rather than reactive. And I think that culture change is somewhat, it takes time. I think that not everyone recognizes because the way many of our faculty and students have done research now, it's less about going to a physical space but accessing information in their offices...And so trying to imagine a new way in which it's not just a service model, but it's actually an integration and partnership model, I think that that is one of the challenges of...changing the paradigm. (Provost Interviewee PP03)

One of the ways librarians can collaborate with potential users is by sharing space with them. As indicated by Figure 6, provosts discussed space often. For instance, the provost who previously shared a "not helpful" anecdote regarding how librarians should communicate (see previous page; Provost Interviewee PP04), went on to discuss the strongest ways for the library to communicate its value, noting:

...A library has so many resources to help with the mission of the university...But you have to woo in faculty and students and staff...the space is important...(Provost Interviewee PP04)

But space cannot be limited to supporting library collections or services, as stated by the following provost:

...If the library gets into turf protection, it's gonna lose...it's gonna look and feel like sort of the, the stereotypical, antiquated repository of knowledge with dusty books that nobody ever pulls off the shelves. (Provost Interviewee PP01)

Instead, provosts want librarians to collaborate with others in using space. This can be achieved in several ways, from offering space in the library to a writing center to hosting a museum with artifacts of interest to those within and outside the university. For provosts, being able to see the library space being used by those outside of the library leaves an impression of the library as "a hub of student learning" (Provost Interviewee PP03). Per one provost:

I think is one of the... Is you know, is one of the most effective ways to get the message out. You know, so that also then, might involve as an example, umm, making meeting rooms in the library more generally available for people to come and do projects. Umm, you know, creating that the library as this sort of center of intellectual activity. (Provost Interviewee PP09)

Yet communication and collaboration do not occur in a vacuum. Instead, they complement institutional planning. Namely, if the library actively is assessing services, systems, spaces, etc. participating in institutional planning, then they are naturally having to communicate and collaborate with the administrators and faculty on a regular basis. Provosts indicate that communication and collaboration-based efforts on part of the library must be tied to the larger institutional mission to sell them to higher education administrators: "...if, if it can help a university-wide initiative, that's gonna be helpful. So find out what the provost is very interested in, and then, try to, to find a way that the library can help, help support that initiative" (Provost Interviewee PP04). One provost provided a rich, detailed anecdote concerning the importance of the library linking communication and collaboration efforts to the institutional mission:



We are a science and technology university. There is no way on God's green earth that our faculty are ever gonna leave the peer review journal conference proceedings world. And yet we've got a couple of very bright, very interesting, very cool young library faculty, who when you talk to them, you can tell that like they, they have no idea who their audience is here. They have very exciting ideas. But, you know, the kinda stuff they're interested in, and they're kind of wondering why they don't get more response and that sort of thing, this is just not the kinda institution where they're gonna get a lot of response. And, and so, then you get into this kind of weird situation where you've got these incredibly bright people who are out there, uh, talking to other librarians about ideas that are very important to librarians, and that librarians on... As a body, agree, are important. But the engineers don't think it's important. Umm, and the biologists don't think it's important because they're all still very much grounded in the standard grants, peer review publication, citation count. And so, for me, in that kind of a situation, what's, you know, what's compelling is not, "You should be interested in open-source because it's [A] a moral good [B] we get to stick it to the evil publication company," you know. Those are... That's like... But that's not what's compelling. What's compelling is, "Did you know that on average, faculty members who post the early version of their papers in their university's repository see a 15% increase in their citations?" (Provost Interviewee PP09)

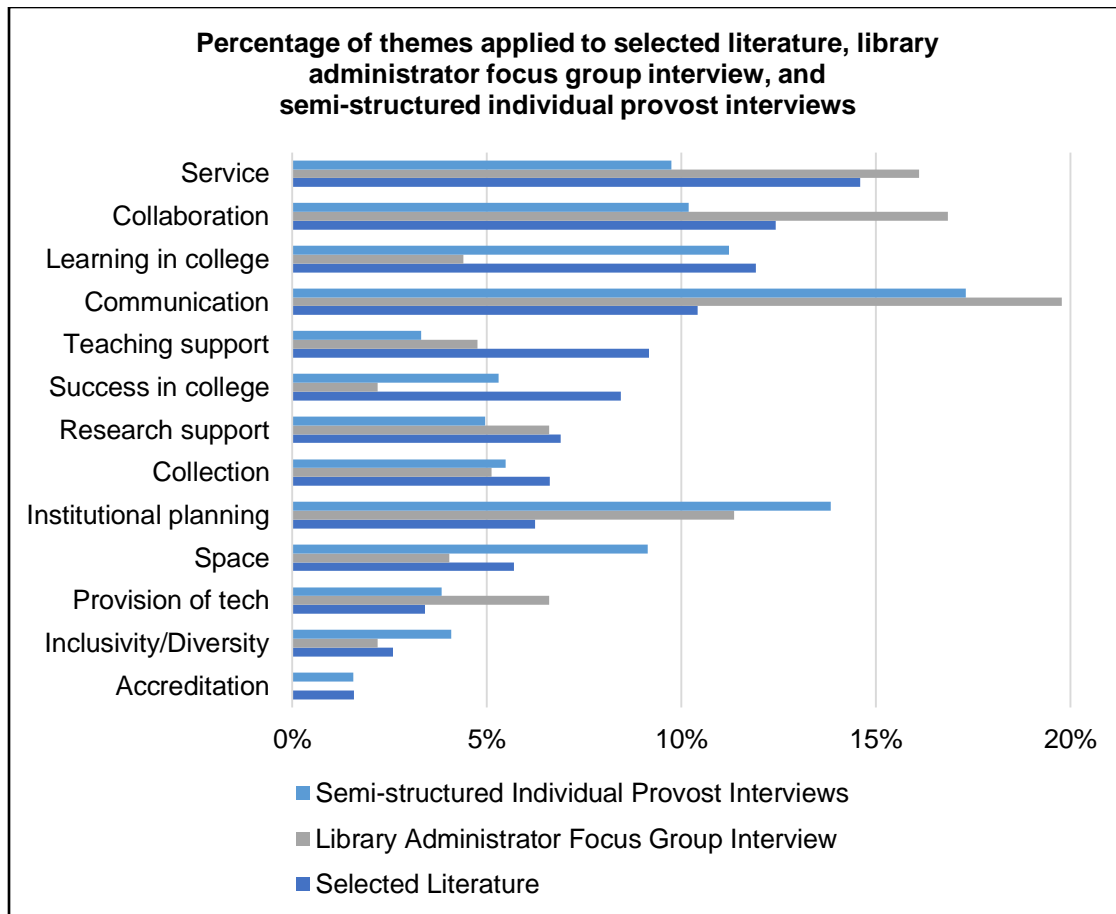
However, this provost's account, especially her conclusion, should not be interpreted as provosts emphasizing direct outcomes as indicators of library value. Provosts recognized that the influence of the library often is indirect, which has been suggested in older literature, as exemplified by the following quote and supported by their discussion of learning in college (16%, n=44):<sup>80</sup>

One thing librarians are great at is collecting metrics on what they're doing, and who's using this and that and so forth, and then trying to get... Adjust their services to meet, umm, the development and demands and so forth. You know, the problem, of course, is that there's a lot of, uh, less tangible kinds of benefits that the library brings to a campus, in terms of being a place where people, uh, meet to exchange ideas, and to develop projects, and things like that, umm, and... And use the resources in less visible ways, umm, than can always be tracked by, umm, these kinds of use metrics. (Provost Interviewee PP02)

Rather than librarians concerning themselves with whether an impact is direct or indirect, they should instead connect these impacts strategically to the overarching institutional mission (Provost Interviewee PP14). This finding also was reflected in the focus group interview.

#### Comparing Three Data Sources

Figure 7 compares the percentage of themes across all three data sources: review of selected higher education and LIS documents, focus group transcript, and provost semi-structured individual interview transcripts.



**Figure 7:** Percentage of themes coded compared across all three data sources.

When comparing all three data sources, some differences among the themes prevalent in each can be drawn. Literature review documents discussed success in college more than library administrator focus group interview or provost semi-structured individual interviews and communication less. Focus group interview participants discussed learning in college less than the selected literature documents and provost interviews. Provosts discussed space more than the participants of the focus group interview or in the selected literature and service less. Finally, documents from the selected literature discussed institutional planning less than the provosts in their individual interviews, whereas provosts focused less on teaching support than the selected literature.

### Discussion

The *Findings* section provided empirical evidence for the identification of themes important in the selected literature, to library administrators, and provosts, respectively, as well as for comparisons made between these data collection sources and within data sources (theoretical and research). The *Discussion* section summarizes what was identified in the data collection and analysis of the three data sources.

One of the first key findings is that librarians, as indicated both within the literature review and by the focus group interview participants, are concerned with service as an indicator of value. Funding for higher education has decreased overall since 2010 and it has affected academic library budgets.<sup>81</sup> Service might be focused because of stagnant or reduced funding since it can be a cost-effective library response. However, as suggested by comparing the higher education literature to the LIS literature, as well as discussed in the provost interviews, higher education stakeholders and administrators are not as concerned with service as librarians seem to be. Instead, as suggested by one provost's comment (see Provost Interviewee PP13 in previous section), viewing the library in terms of simply its services may not be an effective communicator of value.

As indicated by the frequency of themes coded in the provost interviews, space is considered an important library response by higher education administrators. However, based on the difference in frequency of space as discussed in the provost semi-structured individual interviews compared to the library administrators' focus group interview and the review of the selected LIS literature, space is not as important to librarians. Space might not be discussed by librarians because it may be associated with costs, such as renovations and additions. However, it also could be that librarians do not want to call attention to the amount of space allocated to libraries, especially if the space is dedicated to shelving for materials. Librarians may be involved in or wanting to not become involved in "turf wars," and are reticent to share their space with groups outside the library.

Such reticence needs to be eschewed by librarians, as the collaborative sharing of space with outside groups (i.e., those within the institution but not part of the library, those external to the institution, such as the community) was a theme frequently addressed by provosts. An effective way to communicate value to provosts is for them to see how various groups are being served by the library, which is reflected by their use of space.<sup>82</sup> This value also might be considered more important with the increase of distance learning, as noted by the following provost:

Well I think space, you know, for one thing. If we're talking about distance, but it could be a fantastic umm, you know, place to... Especially on-campus students who want to gather together. Okay? So this is my biggest concern, is that the students aren't coming together. Uh, the library can be that place, that nexus, where, you know, the crossroads where students can come uh, to study together, you know. So, yes, everything's posted online and they, you know, they can do this alone, but there's a hunger within our undergraduate student population at least to, to actually socialize. And I think the library can... Has always been that crossroads for campuses. It could serve in this capacity, pulling students together. (Provost Interviewee PP04)

While this same provost was the only one to mention virtual space this is an area that should be considered and addressed, especially as online learning offerings increase. Libraries are working to support distance students, but their efforts are often not assessed.<sup>83</sup>

While librarians do not consider collaboration in relation to space, they do consider it an important theme, as indicated in both the selected literature review, particularly within the AiA studies and focus group interview. However, findings from the provost interviews indicate that institutional planning also needs to be considered. Specifically, librarians need to connect collaboration, as well as communication, to institutional planning outcomes.<sup>84</sup> Institutional planning is addressed more in thematic pieces from the literature review and is important to provosts; it is less frequently addressed in studies from the literature review and by librarian administrators in the focus group interview. This observation supports the argument that in theory librarians and researchers recognize the importance of institutional planning within higher education, but they do not address it in practice. This may be attributed to librarians' disconnection to institutional planning initiatives, such as accreditation, which was only discussed in a few pieces of relevant literature. However, librarians need to market and link their service offerings to the institutional mission. Hopefully, this linkage will be made stronger, as conveyed by the analysis of the selected literature review documents, suggesting the increase of the theme's frequency within the literature over time.

The way that libraries can make this link seems to be contextually-bound because of their dependency on the mission and goals unique to their institution. The importance of context in shaping how librarians communicate value is exemplified by the following provost account:

There's not one specific thing a library can do, because the environments are so different. Umm, but I think, umm, you know, thinking of how these new learning environments work, and how the library would enhance students' and faculty's ability to access and process knowledge, data information, umm, in those particular kinds of environment, then that... That's... That's what libraries need to do to be successful. (Provost Interviewee PP02)

Aside from being abreast of context by linking library value to the mission and goals of one's specific institution, librarians also need to consider the contextual nature of their relationships with higher education administrators.<sup>85</sup> As conveyed by one focus group participant:

I think one of the challenges, uh, uh, of building relationships, umm, is, if you look at like the average tenure of a provost or another chief academic officer, which is something, it's less than five years. So sometimes you're, you're fostering relationships, umm, umm, that maybe key relationships that, that you know are gonna make change over the time when you've established these relationships. Umm, we had a plan, umm, a year ago to, umm, build out a model for successful tutoring center that included peer tutoring. Umm, we have one in our science library and we're gonna do a more across campus one, but they, umm, those plans had to get set aside while there are some changes in, in, in the president in the chancellor, umm, that kind of, umm, put, we had to put them to the side until things settled down at the upper level. So I think being able to work in an environment where, where you're gonna be prepared to, umm, umm, learn to... To forge a relationship with new players, and to wait for those times when that idea that you had laid the ground work for previously, uh, you can start laying that ground work again when you have new players in some of those positions. (Advisory Group Member LM06)

If not already aware of the challenges associated with higher education funding, librarians should become more aware of and involved in the broader landscape of higher education funding.<sup>86</sup> The nature of this environment has become more obtuse with the results of the recent presidential election and it is generally unknown among provosts (who were interviewed both before and after the election results), how it may influence funding. As stated by one provost:

The election yesterday, and I think that the...The...Trump winning the presidency may further call into question, uh, higher ed., uh, expenses and value and so forth, and that, again, had really brought impacts on us. Umm, the one thing that's happening in the industry is that people are... Because of making that challenge...that challenge is...Hits places like us that want to have a... A research piece and a teaching piece. Umm, apparently, it's an art, uh, because people do not un...Understand the role of research in a...In a university and, you know, there'd be all kinds of cries for more efficiency. And then by "efficiency," they mean, umm, faculty teaching more students. And the more students they're teaching, the less research they're gonna do. So that's a really simple equation. (Provost Interviewee PP02)

So far, this discussion has touched on some important themes that librarians need to address when demonstrating value, namely, institutional planning, space, communication, and collaboration. Per evidence from both the focus group and semi-structured individual interviews, these latter three categories must reflect the institutional planning theme by keying into the institutional mission. The library can align itself with institutional goals and the institutional mission by focusing on the lack of awareness at the institutional level of the new approaches to library assessment and evaluation within the LIS field.

As conveyed by other reviews of the assessment and evaluation literature, librarians perceive a demand to link value-based initiatives to direct outcomes.<sup>87</sup> As indicated by the analysis of the AiA studies, librarians are aware of and open to the potential for integrating more varied data points, as indicated by heightened use of mixed and multiple methods, and measures, e.g., correlation, to demonstrate this value. This finding also is supported by the account from Advisory Group Member LM14 on page 22.

In this account, the library administrator recognizes emergent methods to capture direct outcomes and demonstrate the library's effect on student learning and success. However, there appears to be a lack of awareness at the institutional level regarding these methods and the library's ability to employ them. Consider the following quote from the provost at the library administrator's institution, "We have never linked anything happening in the library to retention or graduation rates as we have done with the academic unit. We assume there are indirect effects" (Provost Interviewee PP14).

One implication of this provost's lack of awareness of how and what student-centered outcomes librarians can capture is the importance of communicating with provosts, such as by having face-to-face meetings.

However, this strategy may not be feasible to those outside of library administration. For this reason, another strategy that librarians can utilize is to focus on the institutional mission and goals, e.g., inclusivity and diversity, that are most important to the institutions' administration, and to determine appropriate library responses to those topics and ways to measure them.

Another way librarians can contend with context is by using mixed or multiple methods (see *Appendix A* for the explanations of these terms). As discussed in the *Methods* section, mixed methods are the use of both quantitative and qualitative methods. For instance, the research design for this study employed mixed methods by engaging in qualitative data collection (selected literature review and semi-structured individual interviews), qualitative analysis (content analysis), and quantitative analysis (basic and inferential statistics). It also employed multiple methods, also referred to as triangulation, which is defined as the use of two or more methods for data analysis and collection.<sup>88</sup> The benefit of using mixed and/or multiple methods is that the validity of the observations being made is strengthened.<sup>89</sup> Within the context of provost interviews and observations previously made, the use of mixed and/or multiple methods also addresses the multifaceted context that influences how higher education administrators view and interpret different outcome measures. The AiA studies provide some exemplars for how to use mixed and/or multiple methods, as these studies disproportionately employ these approaches when compared to non-AiA studies.

Other positive attributes of AiA studies is that they focus on space as an important theme, reflecting the importance attributed to this theme by provosts. These studies also include a variety of populations both in terms of institutions (more diverse geographical locations, institution types, and sector affiliations when compared to non-AiA studies) and groups (more diverse in terms of studying undergraduates, graduates, and other groups). Like using multiple methods, collecting data from varying populations also enhances the observations that can be made, and provides contextually-based examples to others who may wish to study a specific population. However, all academic library studies can benefit from collaborating across institutions. Such collaboration can further enhance study findings by rendering them more generalizable across populations. These collaborations can be achieved within consortia by not only collaborating in collection development and shared collections, but also by collaborating on curriculum design or co-teaching courses, sharing research data and teaching materials, and fostering joint research and communication-based projects that demonstrate library value.

The discussion of the findings identified in the project data collection and analysis have informed the identification of exemplar studies for aligning with and impacting student learning and success with institutional goals and objectives. The findings also have aided the development of Priority Areas for further research, which will provide the framework for the research agenda.

### **Priority Areas for Future Research and Best Practices**

The Priority Areas for future research are based on the findings of the selected literature review, the library administrator focus group interview, and the provost semi-structured individual interviews. These Priority Areas intentionally are broad to foster discussion and input from academic librarians and to include more specific research questions within each Priority Area. After the identification of and justification for the Priority Areas for future research, each Priority Area and corresponding exemplar cases is briefly summarized.

#### **Identifying the Priority Areas**

The most important factor for identifying the Priority Areas was to discover which themes occurred most frequently in each data source (see table 4). The RFP specifically stated that the project would "Begin with a high level look at the trends in higher education that concern academic librarians in the broader context of academia and identify current academic library responses to the trends," which is why these trends were included as themes in the codebook.<sup>90</sup> However, individual library responses, such as information literacy instruction and data analytics were not included in the codebook. Therefore, it should be noted that while library response (collection, service, space) was coded as a theme, these codes were not included within the count of the top five themes since each Priority Area addresses a theme across all three responses. Six themes were included because the RFP requested 5-10 examples, and the project proposal specified that "5-10 exemplar cases [would] be categorized by the trends and themes, context, level of effort and impact, populations studied, effectiveness, etc., as identified in the literature."<sup>91</sup> Identifying six initial Priority

Areas also allows other themes to be suggested through Advisory Group and other stakeholder feedback. Table 4 denotes how five of the six total Priority Areas were identified – by examining the most frequently coded themes.

**Table 4: Top Five themes per data source**

<i>Selected literature</i>	<i>Library administrator focus group interview</i>	<i>Provost semi-structured individual interviews</i>
<ul style="list-style-type: none"> <li>• Collaboration (12%)</li> <li>• Learning in college (12%)</li> <li>• Communication (10%)</li> <li>• Teaching support (9%)</li> <li>• Success in college (8%)</li> </ul>	<ul style="list-style-type: none"> <li>• Communication (20%)</li> <li>• Collaboration (17%)</li> <li>• Institutional planning (11%)</li> <li>• Research support (7%)</li> <li>• Provision of tech (7%)</li> </ul>	<ul style="list-style-type: none"> <li>• Communication (17%)</li> <li>• Institutional planning (14%)</li> <li>• Learning in college (11%)</li> <li>• Collaboration (10%)</li> <li>• Success in college (5%)</li> </ul>

Across all three data sources, the most frequently coded themes were communication, collaboration, institutional planning, learning in college, and success in college. Another area that was not included as a theme code, but is important for academic libraries to consider when evaluating how the library affects student learning and success, is learning analytics. The importance of this topic, and especially how it relates to privacy, was mentioned in the feedback for the initial report draft, and by recent ACRL initiatives, such as the Learning Analytics e-Learning webcast series and ARL’s Statistics Data Analytics.<sup>92</sup> Based on the most frequently coded themes, feedback, and ACRL initiatives, the Priority Areas are:

1. Communication
2. Collaboration
3. Institutional planning
4. Learning in college
5. Success in college
6. Learning analytics

#### Identifying Exemplar Cases

In addition to identifying the Priority Areas, the report’s RFP also asked for an identification of best practices. However, based on feedback from the Advisory Group, the team has decided that identifying exemplar cases, or success stories, would be more helpful in suggesting innovative ways to align with and impact student-centered outcomes, as well as communicate this impact to higher education stakeholders. The exemplar cases will be included in the visualization component of the project so that librarians, researchers, and students will be able to select exemplar studies based on the document characteristics of interest to them (e.g., exemplar studies assessing student learning taking place in community colleges). The visualization component includes a “web-based visualization dashboard to help librarians filter the existing literature for studies relevant to their research interests,” and more information and a mock-up are available in the proposal excerpt.<sup>93</sup>

As noted in the *Selected LIS and Higher Education Literature* section, there were 369 research documents coded in this project. To identify the studies that relate to the Priority Areas and that demonstrated exemplary designs and best practices, the studies were scored quantitatively. This provided a relatively simple and objective way to identify studies that covered a relatively wide range of higher education trends. To quantitatively score the 369 studies for consideration as exemplar, a method of assigning points to each study was developed. There were five categories each for which points were assigned. These categories are:

1. *Number of themes it incorporates (each theme = 1pt)*. Covering more themes is desirable since it indicates that the study was based on research, or at least knowledge, of what was going on in higher education.
2. *Context (community college = 1pt, multiple institutions = 2pts)*. Based on evidence from the literature review and feedback from Advisory Group members and the ACRL board, there exists a

lack of research in community colleges. For this reason, studies that took place in this type of institution were awarded a point. Studies between multiple institutions broadened the context of a finding and suggested that the study could be replicated at another institution, so these studies were awarded two points.

3. *Level of effort of data collection and analysis (mixed methods = 2pts, multiple methods = 1pt)*. Use of mixed and/or multiple methods strengthens the validity of a study's findings. Mixed methods are worth more than multiple methods since they employ qualitative and quantitative approaches.
4. *Level of impact (collaboration/communication/institutional planning/learning in college/success in college = 1pt)*. The level of impact includes whether the research document would resonate with those outside libraries. This translated into codes that involved interactions with those outside the library, specifically collaboration and communication, or evaluative standards from the institution and outside the library, specifically institutional planning, student learning, and student success.
5. *Population studied (inclusivity = 1pt)*. The RFP suggested that the Research Agenda and report include studies that "include[d] but [were] not limited to studies of defined populations (e.g., economically disadvantaged students, adult learners, or students who are the first in their families to attend college) in a manner that promotes equity mindedness and inclusive excellence."<sup>94</sup> The theme of inclusivity also came up in the provost interviews as a key strength of the libraries because all students were welcome there, and in many ways, the library spaces were neutral meeting grounds between various academic and institutional units.<sup>95</sup> Therefore, studies that were coded with the inclusivity theme also received a point.

Based on the results of the quantitative scoring method, as well as the qualitative criteria of how the research documents contributed to the Priority Areas and suggested Best Practices that could apply to future studies, one exemplar study for each Priority Area was selected.

### **Priority Area 1: Communication**

The importance of communication was identified in the RFP and in the project plan, and was one of the main reasons for the creation of the Advisory Group.<sup>96</sup> It provided the opportunity for library administrators to connect with provosts at their institutions and provide data on how librarians can communicate the value the library brings to the academic community. As a theme, its definition was: "Librarians communicate impact or other aspects of value with stakeholders." However, only three studies published since 2000 have looked at how administrators perceive the library and its collections, spaces, and services.<sup>97</sup> An earlier study from 2007 found that according to multiple administrators at six American universities, the library's symbolic role as the heart of the university was outweighed by its practical role, through which it needed to "connect what it does to the values and mission of the university."<sup>98</sup> A later study of nine Canadian provosts found that the participants most valued information access provided by the library and envisioned the library evolving into more of a learning space.<sup>99</sup> The study the team identified as exemplar is Fister's (2010) survey of 134 administrators, which covered the highest number of themes (n=11) and received the highest score of all the studies (17 points).<sup>100</sup>

*Best practice identified.* Communicate with those outside of the library and high in the institution's hierarchy because they can offer a bird's eye view of what the library should be doing and be advocates for and supporters of the library, if they feel invested in and a part of the library.

### **Priority Area 2: Collaboration**

Collaboration is an important theme because of the academic library's primary mission as a research and teaching support unit.<sup>101</sup> The AiA projects also explicitly required librarians to collaborate with at least two other people outside the libraries.<sup>102</sup> As a theme, its definition was: "Librarians work with other institutional departments to influence student outcomes or with other institutions." The 2015 study by Hess, Greer, Lombardo, and Lim at Oakland University Libraries is exemplary because it documents the libraries' efforts to collaborate with other departments in support of student success and persistence.<sup>103</sup> Their documented and suggested collaborations cover a wide range of services and collections. Another notable collaboration was between Wolfe, who is an Assistant Professor in the Behavioral and Social Sciences at Hostos Community College (CUNY), who published the results of a study that incorporated information literacy into a class assignment in a higher education journal, and was one of the highest scoring research documents from the higher education databases.<sup>104</sup>

*Best practices identified:* Understand that there are different types and levels of collaboration, and consider looking at literature from other related fields to see what they say about libraries and similar issues that libraries are or may face. Work with academic administrators, academic services, faculty, students, alumni, and other members of the regional and local communities.

### **Priority Area 3: Institutional Planning**

The definition for this theme was: “Institutionally-identified student outcomes (can be co-coded with learning and success).” It appeared in the top five themes in the Advisory Group’s focus group interview and the provosts’ semi-structured individual interviews, but it was the seventh most common theme in the literature. Moreover, there was a statistically significant difference in the number it was reported in theoretical documents compared to research documents, which means that it likely is being discussed more than being empirically tested. Lombard’s 2012 study at Gannon University had a short write up, but was exemplar in several ways, which led to its relatively high score.<sup>105</sup> First, it looked at the library’s influence on recruitment, which has been studied in higher education research documents addressing student outcomes, but rarely appears in library research documents. The data collection method also was interesting because the survey was posted on various non-library online spaces, meaning that it may have tapped into those who do not use the library. It also collected and analyzed qualitative data from interviews with fourteen admissions professionals from various institutions and, based on survey and interview findings, makes suggestions for ways librarians can collaborate with admissions departments.

*Best practices identified:* Go outside of the library to collect data and to suggest possible collaborations around common issues. Work with teaching and learning support services and directly with faculty and students to build a culture of assessment using both qualitative and quantitative data for collection, analysis, and reporting.

### **Priority Area 4: Learning in College**

The definition for this theme was: “Outcome was focused on the less objective concepts of learning, such as critical thinking. Usually not tied to a specific graded assignment or graduation.” In contrast with student success, the code was used for identifying the less tangible or indirect effect of the library on students. Brown-Sica’s 2013 study of space redesign at Auraria Library offers one way for various groups to provide multiple types of input and otherwise engage with the library.<sup>106</sup> The Auraria Library serves the University of Colorado Denver, the Metropolitan State College of Denver, and the Community College of Denver. Students were involved in all stages of the study, from formulating the questions to ask, analyzing the data, and offering suggestions based on the results. This study was a high scoring example of learning in college because although not tied to an objective outcome, such as student retention or GPA, this study gave students a voice in the project and facilitated unexpected collaborations with faculty. It also touched on library space, which was a library response that was mentioned by the provosts that was not mentioned as often by librarians.

*Best practice identified:* Engage with faculty and students for librarian inclusion in developing academic and everyday life support services for students. This best practice also builds on the Priority Areas communication and collaboration.

### **Priority Area 5: Success in College**

Success in college is defined as: “Outcome was focused on the more objective indicators of learning. These tended to be linked to a specific assignment/semester, such as grades/GPA. It could also be related to whether the student re-enrolled or graduated.” As mentioned earlier in the report, it is useful for librarians to collect individual-level data to document how the library affected student success. Soria, Fransen, and Nackerud’s 2013 study found empirical evidence that first-time, first-year undergraduate students who used the library were more likely to re-enroll for a second semester and to have higher GPAs than those who did not use the library at the thirteen library access points covered in the data collected.<sup>107</sup> While this study has one of the strongest findings empirically, it was not given as many points using the scoring system explained above as compared to the other exemplar studies described in this section. This lack of points rewarded illustrates the difficulty of setting evaluative criteria and suggests that additional exemplar studies should be solicited from Advisory Group members and other relevant stakeholders.



*Best practice identified:* Work with academic services and faculty to develop ethical collection and reporting methods for individual-level student data that retain individual privacy and confidentiality. Engage with faculty and students for librarian inclusion in developing academic and everyday life support services for students. This best practice also builds on the Priority Areas communication and collaboration.

### **Priority Area 6: Learning Analytics**

Although learning analytics did not have its own thematic code, it was identified as being an important area in documents such as ACRL's top trends in academic libraries and ACRL initiatives, such as the e-Learning Webcast Series on Learning Analytics.<sup>108</sup> Jantti and Heath's 2016 study describes the use of learning analytics at the University of Wollongong in Australia.<sup>109</sup> In addition to collecting library related data in a repository called the Library Cube, this library collects and analyzes more sources of institutional data than any other. These data sets come from course management software called Moodle, student administration, tutorials, and student support service usage data.

*Best practice identified:* Measure, collect, analyze and report "data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs."<sup>110</sup> Library data should be included in the volumes of data collected from multiple systems within the academic institution and statistically analyzed to predict student success.

These Priority Areas are the basis for the research agenda and the exemplar studies are the foundation for the identification of the data collection and analysis methods that can be used for addressing the research questions. Although these methods are systematic and grounded in research theory and practice, as with any project, there are limitations that must be addressed. These limitations indicate the conclusions that can be drawn from the project findings and those conclusions that cannot be drawn.

### **Limitations**

The limitations of the project can be divided into the areas of data collection and analysis. The data collection provides a US-centric perspective of issues related to library assessment and evaluation. The selection criteria for the literature mainly is focused on documents from the US and all Advisory Group members and provosts who were interviewed were from US institutions.

Another limitation in data collection relates to the selection of data sources. Selected LIS and higher education documents may be dated two or more years in terms of the relevant themes identified, especially the research documents, given the time it takes to complete a research project, write up the results, submit it for review for publication, have it accepted for publication, and the lag time between acceptance and publication. The literature disproportionately represents studies addressing public sector universities and/or institutions, as opposed to colleges and community colleges and/or institutions in the private sector. The selection of Advisory Group members, who also are the focus group interview participants, from a variety of institutions, with equal representation from all three institutional types and from both public and private sectors, and representation from secular and non-secular institutions, was intentional to provide a broader perspective to the project.

The selected documents also are limited to those examining student-centered outcomes within a library context. This selection decision was made since it was explicitly stated as the scope for the content analysis of relevant literature in the project RFP.<sup>111</sup> However, based on findings from focus group and individual interviews, as well as feedback from Advisory Group members, the team has determined that this scope may constitute a blind spot in identifying areas where the library currently is not engaged, but should be. Given the importance of collaboration as a Priority Area, the team will engage in a review of higher education literature focusing on the major themes associated with student-centered outcomes that occur outside of the library. This high-level review of the literature will be completed and incorporated into the first draft of the final report that will be released in May 2017. Findings from this review will strengthen and focus identification and discussion of Priority Areas as well as the development of future-focused research questions by eliciting ideas for identifying and measuring student-centered outcomes outside of the LIS literature and discussions.

Since a non-random sample of documents indexed in databases was selected, some documents that are not indexed in the databases that would be relevant to the literature review may have been missed (e.g., grey literature, such as research agendas). This missed selection is minimized by the solicitation of feedback from the ACRL board and members, as well as the Advisory Group regarding what studies should be added to the content analysis of selected LIS and higher education documents.

The selection of the Advisory Group members and their institutions' provosts only provide an indication of important themes from a high-level, administrative perspective. Since the interview participants and the literature were selected as a purposive sample and not a random sample, the findings reported do not represent all professional librarians' and researchers' perspectives on the themes. While the sample of library administrators and provosts is derived from varied institutions, the sample is small, purposive, and non-random, which indicates that it cannot be generalized to all high-level administrators. However, some conclusions can be drawn by examining the overlaps between the smaller sample of administrators and the larger sample of the literature.

Finally, comparing three data sources using the same coding scheme, which was generated deductively from relevant ACRL literature, may have stifled the emergence of other themes. An attempt to mitigate this limitation was to inductively add codes to the coding scheme when they emerged from the data. These codes included inclusivity/diversity and privacy.

### **Conclusion and Next Steps**

Based on the collection and analysis of the three data sources (i.e., selected LIS and higher education literature, library administrator focus group interview, and the provost semi-structured individual interviews), the Priority Areas for future research and exemplar cases identifying how libraries can align with and have impact on student learning and success were developed. This initial project report provides a framework for the research agenda for discussion by key stakeholders. The Priority Areas are the foundation for the development of future-focused research questions based on quantitative and qualitative data collection and analysis of the LIS and higher education literature and interviews with academic library administrators and representatives from provost offices.

The key recommendations for librarians based on this analysis of the selected LIS and higher education literature addressing the articulation and involvement in student learning and success include:

- Identify and articulate both learning and success outcomes when documenting student-centered outcomes. Engaging students in how to redesign library space can demonstrate how libraries enhance learning outcomes. Library resource or service usage and its relationship to student retention is an example of the effect of the library's service, collection, and/or space on a success outcome.<sup>112</sup>
- Focus less on service and more on sharing space with other groups both on and off campus.
- Bolster collaboration with other campus units or external partners, including consortia, on assessment-based efforts.
- Communicate how library services, collections, and spaces address the larger mission of the institution by becoming better at marketing and customer service.
- Study the assessment and student-centered outcomes of diverse populations across various institutions using multiple methods.
- Develop relationships within different academic service areas, such as teaching and learning, at various levels throughout the institution.
- Continue to develop and foster relationships and engagement with academic administrators and other service providers, such as student services, offices of sponsored programs, teaching and learning, etc.
- Present data in different contexts and representations to make a case with diverse groups of academic administrators.

The next steps include a presentation and two brainstorming sessions with the Advisory Group members based on the report findings and Priority Areas for future research at the ALA 2017 Midwinter Meeting in Atlanta, GA to gather suggestions and feedback on the report. The visualization component will be

developed, usability tested, and presented for feedback at the ACRL Conference in Baltimore, MD in March 2017. Feedback and suggestions will be collected and addressed in the public release of the final report in May 2017, which will include the full report of the entire project phases and findings as well as the research agenda, which will include the Priority Areas and future-focused research questions and a summary of the literature that supports each Priority Area. The final project results and visualization component will be presented in an ACRL Online Open Forum in mid-June 2017 and again at the ALA 2017 Annual Conference in Chicago, IL.

## Appendix A: Glossary

**Assessment:** Research on the effectiveness of a program, product, or service to facilitate its ongoing improvement; is driven in part by scrutiny on the affordability of higher education. For more information, please see the discussion on Assessment and Evaluation in this report's literature review section.

**Codebook:** Documentation of themes derived during coding, their definitions, and examples.

**Coding:** Placing data in categories, or themes, for organization and analysis.<sup>113</sup>

**Communication:** Conveying impact or other aspects of value to stakeholders.

**Collaboration:** Working with other units to influence student outcomes. Collaboration can be intra-institutional (e.g., with institutional planning unit; faculty) or inter-institutional (e.g., with multiple institutions).

**Evaluation:** Research on the effectiveness of a program, product, or service that tends to be more holistic,<sup>114</sup> occur on a larger scale, focus on more generalized end results, and be written for a wider audience than assessment. In other words, an evaluation perspective will take a big picture or helicopter view of a collection, space, or service in a larger (e.g., institutional) context. For more information, please see the discussion on Assessment and Evaluation in this report's literature review section.

**Learning analytics:** "Data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs."<sup>115</sup>

**Learning in college:** An outcome focused on the less objective concepts of learning, such as critical thinking. These encompass the outcomes not covered by the Success in college theme, which are "quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation."<sup>116</sup> Usually not tied to a specific graded assignment or graduation. For more information, please see the discussion on Learning and Success in this report's literature review section.

**Librarians, researchers, and students:** A group working in library and information science (LIS) that includes librarians and other employees of academic or other libraries, scholar-practitioners in LIS, LIS researchers, and students enrolled in LIS programs

**Method:** "Any procedure employed to attain a certain end;" used to address a research-related goal or goals.<sup>117</sup>

**Mixed methods:** The use of qualitative collection and/or analysis **and** quantitative collection and/or analysis methods. All mixed methods are multiple methods.

**Multiple methods:** More than one type of method, but can be two or more qualitative methods **or** two or more quantitative methods. All mixed methods are multiple methods, but not all multiple methods are mixed.

**Success in college:** An outcome focused on the more objective indicators of learning, or "quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation."<sup>118</sup> These tend to be linked to a specific assignment/semester, such as grades/GPA. It could also be related to whether the student re-enrolled or graduated. For more information, please see the discussion on Learning and Success in this report's literature review section.

## **Appendix B: Library Administrator Focus Group Interview Protocol**

### **ACRL Research Agenda**

#### **Advisory Group Online Focus Group Interview Questions**

**Tuesday, October 11<sup>th</sup>**

**10:00-11:30AM PDT/ 11:00AM-12:30PM MDT/ 12:00-1:30PM CDT/ 1:00-2:30PM EDT**

1. Explain or tell me how your academic library/libraries has/have succeeded in supporting the mission and goals of your institution.
2. How do you communicate your library's activities to your larger institution's administration?
  - a. [Probe: How do you make the institution's administration aware of the services your library provides?]
  - b. [Probe: How do you tie these activities to advancing your institution's mission and goals?]
3. How has your library collaborated with other libraries (both on campus and off campus) and other academic departments? Explain the collaborations (i.e., which academic departments, staff, etc.).
  - a. [Probe: How do you communicate/collaborate with students, faculty, and administration?]
  - b. [Probe: How did the library initiate these collaborations? Why did the library initiate these collaborations?]
  - c. [Probe: Were these collaborations effective? If yes, why and what factors made them effective? If not, why and what factors made them ineffective?]
  - d. [Probe: How did these collaborations facilitate communication with your institution's administration?]
  - e. [Probe: How did these collaborations impact the students, faculty, or staff at your institution? How were these impacts measured?]
4. What could facilitate improved communication between your library and your larger institution's administration, faculty and students?
  - a. [Probe: What different types of engagement could facilitate communication (i.e., face-to-face or online events, update sessions, new service offerings, etc.)?]
5. What factors hinder communication between your library and your institution's administration?
6. If you had a magic wand, how would you better communicate and make your administration, faculty, and students more aware of the services the library offers and their impact on student learning and success?
7. What else would you like to share about:
  - a. How your library supports the mission of your larger institution?
  - b. How you communicate this support to your institution's administration?
  - c. How you articulate value to your institution's administration?

## Appendix C: Provost Semi-Structured Interview Protocol

### Semi-Structured Interview Questions for the Academic Institution's Provost's Office Representative

1. Do you have any questions before we begin?
2. How do the specific people that you meet with articulate what they are doing and how well they are doing it?
  - a. [Probes: Trying to find out how academic departments/units communicate their activities. If the interviewee mentions them, they are memorable to the administrator.]
3. What information do you or your institution use to measure the effectiveness/impact of different academic departments/units?
  - a. [Probes: Trying to identify how the interviewer measures success/impact.]
4. How do you find out about the library's/libraries' activities?
  - a. [Probes: Trying to find out how the library communicates its services and activities to the campus and the community. How does the library staff make you aware of services?]
5. How does your institution measure the effectiveness/impact of the library's services?
  - a. [Probes: How involved is your institution's academic library with each of the following high impact practices: first-year seminars and first-year experiences; common intellectual (curricular or co-curricular) experiences; learning communities; writing-intensive courses; collaborative assignments & projects; undergraduate research; diversity & global learning; service learning & community-based learning; internships; capstone courses & projects.]
  - b. [Probes: Are there specific library services, resources, or practices that stand out as evidence of involvement with the high-impact practices we just discussed?]
6. Suppose your institution's library dean or director approached you with a moderate (non-capital) funding request, such as for new positions or an increase in the collections budget, that competed with funding requests from other (revenue-generating) academic units. What data types would influence you to prioritize the library's funding request over those of the other academic units?
7. What challenges do you see in the way the library staff communicates with the academic community, including students, faculty, and administration?
8. What do you think would facilitate communication between the library staff and your academic community, including students, faculty, and administration?
  - a. [Probes: What are the most effective modes of communicating each evidence of value that you just mentioned?]
9. What changes do you envision in higher education in the next 5 years?
10. In what ways can the library be a major contributor to this new higher education environment?
11. If you could create an ideal academic environment, what would that look like? How could the library/libraries enhance or support this environment?
12. Based on your knowledge of our project and the topics we have just covered, is there anything I did not ask you that you think I should have asked?

## Appendix D: Codebook

### Theme 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.

#### Library responses

Service: Ways that the library interacts with users or facilitates use of its spaces or collections (e.g., reference, information literacy instruction)

Space: Areas where users can interact with library services and collections in a physical or digital environment (e.g., physical facilities, seating, library’s Facebook page)

Collection: The library’s physical and digital holdings (e.g., books, periodicals, microfiche)

Higher education trend	Trend defined	Example of library responses to trend
<i>Students</i>		
Learning in college (and beyond)	Outcome is focused on the less objective concepts of learning, such as critical thinking. These encompass the outcomes not covered by the Success in college theme, which are “quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation.” <sup>119</sup> Usually not tied to a specific graded assignment or graduation. For more information, please see the discussion on Learning and Success in this report’s literature review section.	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 is focused on the more objective indicators of learning, or “quantifiable student attainment indicators, such as enrollment in postsecondary education, grades, persistence to the sophomore year, length of time to degree, and graduation.” <sup>120</sup> These tended to be linked to a specific assignment/semester, such as grades/GPA. It could also be related to whether the student re-enrolled or graduated. For more information, please see the discussion on Learning and Success in this report’s literature review section.	Collections: Physical collections  Collections: Digital collections  Space: Study spaces  Service: Library instruction  Service: Collection discovery
<i>Students/Faculty</i>		

Higher education trend	Trend defined	Example of library responses to trend
Research support	Outcome was tied to research or other use of the library's collections that was not explicitly tied to a class.	<p>Collections: Physical</p> <p>Collections: Digital</p> <p>Service: Data storage</p> <p>Service: Consultation</p> <p>Service: Teach data management</p> <p>Service: Teach data mining methods</p> <p>Service: Collection discovery</p> <p>Space: Research (as opposed to learning) commons</p>
<i>Faculty</i>		
Teaching support	Outcome was viewed from an instructor perspective, and it deals with a specific course.	<p>Service: Library instruction</p> <p>Service: Help instructors manage pedagogical and curricular changes</p> <p>Collection: Online repository of syllabi</p> <p>Space: Faculty development center</p>
<i>Institution</i>		
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)	<p>Service: Educate library and other employees</p> <p>Service: Align with institutional mission</p>
Provision of technology	Outcome also dealt with hardware/software that affect student outcomes	<p>Service: Provide expertise for data management</p> <p>Space: Provide hardware and software in Makerspaces</p>
<i>Other thematic codes (does not have to align with library service, space, or collection)</i>		
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 influence 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)



Higher education trend	Trend defined	Example of library responses to trend
Communication	Librarians communicate impact or other aspects of value with stakeholders	

Research Document Characteristics Coding Scheme

Code name	Code definition	Values
Year	Year study was published	2010 - 2016
Geographic location	Major geographic regions as defined by census at: <a href="http://www.census.gov/econ/census/help/geography/regions_and_divisions.html">http://www.census.gov/econ/census/help/geography/regions_and_divisions.html</a> 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
Outcomes	Specific student outcomes that 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

<b>Code name</b>	<b>Code definition</b>	<b>Values</b>
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).

## Appendix E: Literature Review Bibliography

- Abbasi, Neda, Hisham Elkadi, Anne Horn, and Sue Owen. "TEALS Project: Evaluating Physical Library Spaces." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 229–38. Charlottesville, VA: Association of Research Libraries, 2012.
- ACRL Research Planning and Review Committee. "Top Trends in Academic Libraries: A Review of the Trends and Issues Affecting Academic Libraries in Higher Education." *College & Research Libraries News* 75, no. 6 (2014): 274–81. <http://crln.acrl.org/content/75/6/294.full>.
- ACRL Research Planning and Review Committee. "Environmental Scan 2015." *Association of College and Research Libraries*. Chicago: Association of College and Research Libraries, 2015. <http://www.ala.org/acrl/sites/ala.org/acrl/files/content/publications/whitepapers/EnvironmentalScan15.pdf>.
- ACRL VAL Committee. 2016. "VAL CMTE Trends Analysis 2016." <http://www.acrl.ala.org/value/wp-content/uploads/2016/04/VAL-Cmte-Trends-Analysis-2016.pdf>.
- Alamuddin, Rayane, Martin Kurzweil, and Daniel Rossman. "Higher Ed Insights Results of the Fall 2015 Survey." Ithaca S+R, February 22, 2016, [http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR\\_Report\\_Higher\\_Ed-Insights\\_Fall2015Survey\\_022216.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR_Report_Higher_Ed-Insights_Fall2015Survey_022216.pdf).
- Albert, Amanda B. "Communicating Library Value: The Missing Piece of the Assessment Puzzle." *Journal of Academic Librarianship* 40, no. 6 (2014): 634–37. doi:10.1016/j.acalib.2014.10.001.
- Allen, Laurie, Neal Baker, Josh Wilson, Kevin Creamer, and David Consiglio. "Analyzing the MISO Data: Broader Perspectives on Library and Computing Trends." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 427–36. Washington, DC: Association of Research Libraries, 2010.
- Archambault, Susan Gardner. "Charting Your Course: Using Curriculum Mapping to Enhance Information Literacy." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 260–64. Seattle: Association of Research Libraries, 2014.
- Ard, Constance. "Beyond Metrics: The Value of the Information Center." *Information Outlook* 16, no. 5 (2012): 16–18.
- Asher, Andrew. "Who's Asking What? Modelling a Large Reference Interaction Dataset." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 52–62. Seattle: Association of Research Libraries, 2014.
- Asher, Andrew, and Lynda Duke. "Ethnography as an Assessment Tool: The ERIAL Project." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 461–68. Washington, DC: Association of Research Libraries, 2010.
- Askew, Consuella, and Marissa Ball. "Telling the Whole Story: A Mixed Methods Approach to Assessing Roaming Reference Services." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 89–100. Charlottesville, VA: Association of Research Libraries, 2012.

- Asogwa, Brendan Eze. "Libraries in the Information Age: A Measure of Performance, Competencies and Constraints in Academic Libraries in Nigerian Universities." *The Electronic Library* 32, no. 5 (2014): 603–21. doi:10.1108/EL-07-2012-0097.
- Association of College and Research Libraries. *Standards for Libraries in Higher Education*. Chicago: Association of College and Research Libraries, 2011.  
<http://www.ala.org/acrl/standards/standardslibraries>.
- Aversa, Elizabeth, and Steven MacCall. "Profiles in Retention Part 1: Design Characteristics of a Graduate Synchronous Online Program." *Journal of Education for Library and Information Science* 54, no. 2 (2013): 147–61.
- Bailey, Susan, and Claudia Dale. "On Becoming a Process-Focused Library." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 633–42. Washington, DC: Association of Research Libraries, 2010.
- Bailey, Susan, and Megan Slemons. "Halt! Who Goes There? Assessing Library Use with Turnstile Data." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 406–12. Seattle: Association of Research Libraries, 2014.
- Bakkalbasi, Nisa, Jason Kopp, Jonathan Paulo, Donna Sundre, Stefanie Warlick, and Sara Williams. "Utilizing Cross-Campus Collaboration to Improve the Assessment of Information Literacy." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 153–60. Charlottesville, VA: Association of Research Libraries, 2012.
- Bakkalbasi, Nisa, and Jocelyn Wilk. "Getting to Know You (and Me!): Assessment and the Archival Metrics Toolkit at Columbia University's Rare Book and Manuscript Library." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 194–203. Seattle: Association of Research Libraries, 2014.
- Bakoyema, Fagdeba Adjola. "Engaging Library Websites Users through Usability Testing and Inquiries Using Morae." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 547–56. Washington, DC: Association of Research Libraries, 2010.
- Balcom, Lesley, Jeff Carter, and James MacKenzie. "A Usable Movable Feast: Usability and the Mobile Library Website." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 359–68. Washington, DC: Association of Research Libraries, 2010.
- Ball, Matt, and Meridith Wolnick. "You Don't Say? Students at the University of Virginia Come Clean When Asked, 'What Are You Doing and How Can We Help?'" In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 181–94. Washington, DC: Association of Research Libraries, 2010.
- Baudino, Frank, and Carolyn Johnson, eds. *Brick & Click: An Academic Library Conference (14<sup>th</sup>, Maryville, Missouri, November 7, 2014)*, <http://files.eric.ed.gov/fulltext/ED549163.pdf>.

- Baumgart, Steve, Erin Carillo, and Laura Schmidli. "Iterative Chat Transcript Analysis." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 637–57. Seattle: Association of Research Libraries, 2014.
- Beard, Colin, and David Bawden. "University Libraries and the Postgraduate Student: Physical and Virtual Spaces." *New Library World* 113, no. 9 (2012): 439–47. doi:10.1108/03074801211273911.
- Becnel, Kim, Robin A. Moeller, and Jon C. Pope. "Powerful Partnerships: The Worth of Embedding Masters Level Library Science Students in Undergraduate Classes." *Journal of Education for Library and Information Science Online* 57, no. 1 (2016): 31–42. doi:10.12783/issn.2328-2967/57/1/3.
- Belanger, Jackie, Ning Zou, Jenny Rushing Mills, Claire Holmes, and Megan Oakleaf. "Project RAILS: Lessons Learned about Rubric Assessment of Information Literacy Skills." *portal: Libraries and the Academy* 15, no. 4 (2015): 623–44.
- Benedetti, Allison, Keith Weimer, and Kornelia Tancheva. "Completing Assessment Projects When It Is Only Part of My Job." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 658–65. Seattle: Association of Research Libraries, 2014.
- Bennett, Scott. "Putting Learning into Library Planning." *portal: Libraries and the Academy* 15, no. 2 (2014): 215–31. <http://www.aib.it/aib/contr/gatto1a.htm>.
- Bicknell-Holmes, Tracy. "Fitting a Round Peg into a Square Hole: Dickeson's Academic Program Prioritization and Libraries." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 159–82. Seattle: Association of Research Libraries, 2014.
- Bielavitz, Tom. "The Balanced Scorecard: A Systemic Model for Evaluation and Assessment of Learning Outcomes?" *Evidence Based Library and Information Practice* 5, no. 2 (2010): 35–46. doi:10.1111/j.1471-1842.2011.00937.x.
- Bietila, David. "Beyond Usability: Building Discovery Tool Requirements through User Stories." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 425–34. Charlottesville, VA: Association of Research Libraries, 2012.
- Bird, Amanda, Kelly Rhodes McBride, and Elizabeth Cramer. "Modeling ACRL's Standards for Libraries in Higher Education." *College & Research Libraries News* 75, no. 11 (2014): 614–16. <http://crln.acrl.org/content/75/11/614.full.pdf+html>.
- Bishop, Bradley, Tony H. Grubestic, and Theresa Parrish. "Collaborative Development and Assessment of Student Learning Outcomes for LIS Electives." *Journal of Education for Library and Information Science Online* 56, no. 4 (2015): 272–82. doi:10.12783/issn.2328-2967/56/4/1.
- Bishop, Katie. "Flipping, Collaborating, Assessing: Adopting New Modes of Library Instruction." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 227–32. Seattle: Association of Research Libraries, 2014.
- Boeninger, Chad, Deborah Daniels, Jeff Ferrier, Sara Harrington, and Janet Hulm. "Expressing Value in a Changing Budget Climate." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 413–18. Seattle: Association of Research Libraries, 2014.

- Bollinger, Stephen, Nina Exner, and Octavious Spruill. "Trying to Measure Success: A Mid-Size Academic Library Grapples with Assessing a Popular Tablet Loan Project." In *Mobile Devices: Services with Intention (Library Technology Reports)*, edited by Rebecca K. Miller, Heather Moorefield-Lange, and Carolyn Meier, 51:9–15. Chicago: ALA TechSource, 2015.
- Bowen, William G. "Issues Facing Major Research Universities at a Time of Stress AND Opportunity." Ithaca S+R, April 12, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/04/SR\\_Issue\\_Brief\\_Issues\\_Facing\\_Major\\_Research\\_Universities041216.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/04/SR_Issue_Brief_Issues_Facing_Major_Research_Universities041216.pdf).
- Bowlby, Raynna. "Are We There yet? Aligning Planning and Metrics, Strategically." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 437–48. Washington, DC: Association of Research Libraries, 2010.
- Bowlby, Raynna, and Daniel O'Mahony. "Tracking Academic Outcomes: What LibQUAL+(R) Tells Us about How Users View Information Literacy Outcomes." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 669–84. Charlottesville, VA: Association of Research Libraries, 2012.
- Bowles-Terry, Melissa. "Library Instruction and Academic Success: A Mixed-Methods Assessment of a Library Instruction Program." *Evidence Based Library and Information Practice* 7, no. 1 (2012): 82–95. doi:10.18438/B8PS4D.
- Bradshaw, Agnes, and Kathryn Crowe. "Shop Your Way to Service Excellence: Secret Shopping for Academic Libraries." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 101–16. Charlottesville, VA: Association of Research Libraries, 2012.
- Britton, Scott. "Mining Library and University Data to Understand Library Use Patterns." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 633–42. Charlottesville, VA: Association of Research Libraries, 2012.
- Broadly-Preston, Judith, and Alison Lobo. "Measuring the Quality, Value and Impact of Academic Libraries: The Role of External Standards." *Performance Measurement Metrics* 12, no. 2 (2011): 122–35. doi:10.1108/14678041111149327.
- Broussard, Mary J. Snyder. "Using Games to Make Formative Assessment Fun in the Academic Library." *Journal of Academic Librarianship* 40, no. 1 (2014): 35–42. doi:10.1016/j.acalib.2012.12.001.
- Brown-Sica, Margaret. "Using Academic Courses to Generate Data for Use in Evidence Based Library Planning." *Journal of Academic Librarianship* 39, no. 3 (2013): 275–87. doi:10.1016/j.acalib.2013.01.001.
- Brown, Elizabeth. "Game of Clones: Using Analytical Research Data to Identify Institutional Peers and Collections Needs." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 643–56. Charlottesville, VA: Association of Research Libraries, 2012.
- Brown, Jeanne. "Quest for Continuous Improvement: Gathering Feedback and Data through Multiple Methods to Evaluate and Improve a Library's Discovery Tool." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 603–14. Charlottesville, VA: Association of Research Libraries, 2012.



- Brown, Jeanne. "Developing a Library Value Indicator for a Disciplinary Population." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 643–52. Washington, DC: Association of Research Libraries, 2010.
- Brown, Jessie, and Martin Kurzweil. "Breaking the Iron Triangle at the University of Central Florida." Ithaka S+R, August 26, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/09/SR\\_Case\\_Study\\_Breaking\\_The\\_Iron\\_Triangle\\_University\\_Of\\_Central\\_Florida082615.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/09/SR_Case_Study_Breaking_The_Iron_Triangle_University_Of_Central_Florida082615.pdf).
- Brown, Jessie, and Martin Kurzweil. "Collaborating for Student Success at Valencia College." Ithaka S+R, October 29, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/10/SR\\_Case\\_Study\\_Collaborating\\_Student\\_Success\\_Valencia\\_College1029151.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/10/SR_Case_Study_Collaborating_Student_Success_Valencia_College1029151.pdf).
- Brown, Jessie, and Martin Kurzweil. "Student Success by Design: CUNY's Guttman Community College." Ithaka S+R, February 4, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR\\_Case\\_Study\\_Student\\_Success\\_by\\_Design\\_Guttman020416.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR_Case_Study_Student_Success_by_Design_Guttman020416.pdf).
- Brown, Jessie, and Deanna Marcum. "Serving the Adult Student at University of Maryland University College." Ithaka S+R, June 9, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/06/SR\\_Case\\_Study\\_Serving\\_Adult\\_Student\\_UMUC\\_060916.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/06/SR_Case_Study_Serving_Adult_Student_UMUC_060916.pdf).
- Brown, Jessie, and Richard Spies. "Reshaping System Culture at the North Carolina Community College System." Ithaka S+R, September 10, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/09/SR\\_Case\\_Study\\_Reshaping\\_System\\_Culture\\_North\\_Carolina\\_Community\\_College\\_System091015.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/09/SR_Case_Study_Reshaping_System_Culture_North_Carolina_Community_College_System091015.pdf).
- Brown, Karen, and Kara J. Malenfant. *Academic Library Contributions to Student Success: Documented Practices from the Field*. Chicago: Association of College and Research Libraries, 2015. [http://www.ala.org/acrl/sites/ala.org/acrl/files/content/issues/value/contributions\\_report.pdf](http://www.ala.org/acrl/sites/ala.org/acrl/files/content/issues/value/contributions_report.pdf).
- Brown, Karen, 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\\_v2.pdf](http://www.ala.org/acrl/sites/ala.org/acrl/files/content/issues/value/contributions_v2.pdf).
- Brungard, Allison, David Nolfi, Marcia Rapchak, Bridget Euliano, Tracie Ballock, and Joseph Nelson. "Thunderstruck! An 'en-Lightning' Look at Recharging Existing Library Data to Electrify University Administration." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 419–24. Seattle: Association of Research Libraries, 2014.
- Brunvand, Amy. "Ask the Expert: Using Expertise Domains for Library Service Assessment." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 571–80. Washington, DC: Association of Research Libraries, 2010.
- Burger, Robert H., Paula T. Kaufman, and Amy L. Atkinson. "Disturbingly Weak: The Current State of Financial Management Education in Library and Information Science Curricula." *Journal of Education for Library and Information Science Online* 56, no. 3 (2015): 190–97. doi:10.12783/issn.2328-2967/56/3/2.

- Carbery, Alan. "Puzzle Pieces: Assessing Student Work Using Rubrics and Citation Analysis for Dual-Purpose Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 233–35. Seattle: Association of Research Libraries, 2014.
- Carlson, Theresa, and Wendy Holliday. "Creating a Culture of Evidence and Assessment: Building a Daily Practice That Matters." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 154–58. Seattle: Association of Research Libraries, 2014.
- Carter, Lisa R. "Articulating Value: Building a Culture of Assessment in Special Collections." *RBM: A Journal of Rare Books, Manuscripts and Cultural Heritage* 13, no. 2 (2012): 89–99. <http://rbm.acrl.org/content/13/2/89.short>.
- Celik, Osman, and Roxanne Peck. "If You Expand, They Will Come: Textbook Affordability through Expansion of Course Reserves: The Case of UCLA Library's Course Reserves via Strategic Partnership with the Campus Independent Bookstore." *Technical Services Quarterly* 33, no. 3 (2016): 268–78. doi:10.1080/07317131.2016.1169788.
- Chadwell, Faye A. "Assessing the Value of Academic Library Consortia." *Journal of Library Administration* 51, no. 7-8 (2011): 645–61. doi:10.1080/01930826.2011.601268.
- Chan, Diana L. H., and Edward Spodick. "Space Development: A Case Study of the HKUST Library." *New Library World* 115, no. 5-6 (2014): 250–62. doi:10.1108/NLW-04-2014-0042.
- Chang, Bertha. "Assessing the Impact of a New Library on Graduate Students' Use of Library Spaces." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 673–78. Seattle: Association of Research Libraries, 2014.
- Chang, Bertha, and Honora Eskridge. "Practical Research for Library Space and Service Design." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 239–50. Charlottesville, VA: Association of Research Libraries, 2012.
- Chapa, Kay, Kelly Gonzalez, and Richard Wayne. "Performance Measurement: Organizational Changes and Outcomes Monitoring." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 449–60. Washington, DC: Association of Research Libraries, 2010.
- Charles, Leslin H. "Using an Information Literacy Curriculum Map as a Means of Communication and Accountability for Stakeholders in Higher Education." *Journal of Information Literacy* 9, no. 1 (2015): 47–61. doi:10.11645/9.1.1959.
- Cheng, Hong. "Turn a Disaster into a Research Opportunity: Assessing Our One-Hour Library Sessions after Hurricane Sandy." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 236–45. Seattle: Association of Research Libraries, 2014.
- Chew, Katherine, and Erinn Aspinall. 2010. "Serving Multiple Stakeholders: Crafting a 'Blended' Scorecard at the University of Minnesota Health Sciences Libraries." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 335–44. Washington, DC: Association of Research Libraries, 2010.



- Chew, Katherine, James Stemper, Mary Schoenborn, and Caroline Lilyard. "User-Defined Valued Metrics for Electronic Journals." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager. Charlottesville, VA: Association of Research Libraries, 2012.
- Chrzastowski, Tina, Lynn Wiley, and Jean-Louise Zancanella. "Three E-Book Outlooks: What Humanists, Social Scientists and Scientists Want and Predict (A LibValue Study)." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 520–25. Seattle: Association of Research Libraries, 2014.
- Clarke, Kathy. "The Role of a Required Information Literacy Competency Exam in the First College Year: What Test Data Can, Cannot, and Might Reveal." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 246–50. Seattle: Association of Research Libraries, 2014.
- Colburn, Selene. "Herding Cats, Knitting Fog, and Nailing Pudding to the Wall: Toward a Mixed Methods Approach to Evaluating Social Media Marketing in Libraries." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 615–24. Charlottesville, VA: Association of Research Libraries, 2012.
- "College Librarians Value Role in Information Literacy, But Faculty Demur." *Information Outlook* 15, no. 5 (2011): 5.
- Collins, Tim. "The Current Budget Environment and Its Impact on Libraries, Publishers and Vendors." *Journal of Library Administration* 52, no. 1 (2012): 18–35. doi:10.1080/01930826.2012.630643.
- Connaway, Lynn Silipigni. "Why Libraries? A Call for Use-Centered Assessment." *Bid* 32 (2014), <http://bid.ub.edu/en/32/connaway3.htm>.
- Cowan, Susanna M. "Information Literacy: The Battle We Won That We Lost?" *portal: Libraries and the Academy* 14, no. 1 (2014): 23–32. doi:10.1353/pla.2013.0049.
- Cox, Brian L., and Margie H. Jantti. "Discovering the Impact of Library Use and Student Performance." *EDUCAUSE Review*, July 17, 2012, <http://er.educause.edu/articles/2012/7/discovering-the-impact-of-library-use-and-student-performance>.
- Creaser, Claire, Susanne Cullen, Ruth Curtis, Nicola Darlington, Jane Maltby, Elizabeth Newall, and Valerie Spezi. "Working Together: Library Value at the University of Nottingham." *Performance Measurement and Metrics* 15, no. 1-2 (2014): 41–49. doi:10.1108/PMM-03-2014-0011.
- Creaser, Claire, and Valerie Spezi. *Working Together: Evolving Value for Academic Libraries*. Thousand Oaks, CA: SAGE, 2012.
- Crowe, Kathryn. "Assessment = Improved Teaching and Learning: Using Rubrics to Measure Information Literacy Skills." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 147–58. Washington, DC: Association of Research Libraries, 2010.

- Crowe, Kathryn. "Libraries and Student Success: A Campus Collaboration with High Impact Educational Practices." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 251–55. Seattle: Association of Research Libraries, 2014.
- Crowe, Kathryn, and Michael Crumpton. "Defining the Libraries' Role in Research: A Needs Assessment; A Case Study." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 321–33. Seattle: Association of Research Libraries, 2014.
- Crum, Janet. "Using an Availability Study to Assess Access to Electronic Articles." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 683–702. Washington, DC: Association of Research Libraries, 2010.
- Crumpton, Michael, and Kathryn Crowe. "Sustaining an Assessment Mentality to Navigate Library Space Planning." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 679–83. Seattle: Association of Research Libraries, 2014.
- Cunningham, Nancy, and Meg Scharf. "Closing the Loop: How Are LibQUAL+(R) Results Being Communicated to Stakeholders?" In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 693–706. Charlottesville, VA: Association of Research Libraries, 2012.
- Dabbour, Katherine S., and James David Ballard. "Information Literacy and US Latino College Students: A Cross-Cultural Analysis." *New Library World* 112, no. 7-8 (2011): 347–64. doi: <http://dx.doi.org/10.1108/03074801111150477>.
- Dahan, Suziyana Mat, Mohd Yusof Taib, Nurhaizan Mohd Zainudin, and Fadzida Ismail. 2015. "Surveying Users' Perception of Academic Library Services Quality: A Case Study in Universiti Malaysia Pahang (UMP) Library." *The Journal of Academic Librarianship* 42, no. 1 (2015): 38–43. doi:10.1016/j.acalib.2015.10.006.
- Dahlen, Sarah, and Pam Baker. "Assessing Information Literacy and Critical Thinking across the Curriculum." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 462–69. Seattle: Association of Research Libraries, 2014.
- Daly, Emily. "What Do We Do Now? Moving beyond Survey Results." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 397–400. Seattle: Association of Research Libraries, 2014.
- Daniels, William, Colin Darch, and Karin De Jager. "The Research Commons: A New Creature in the Library?" *Performance Measurement and Metrics* 11, no. 2 (2010): 116–30. doi: 10.1108/14678041011064043.
- Davidson, Catherine, and Aaron Lupton. "Mining E-Resource Data to Reveal Hidden Assets: How One School Dug Deeper into Its MINES for Libraries (R) Results to Assess the Research Value of E-Resources." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 575–86. Charlottesville, VA: Association of Research Libraries, 2012.

- Davidson, Catherine, Dana Thomas, Martha Kyrillidou, and Terry Plum. "Measuring Use of Licensed Electronic Resources: A Progress Report on the Second Iteration of the MINES for Libraries (R) Survey on Scholars Portal and Other Resources for the Ontario Council of University Libraries." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 395–416. Washington, DC: Association of Research Libraries, 2010.
- Davidson, Karen S., Stephanie Havron Rollins, and Ed Cherry. "Demonstrating Our Value: Tying Use of Electronic Resources to Academic Success." *Serials Librarian* 65, no. 1 (2013): 74–79. doi:10.1080/0361526X.2013.800630.
- de Jager, Karin. "Demonstrating Library Value: Appropriate Methodologies and Practical Approaches at the University of Cape Town." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 545–48. Seattle: Association of Research Libraries, 2014.
- Dempsey, Lorcan, Constance Malpas, and Brian Lavoie. "Collection Directions: The Evolution of Library Collections and Collecting." *portal: Libraries and the Academy* 14, no. 3 (2014): 393–423. doi:10.1353/pla.2014.0013.
- Diep, Kim Chi, and Diane Nahl. "Information Literacy Instruction in Four Vietnamese University Libraries." *The International Information & Library Review* 43, no. 4 (2011): 198–206. doi:10.1080/10572317.2011.10762901.
- Diller, Karen, and Sue Phelps. "Multiple Methodologies for Space Assessment to Support Learning." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 195–200. Washington, DC: Association of Research Libraries, 2010.
- Dollinger, Elizabeth. "Rolling It Up: The Evolution of an Information Literacy Assessment Plan." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 285–92. Charlottesville, VA: Association of Research Libraries, 2012.
- Donahue, Annie. "Charting Success: Using Practical Measures to Assess Student Learning in a Peer2Peer Model." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 501–12. Charlottesville, VA: Association of Research Libraries, 2012.
- Dryden, Nancy H., and Shelley Goldstein. "Regional Campus Learning Commons: Assessing to Meet Student Needs." *Journal of Library Administration* 53, no. 5–6 (2013): 293–322. doi:10.1080/01930826.2013.876822.
- Duerr, Larry, and Jodi Eastberg. "Beyond the Annotated Bibliography: Engaging Students with Library Collections." *College & Research Libraries News* 73, no. 8 (2012): 478–80.
- Dupont, Christian, and Elizabeth Yakel. "'What's So Special about Special Collections?' Or, Assessing the Value Special Collections Bring to Academic Libraries." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 417–26. Washington, DC: Association of Research Libraries, 2010.

- Eaton, Judith. "Higher Education in a New Era of Public Accountability: What Does This Mean for You?" In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 23–26. Charlottesville, VA: Association of Research Libraries, 2012.
- Einasto, Olga. "Transforming Library Communication: From Gutenberg to Zuckerberg." *New Library World* 116, no. 5-6 (2015): 247–63. doi:10.1108/NLW-05-2014-0055.
- Elmborg, James. "Tending the Garden of Learning: Lifelong Learning as Core Library Value." *Library Trends* 64, no. 3 (2016): 533–55. [http://muse.jhu.edu/journals/library\\_trends/v064/64.3.elmborg.pdf](http://muse.jhu.edu/journals/library_trends/v064/64.3.elmborg.pdf).
- Emmons, Mark, and Frances C. Wilkinson. "The Academic Library Impact on Student Persistence." *College & Research Libraries* 74, no. 1 (2011): 128–49. doi:10.5860/crl-74r1.
- Entlich, Richard. "Focus on Circulation Snapshots: A Powerful Tool for Print Collection Assessment." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 703–14. Washington, DC: Association of Research Libraries, 2010.
- Escobar, Hector, and Heidi Gauder. "Integrated Service Spaces: New Ways of Assessing Collaboration." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 684–86. Seattle: Association of Research Libraries, 2014.
- Fagan, Jody Condit. "The Effectiveness of Academic Library Deans and Directors: A Literature Review." *Library Leadership & Management* 26, no. 1 (2012): 1–19.
- Farkas, Meredith Gorran. "Building and Sustaining a Culture of Assessment: Best Practices for Change Leadership." *Reference Services Review* 41, no. 1 (2013): 13–31. doi:10.1108/00907321311300857.
- Farkas, Meredith Gorran, and Lisa Janicke Hinchliffe. "Library Faculty and Instructional Assessment: Creating a Culture of Assessment through the High Performance Programming Model of Organizational Transformation." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 161–70. Charlottesville, VA: Association of Research Libraries, 2012.
- Farmer, Lesley. "Programmatic Role of Education Libraries in Informatics to Support Preservice Teacher Preparation Programs." *Teachers College Record* 112, no. 10 (2010): 2603–22. <http://www.scopus.com/inward/record.url?eid=2-s2.0-78650404796&partnerID=40&md5=861e2e7ebfdf5351a87158a7a4b288cf>.
- Fazal, Shafeek. "Library Strategic Planning for Middle States Accreditation: A 10-Year Road to Success." *Journal of Library Administration* 56, no. 1 (2015): 27–40. doi:10.1080/01930826.2015.1105027.
- Felix, Elliott. "Designing and Assessing Library Services." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 251–60. Charlottesville, VA: Association of Research Libraries, 2012.
- Fister, Barbara. "Critical Assets: Academic Libraries, A View from the Administration Building." *Library Journal* 135, no. 8 (2010): 24–27.

- Fleming-May, Rachel A., Regina Mays, and Rachel Radom. "I Never Had to Use the Library in High School: A Library Instruction Program for At-Risk Students." *portal: Libraries and the Academy* 15, no. 3 (2015): 433–56. doi:10.1353/pla.2015.0038.
- Fleming-May, Rachel, Regina Mays, and Anne Pemberton. "Academic Libraries' Support for Teaching: A LibValue Project." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 526–28. Seattle: Association of Research Libraries, 2014.
- Fleming-May, Rachel, and Crystal Sherline. "What Impact Do Academic Libraries Have on Teaching and Learning? A Review of the Literature and Preliminary Taxonomy of Standards." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 485–98. Washington, DC: Association of Research Libraries, 2010.
- Fontno, T. J., and D. N. Brown. "Putting Information Literacy in the Students' Hands: The Elementary Learning Centers Approach Applied to Instruction in Higher Education." *College & Research Libraries News* 76, no. 2 (2015): 92–96. <http://crln.acrl.org/content/76/2/92.short>.
- Foster, Nancy Fried. "The Librarian-Student-Faculty Triangle: Conflicting Research Strategies?" In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 469–76. Washington, DC: Association of Research Libraries, 2010.
- Fox, Robert, and Ameet Doshi. "Longitudinal Assessment of 'User-Driven' Library Commons Spaces." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 63–72. Washington, DC: Association of Research Libraries, 2010.
- Franklin, Brinley. "Surviving to Thriving: Advancing the Institutional Mission." *Journal of Library Administration* 52, no. 1 (2012): 94–107. doi:10.1080/01930826.2012.630244.
- Franklin, Brinley. "MINES for e-Books." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 587–602. Charlottesville, VA: Association of Research Libraries, 2012.
- Friesen, Margaret, Bailey Diers, and Suher Zaher-Mazawi. "Towards Democratizing Library Data: Data Management and Sharing in the Institutional Repository." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 201–13. Washington, DC: Association of Research Libraries, 2010.
- Gan, Laurissa B., and Greg F. Pratt. "Using Library Search Service Metrics to Demonstrate Library Value and Manage Workload." *Journal of the Medical Library Association* 101, no. 3 (2013): 227–29. doi:10.3163/1536-5050.101.3.015.
- Gap Analysis Subcommittee. "A Report to ACRL VAL Committee from the Gap Analysis Subcommittee, Presented for ALA Midwinter 2015." 2015. <http://www.acrl.ala.org/value/wp-content/uploads/2016/04/VAL-Cmte-Gap-Analysis-ALA-Midwinter-2015.pdf>.
- Gap Analysis Subcommittee. "Final Report to ACRL VAL Committee from Gap Analysis Subcommittee Presented for ALA Annual Conference 2015." 2015. <http://www.acrl.ala.org/value/wp-content/uploads/2016/04/VAL-Cmte-Gap-Analysis-FINAL-ALA-Annual-2015.pdf>.

- Garcia, Larissa. "Applying the Framework for Information Literacy to the Developmental Education Classroom." *Community & Junior College Libraries* 20, no. 1-2 (2014): 39–47. doi:10.1080/02763915.2014.1013399.
- Gardner, Julia, and Leah Richardson. "Beyond the Cabinet of Curiosities: Demonstrating the Impact of Special Collections Instruction." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 204–11. Seattle: Association of Research Libraries, 2014.
- Gardner, Susan, and Elisa Slater Acosta. "Using a Rubric to Assess Freshman English Literacy Instruction." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 159–74. Washington, DC: Association of Research Libraries, 2010.
- Garipey, Laura, and Jenny Stout. "Using Rubrics for Programmatic Assessment of Learning Outcomes in Course-Integrated Library Instruction." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 256–59. Seattle: Association of Research Libraries, 2014.
- Gazzolo, Paul. "Insider's Perspective: Academic Libraries Take Back the Power." *Information Today* 18 (2015).
- Gerke, Jennifer, and Jack M. Maness. "The Physical and the Virtual: The Relationship between Library as Place and Electronic Collections." *College & Research Libraries* 71, no. 1 (2010): 20–31.
- Giesecke, Joan. "The Value of Partnerships: Building New Partnerships for Success." *Journal of Library Administration* 52, no. 1 (2012): 36–52. doi:10.1080/01930826.2012.629964.
- Gilchrist, Debra. "Leading with Strategy and Evidence." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 23–30. Seattle: Association of Research Libraries, 2014.
- Greenwood, Judy T., Alex P. Watson, and Melissa Dennis. "Ten Years of LibQual: A Study of Qualitative and Quantitative Survey Results at the University of Mississippi 2001-2010." *Journal of Academic Librarianship* 37, no. 4 (2011): 312–18. doi:10.1016/j.acalib.2011.04.005.
- Griffin, Melanie, Barbara Lewis, and Mark Greenberg. "Data-Driven Decision Making: A Holistic Approach to Assessment in Special Collections Repositories." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 381–96. Charlottesville, VA: Association of Research Libraries, 2012.
- Guo, Shu. "Grade Trend Analysis for a Credit-Bearing Library Instruction Course." *portal: Libraries and the Academy* 15, no. 2 (2015): 251–265. doi:10.1353/pla.2015.0018.
- Guthrie, Kevin M., Christine Mulhern, and Martin A. Kurzweil. "In Pursuit of Excellence and Inclusion: Managing Change at Arizona State University." Ithaka S+R, January 20, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR\\_Report\\_Managing\\_Change\\_ASU\\_012015.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR_Report_Managing_Change_ASU_012015.pdf).
- Habich, Elizabeth, and Karen Merguerian. "Evaluating the Impact of Library Renovation: A Multiple Methods Approach." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 483–89. Seattle: Association of Research Libraries, 2014.



- Haddow, Gaby, and Jayanthi Joseph. "Loans, Logins, and Lasting the Course: Academic Library Use and Student Retention." *Australian Academic and Research Libraries* 41, no. 4 (2010): 233–44. doi:10.1080/00048623.2010.10721478.
- Hagel, Pauline, Anne Horn, Sue Owen, and Michael Currie. "'How Can We Help?' The Contribution of University Libraries to Student Retention." *Australian Academic & Research Libraries* 43, no. 3 (2012): 214–30.
- Hall, Monena. "Roving: Aimless or Purposeful?" In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 425–31. Seattle: Association of Research Libraries, 2014.
- Hansson, Joacim. "Documentality and Legitimacy in Future Libraries: An Analytical Framework for Initiated Speculation." *New Library World* 116, no. 1-2 (2015): 4–14. doi:10.1108/NLW-05-2014-0046.
- Harvey, Diane, Yvonne Belanger, Emily Daly, and Linda Daniel. "Know Thy User: The Duke Libraries User Studies Initiative." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 213–24. Washington, DC: Association of Research Libraries, 2010.
- Harvey, Eugene, and Maureen Lindstrom. "LibQUAL+(R) and the Information Commons Initiative at Buffalo State College." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 73–88. Washington, DC: Association of Research Libraries, 2010.
- Head, Ronald B. "Evidence-Based Management and Community College Decision-Making." *Journal of Applied Research in the Community College* 22, no. 1 (2015): 25–33.
- Hensley, Merinda Kaye. "A Survey of Instructional Support for Undergraduate Research Programs." *portal: Libraries and the Academy* 15, no. 4 (2016): 719–62.
- Herman, Matthew, Robert Thomas, and Mario Violich. "Shaping Community: Re-Creating Connectivity on Campus through Student Life." *Planning for Higher Education Journal* 43, no. 4 (2015): 26–40.
- Hersey, Denise, and Francine De Franco. "Do We Have What It Takes? Assessing Liaison Librarians' Skill Sets to Build Strong Partnerships and Ensure Better Outreach in a Quickly Changing Research and Learning Environment." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 127–34. Charlottesville, VA: Association of Research Libraries, 2012.
- Hess, Amanda Nichols. "Equipping Academic Librarians to Integrate the Framework into Instructional Practices: A Theoretical Application." *Journal of Academic Librarianship* 41, no. 6 (2015): 771–76. doi:10.1016/j.acalib.2015.08.017.
- Hess, Amanda Nichols, and James L. Moseley. "Conducting Formative Evaluation Online: From Planning to Execution." *College & Research Libraries News* 77, no. 2 (2016): 66–69. <http://crln.acrl.org/content/77/2/66.full.pdf+html>.
- Hess, Kirk, and Sarah Hoover. "Value of the Online Newspaper Collection at the University of Illinois at Urbana-Champaign Library." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 292–307. Seattle: Association of Research Libraries, 2014.

- Hiller, Steve, Kristina Justh, Martha Kyrillidou, and Jim Self, eds. *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*. Washington, DC: Association of Research Libraries, 2010.
- Hiller, Steve, and Betsy Wilson. "Making the Case for Institutional Investment in Libraries: The Value of Evidence-Based Narratives at the University of Washington." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 345–54. Charlottesville, VA: Association of Research Libraries, 2012.
- Hinchliffe, Lisa Janicke, and Meredith Farkas. "Community College Libraries and Culture of Assessment: A Survey of Library Leaders." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 183–87. Seattle: Association of Research Libraries, 2014.
- Hinchliffe, Lisa Janicke, and Melissa Autumn Wong. "From Services-Centered to Student-Centered: A 'Wellness Wheel' Approach to Developing the Library as an Integrative Learning Commons." *College & Undergraduate Libraries* 17, no. 2-3 (2010): 213–24. doi:10.1080/10691316.2010.490772.
- Hinchliffe, Lisa, and Kara Malenfant. "What Do We Want to Know: Articulating a Research Agenda for the Value of Academic Libraries." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 27–34. Charlottesville, VA: Association of Research Libraries, 2012.
- Hintz, Kimberley, Paula Farrar, Shirin Eshghi, Barbara Sobol, Jo-Anne Naslund, Teresa Lee, Tara Stephens, and Aleha McCauley. "Letting Students Take the Lead: A User-Centered Approach to Evaluating Subject Guides." *Evidence Based Library and Information Practice* 5, no. 4 (2010): 39–52. doi:10.1016/j.acalib.2010.05.004.
- Holmes, John, and Kathleen Collins. "Viral Reference in the Writing Center: Using Metrics to Reinvent Library Reference." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 696. Seattle: Association of Research Libraries, 2014.
- Hornby, Amanda, Louise Richards, and Jill McKinstry. "Learning in a Library: How Active Learning Classrooms and Informal Learning Spaces Contribute to Student Engagement, Effective Teaching, and Coordinated Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 490–506. Seattle: Association of Research Libraries, 2014.
- Hosseini-Ara, Moe, and Rebecca Jones. "Overcoming Our Habits and Learning to Measure Impact." *Computers in Libraries* 33, no. 5 (2013): 3–7.
- Housewright, Ross, and Roger Schonfeld. 2008. "Ithaka's 2006 Studies of Key Stakeholders in the Digital Transformation in Higher Education." Ithaka S+R, August 18, 2008. <http://www.sr.ithaka.org/wp-content/uploads/2015/08/4.16.1.pdf>.
- Housewright, Ross, Roger C. Schonfeld, and Kate Wulfson. "Ithaka S+R US Faculty Survey 2012." Ithaka S+R, April 8, 2013. [http://www.sr.ithaka.org/wp-content/uploads/2015/08/Ithaka\\_SR\\_US\\_Faculty\\_Survey\\_2012\\_FINAL.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/08/Ithaka_SR_US_Faculty_Survey_2012_FINAL.pdf).



- Hsu, Maxwell K., Richard G. Cummings, and Stephen W. Wang. "Business Students' Perception of University Library Service Quality and Satisfaction." *Contemporary Issues in Education Research* 7, no. 2 (2014): 137–44.
- Hu, Rachael, and Brian Tingle. "Understanding the User's Mental Model: An Evolving Design and Assessment Strategy for Archival Collection Description." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 397–414. Charlottesville, VA: Association of Research Libraries, 2012.
- Hu, Shouping, and Alexander C. McCormick. "An Engagement-Based Student Typology and Its Relationship to College Outcomes." *Research in Higher Education* 53, no. 7 (2012): 738–54. doi:10.1007/s11162-012-9254-7.
- Hufford, Jon R. "A Review of the Literature on Assessment in Academic and Research Libraries, 2005 to August 2011." *portal: Libraries and the Academy* 13, no. 1 (2013): 5–35. doi:10.1353/pla.2013.0005.
- Hufford, Jon R. "Can the Library Contribute Value to the Campus Culture for Learning?" *The Journal of Academic Librarianship* 39, no. 3 (2013): 288–96. doi:10.1016/j.acalib.2013.03.002.
- Hughes, Hilary. "School Libraries, Teacher-Librarians and Student Outcomes: Presenting and Using the Evidence." *School Libraries Worldwide* 20, no. 1 (2014): 29–50.
- Huisman, Rhonda. "The A-Team: Making a Plan Come Together across Campus." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 513–22. Charlottesville, VA: Association of Research Libraries, 2012.
- Hulett, Heather, Jenny Corbin, Sharon Karasmanis, Tracy Robertson, Fiona Salisbury, and Tai Peseta. "Information Literacy at University: A Toolkit for Readiness and Measuring Impact." *Australian Academic & Research Libraries* 44, no. 3 (2013): 151–62. doi:10.1080/00048623.2013.813372.
- Hunter, Ben, and Robert Perret. "Can Money Buy Happiness? A Statistical Analysis of Predictors for User Satisfaction." *Journal of Academic Librarianship* 37, no. 5 (2011): 402–8. doi:10.1016/j.acalib.2011.06.004.
- Hunter, Jonathan, and Andrew Cox. "Learning Over Tea! Studying in Informal Learning Spaces." *New Library World* 115, no. 1-2 (2014): 34–50. doi:10.1108/NLW-08-2013-0063.
- Hurst, Susan. "Current Trends in UK University Libraries." *New Library World* 114, no. 9 (2013): 398–407. doi:10.1108/NLW-04-2013-0032.
- Huwe, Terence K. "Building Digital Libraries: Toward a New Perspective on Library Space." *Info Today*, October 2015.
- Iannuzzi, Patricia, and Jeanne M. Brown. "ACRL's Standards for Libraries in Higher Education." *College & Research Libraries News* 79, no. 9 (2010): 486–87.
- Ireland, Ashley. "Time Lords of Instruction: Knowing When to Teach Which Skills in a Major Program from Student and Instructor Feedback." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 382–85. Seattle: Association of Research Libraries, 2014.
- Jackson, Brian. "University Rankings: How Well Do They Measure Library Service Quality?" *portal: Libraries and the Academy* 15, no. 2 (2015): 315–30. doi:10.1353/pla.2015.0026.

- Jackson, Brian. "What Do University Rankings Tell Us About Perceptions of Library Value?" In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 431–37. Seattle: Association of Research Libraries, 2014.
- Jackson, Heather Lea, and Trudi Bellardo Hahn. "Serving Higher Education's Highest Goals: Assessment of the Academic Library as Place." *College & Research Libraries* 72, no. 5 (2011): 428–42. doi:10.5860/crl-123.
- Jacsó, Peter. "The JISC Academic Database Assessment Tool: Virtues and Vices." *Online Information Review* 34, no. 5 (2010): 806–14. doi:http://dx.doi.org/10.1108/14684521011084636.
- Jaggars, Damon E. "We Can Imagine the Future, But Are We Equipped to Create It?" *portal: Libraries and the Academy* 14, no. 3 (2014): 319–23.
- Jaggars, Damon, Gabriela Castro Gessner, Jennifer Rutner, and Kornelia Tancheva. "A 2CUL Collaborative Ethnographic Assessment of Humanities Doctoral Students." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 301–10. Charlottesville, VA: Association of Research Libraries, 2012.
- Janks, Gregory, Mel Lockhart, and Alan S. Travis. "New Metrics for the New Normal: Rethinking Space Utilization within the University System of Georgia." *Planning for Higher Education* 41, no. 1 (2012): 38–63.
- Jantti, Margie. "Aspiring to Excellence: Maximising Data to Sustain, Shift and Reshape a Library for the Future." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 15–22. Seattle: Association of Research Libraries, 2014.
- Jantti, Margie, and Brian Cox. "Measuring the Value of Library Resources and Student Academic Performance through Relational Datasets." *Evidence Based Library and Information Practice* 8, no. 2 (2013): 163–71.
- Jastram, Iris, Danya Leebaw, and Heather Tompkins. "Situating Information Literacy within the Curriculum: Using a Rubric to Shape a Program." *portal: Libraries and the Academy* 14, no. 2 (2014): 165–86.
- Jones, Jennifer. "Secret Shoppers in the Library." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 117–26. Charlottesville, VA: Association of Research Libraries, 2012.
- Jubb, Michael, Ian Rowlands, and David Nicholas. "Value of Libraries: Relationships between Provision, Usage, and Research Outcomes." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 311–22. Washington, DC: Association of Research Libraries, 2010.
- Kay, David. "Discovering the Pattern, Discerning the Potential: The Role of the Library in Unraveling the Cat's Cradle of Activity Data." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 269–82. Seattle: Association of Research Libraries, 2014.

- Ke, Irene, and Christina Gola. "Collaborating with Assessment Services to Evaluate Information Literacy Skills of Graduating Undergraduates." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 171–80. Charlottesville, VA: Association of Research Libraries, 2012.
- Kelly, Betsy, Claire Hamasu, and Barbara Jones. "Applying Return on Investment (ROI) in Libraries." *Journal of Library Administration* 52, no.8 (2012): 656–71. doi:10.1080/01930826.2012.747383.
- Kelly, Madeline. "Applying the Tiers of Assessment: A Holistic and Systematic Approach to Assessing Library Collections." *Journal of Academic Librarianship* 40, no. 6 (2014): 585–91. doi:10.1016/j.acalib.2014.10.002.
- Kennedy, Marie. "Cycling Through: Paths Libraries Take to Marketing Electronic Resources." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 721–30. Washington, DC: Association of Research Libraries, 2010.
- Kenney, Anne R., and Xin Li. 2016. "Rethinking Research Libraries in the Era of Global Universities." Ithaca S+R, July 14, 2016. doi:http://dx.doi.org/10.18665/sr.283378.
- Kiel, Stephen "Mike," Natalie Burclaff, and Catherine Johnson. "Learning by Doing: Developing a Baseline Information Literacy Assessment." *portal: Libraries and the Academy* 15, no. 4 (2015): 747–66.
- Killick, Selena. "Applying Performance Measurement to Safeguard Budgets: Qualitative and Quantitative Measurement of Electronic Journal Packages." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 731–36. Charlottesville, VA: Association of Research Libraries, 2012.
- Kim, Hae Min. "Evaluation of the Applicability of E-S-QUAL for Assessing the Service Quality of Social Media: A Case Study of an Academic Library's Facebook Service." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 622–35. Seattle: Association of Research Libraries, 2014.
- King, Donald W., and Carol Tenopir. "Linking Information Seeking Patterns with Purpose, Use, Value, and Return on Investment of Academic Library Journals." *Evidence Based Library and Information Practice* 8, no. 2 (2013): 153–62.
- King, Donald, Ariana Ricci, Carol Tenopir, Ben Birch, and Liz Whitson. "Assessment of the Use, Value and ROI of All Academic Library Services." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 35–50. Charlottesville, VA: Association of Research Libraries, 2012.
- King, Valery, and Sara Christensen-Lee. "Full-Time Reference with Part-Time Librarians: Dealing with Staffing Realities, Meeting User Needs." *Reference & User Services Quarterly* 54, no. 1 (2014): 34–43. doi:10.5860/rusq.54n1.34.
- Kinsley, Kirsten, and Rachel Besara. "Increasing the Impact & Value of a Graduate-Level Research Methods Course by Embedding Assessment Librarians." In *Proceedings of the 2020 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 311–22. Charlottesville, VA: Association of Research Libraries, 2012.

- Kiviluoto, J. "Information Literacy and Diginatives: Expanding the Role of Academic Libraries." *IFLA Journal* 41, no. 4 (2015): 308–16. doi:10.1177/0340035215596177.
- Koltay, Zsuzsa, and Elena MacGurn. "Cutting the Knot: A Holistic and Pragmatic Framework for Public Services Measures." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 533–38. Washington, DC: Association of Research Libraries, 2010.
- Kopp, Maggie Gallup. "Academic Libraries, Institutional Missions, and New Student Recruitment: A Case Study." *Reference Services Review* 41, no. 2 (2013): 192–200. doi:10.1108/00907321311326192.
- Krueger, Stephanie, and Anna Perricci. "Evaluating Usage of Non-Text Resources Within and Beyond the Online Environment." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 563–70. Washington, DC: Association of Research Libraries, 2010.
- Kurzweil, Martin, Rayane Alamuddin, and Daniel Rossman. "Higher Ed Insights: Results of the Fall 2015 Survey." Ithaka S+R, February 22, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR\\_Report\\_Higher\\_Ed-Insights\\_Fall2015Survey\\_022216.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/02/SR_Report_Higher_Ed-Insights_Fall2015Survey_022216.pdf).
- Kurzweil, Martin, and Daniel Rossman. "Broad-Based and Targeted: Florida State University's Efforts to Retain Every Student." Ithaka S+R, April 28, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/04/SR\\_Case\\_Study\\_Broad\\_Based\\_Targeted\\_Florida\\_State042816.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/04/SR_Case_Study_Broad_Based_Targeted_Florida_State042816.pdf).
- Kurzweil, Martin, and D. Derek Wu. "Building a Pathway to Student Success at Georgia State." Ithaka S+R, April 23, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR\\_Case\\_Study\\_Building\\_Pathway\\_Student\\_Success\\_042315\\_0.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR_Case_Study_Building_Pathway_Student_Success_042315_0.pdf).
- Kyrillidou, Martha. "The Association of Research Libraries Library Scorecard Pilot: Using the Balanced Scorecard in Research Libraries." *Research Library Issues: A BiMonthly Report from Association of Research Libraries, CNI, and SPARC* 271 (2010): 36–40. <http://www.arl.org/resources/pubs/rli/archive/rli271.shtml>.
- Law, Derek. "The World Is Our Lobster: Rethinking Traditional Attitudes." *New Library World* 115, no. 5-6 (2014): 200–210. doi:10.1108/NLW-05-2014-0054.
- Lazzaro, Althea Eannance, Shardé Mills, Tami Garrard, Emily Ferguson, Megan Watson, and Dave Ellenwood. "Cultural Competency on Campus: Applying ACRL's Diversity Standards." *College & Research Libraries News* 73, no. 8 (2014): 332–35.
- Levine-Clark, Michael. "Access to Everything: Building the Future Academic Library Collection." *portal: Libraries and the Academy* 14, no. 3 (2014): 425–37. doi:10.1353/pla.2014.0015.
- Lewellen, Rachel, and Terry Plum. "Assessment of the Usage of Electronic Resources at the University of Massachusetts Amherst: A MINES for Libraries(R) Study Using Tableau Software for Visualization and Analysis." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 601–14. Seattle: Association of Research Libraries, 2014.
- Lewis, Janice Steed. "The Academic Library in Institutional Assessment: Seizing an Opportunity." *Library Leadership and Management* 24, no. 2 (2010): 65–77. <http://llama.metapress.com/content/R84036136548NN67%5Cnhttp://llama.metapress.com/content/R84036136548nn67/fulltext.pdf>.

- Little, Hannah Byrd. "Prove It! Putting Together the Evidence-Based Practice Puzzle." *Knowledge Quest* 43, no. 3 (2015): 62–68.
- Loertscher, David V. "Collaboration and Coteaching: A New Measure of Impact." *Teacher Librarian* 42, no. 2 (2014): 8–19.
- Lombard, Emmett. "The Role of the Academic Library in College Choice." *Journal of Academic Librarianship* 38, no. 4 (2012): 237–41. doi:10.1016/j.acalib.2012.04.001.
- Long, Matthew, and Roger Schonfeld. "Ithaka S+R's Research Support Services for Scholars: A Disciplinary Approach to Creating Innovative Library Services." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 331–36. Charlottesville, VA: Association of Research Libraries, 2012.
- Lowe, M. Sara, Char Booth, Sean Stone, and Natalie Tagge. "Impacting Information Literacy Learning in First-Year Seminars: A Rubric-Based Evaluation." *portal: Libraries and the Academy* 15, no. 3 (2015): 489–512. doi:10.1353/pla.2015.0030.
- Lundrigan, Courtney, Kevin Manuel, and May Yan. "'Feels like You've Hit the Lottery:': Assessing the Implementation of a Discovery Layer Tool at Ryerson University." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 447–68. Charlottesville, VA: Association of Research Libraries, 2012.
- Lupton, Aaron, Marcia Salmon, and Dany Savard. "An Implementation of LibQUAL+(R) Triads at York University." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 685–92. Charlottesville, VA: Association of Research Libraries, 2012.
- Lym, Brian, Hal Grossman, Lauren Yannotta, and Makram Talih. "Assessing the Assessment: How Institutions Administered, Interpreted, and Used SAILS." *Reference Services Review* 38, no. 1 (2010): 168–86. doi:10.1108/00907321011020806.
- Lynch, Beverly, Susan Parker, Linda Kobashigawa, Sara Pacheco, Jeremy Whitt, Leslie McMichael, and Michael Qui. "A Longitudinal Analysis of 2003-2013 LibQUAL+(R) Survey Results for the UCLA Library." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 91–124. Seattle: Association of Research Libraries, 2014.
- MacAyeal, Greg. "A Culture of Assessment: Five Mindsets." *College & Research Libraries News* 75, no. 6 (2014): 311–12.
- MacDonald, Karen I., and Wyoma VanDuinkerken. "Libraries Surviving as Entrepreneurial Organizations: A Creative Destruction Perspective." *New Library World* 116, no. 7-8 (2015): 406–19. doi:10.1108/NLW-01-2015-0005.
- Mackenzie, Allison. "Revitalising Strategic Planning: Introducing the Balanced Scorecard." In *9th Northumbria International Conference on Performance Measurement in Libraries and Information Services*, 243–48. Heslington, York: University of York, 2012.  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.297.5043&rep=rep1&type=pdf#page=245>.
- Mader, Sharon, Tish Hayes, Susan Miller, Leslie Morgan, Nicole Pagowsky, and Donna Witek. "Framework Advisory Report to the Board." In *ACRL MW16 Board Update*, 1–90. Association of College & Research Libraries (ACRL), 2016.

- Malenfant, Kara, and Karen Brown. "Assessment in Action: Multifaceted Collaboration." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 377–81. Seattle: Association of Research Libraries, 2014.
- Marcum, Deanna. "Technology to the Rescue: Can Technology-Enhanced Education Help Public Flagship Universities Meet Their Challenges?" Ithaka S+R, 2014. [http://www.sr.ithaka.org/wp-content/uploads/2014/04/SR\\_BriefingPaper\\_Marcum\\_20140421.pdf](http://www.sr.ithaka.org/wp-content/uploads/2014/04/SR_BriefingPaper_Marcum_20140421.pdf).
- Marcum, Deanna, Christine Mulhern, and Clara Samayoa. "Technology-Enhanced Education at Public Flagship Universities: Opportunities and Challenges." Ithaka S+R, December 11, 2014. [http://www.sr.ithaka.org/wp-content/mig/reports/SR\\_Technology\\_Enhanced\\_Education\\_Public\\_Flagship\\_Universities\\_121114\\_0.pdf](http://www.sr.ithaka.org/wp-content/mig/reports/SR_Technology_Enhanced_Education_Public_Flagship_Universities_121114_0.pdf).
- Martell, Charles. "Age of Creative Insecurity: Student-Centered Learning." *Journal of Education for Librarianship* 15, no. 2 (1974): 112–20.
- Martinelli, Meredith, and Jennifer Peasley. "One Size Doesn't Fit All? Harnessing Multiple Assessment Frameworks to Build the Value Proposition for the Organisation." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 143–52. Charlottesville, VA: Association of Research Libraries, 2012.
- Massis, Bruce E. "Information Literacy Instruction in the Library: Now More than Ever." *New Library World* 112, no. 5-6 (2011): 274–77. doi:10.1108/03074801111136301.
- Mathews, Brian. "Think like a Startup." White paper, April 2012. <https://vtechworks.lib.vt.edu/bitstream/handle/10919/18649/Think%20like%20a%20STARTUP.pdf>.
- Mathews, Brian. "Librarian as Futurist: Changing the Way Libraries Think about the Future." *portal: Libraries and the Academy* 14, no. 3 (2014): 453–62.
- Mathews, Katy. "Moving beyond Diversity to Social Justice: A Call to Action for Academic Libraries." *Progressive Librarian* 44 (2016): 6–27.
- Mathews, Katy, and Rebekah Kilzer. "Driving Partnerships for Assessment and Engagement." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 443–46. Seattle: Association of Research Libraries, 2014.
- Mathews, Graham, and Graham Walton. "Strategic Development of University Library Space: Widening the Influence." *New Library World* 115, no. 5-6 (2014): 237–49. doi:10.1108/NLW-05-2014-0062.
- Mathews, Joseph. "Addressing Organizational Effectiveness: The Role of Frameworks." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 277–98. Washington, DC: Association of Research Libraries, 2010.
- Mathews, Joseph R. "Valuing Information, Information Services, and the Library: Possibilities and Realities." *portal: Libraries and the Academy* 13, no. 1 (2013): 91–112. doi:10.1353/pla.2013.0000.

- Matthews, Joseph R. "Assessing Organizational Effectiveness: The Role of Performance Measures." *The Library Quarterly* 81, no. 1 (2011): 83–110.
- Matthews, Joseph R. "Assessing Library Contributions to University Outcomes: The Need for Individual Student Level Data." *Library Management* 33, no. 6-7 (2012): 389–402.
- Mays, Regina, and Teresa Walker. "How Library Learning Spaces Contribute to Student Success: A LibValue Project." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 541–44. Seattle: Association of Research Libraries, 2014.
- McCarthy, Cheryl, and Danuta Nitecki. "An Assessment of the Bass Library as a Learning Commons Environment." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 89–98. Washington, DC: Association of Research Libraries, 2010.
- McClure, Hazel, and Patricia Bravender. "Regarding Reference in an Academic Library: Does the Desk Make a Difference?" *Reference & User Services Quarterly* 52, no. 4 (2013): 302–8.
- McCulley, Lucretia. "Sustaining Feedback: Assessment in the Liberal Arts College Library." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 225–34. Washington, DC: Association of Research Libraries, 2010.
- McEachron, D. L., C. Bach, and M. Sualp. "Digital Socrates: A System for Disseminating and Evaluating Best Practices in Education." *Campus-Wide Information Systems* 29, no. 4 (2012): 226–37. doi:doi:10.1108/10650741211253822.
- McLure, Merinda, Allison V. Level, Catherine L. Cranston, Beth Oehlerts, and Mike Culbertson. "Data Curation: A Study of Researcher Practices and Needs." *portal: Libraries and the Academy* 14, no. 2 (2014): 139–64. doi:10.1353/pla.2014.0009.
- Menchaca, Frank. "Start a New Fire: Measuring the Value of Academic Libraries in Undergraduate Learning." *portal: Libraries and the Academy* 14, no. 3 (2014): 353–67. doi:10.1353/pla.2014.0020.
- Mengel, Elizabeth, and Vivian Lewis. "Collaborative Assessment: North American Academic Libraries' Experiences Using the Balanced Scorecard to Measure Performance and Show Value." *Library Management* 33, no. 6-7 (2012): 357–64.
- Milbourn, Amanda. "A Big Picture Approach: Using Embedded Librarianship to Proactively Address the Need for Visual Literacy Instruction in Higher Education." *Art Documentation: Bulletin of the Art Libraries Society of North America* 32, no. 2 (2013): 274–83.
- Miller, Kelly E. "Imagine! On the Future of Teaching and Learning and the Academic Research Library." *portal: Libraries and the Academy* 14, no. 3 (2014): 329–51.
- Mirtz, Ruth. "Spatial Metaphors and Distance Learning Library Services: Why 'Where' Makes a Difference." *Journal of Library Administration* 50, no. 7-8 (2010): 857–66. doi:10.1080/01930826.2010.488984.
- Monroe-Gulick, Amalia, and Julie Petr. "Conversations with Students: Assessment Leads to Adjustment." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 523–32. Charlottesville, VA: Association of Research Libraries, 2012.



- Morales, Myrna, Em Claire Knowles, and Chris Bourg. "Diversity, Social Justice, and the Future of Libraries." *portal: Libraries and the Academy* 14, no. 3 (2014): 439–51.
- Moser, Mary, Andrea Heisel, Nitya Jacob, and Kitty Mcneill. "A More Perfect Union: Campus Collaborations for Curriculum Mapping Information Literacy Outcomes." In *ACRL 2011 Conference Proceedings*, 330–39. Chicago: Association of College & Research Libraries, 2011.
- Most, Linda R., Michelle M. Kazmer, and Paul F. Marty. "Intangible Factors Influencing the Successful Completion of Graduate LIS Coursework by Non-Traditional Students: A Case of Two IMLS-Funded Scholarship Projects." *Journal of Education for Library and Information Science* 54, no. 3 (2013): 205–19. <http://search.ebscohost.com/login.aspx?direct=true&db=ofs&AN=89335727&site=ehost-live>.
- Mulhern, Christine, Richard R. Spies, Matthew P. Staiger, and D. Derek Wu. "The Effects of Rising Student Costs in Higher Education: Evidence from Public Institutions in Virginia." Ithaka S+R, March 4, 2015. [http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR\\_Report\\_Effects\\_of\\_Rising\\_Student\\_Costs\\_in\\_Higher\\_Education\\_Virginia\\_030415.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/08/SR_Report_Effects_of_Rising_Student_Costs_in_Higher_Education_Virginia_030415.pdf).
- Murphy, Jennifer. "Marketing the Library in an On-Line University to Help Achieve Information Literacy." *Education Libraries* 36, no. 2 (2013): 17–24.
- Murphy, Sarah Anne. "Quality Frameworks in Academic Libraries: Organizing and Sustaining Library Assessment Activities." In *Proceedings of the 2020 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 483–94. Charlottesville, VA: Association of Research Libraries, 2012.
- Murray, Adam. "Academic Libraries and High-Impact Practices for Student Retention: Library Deans' Perspectives." *portal: Libraries and the Academy* 15, no. 3 (2015): 471–87. doi:10.1353/pla.2015.0027.
- Nackerud, Shane, Jan Fransen, Kate Peterson, and Kristen Mastel. "Analyzing Demographics: Assessing Library Use across the Institution." *portal: Libraries and the Academy* 13, no. 2 (2013): 131–45.
- Neurohr, Karen, and Lucy Bailey. "Using Photovoice to Explore Native American Students' Perceptions of the Physical Library." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 74–89. Seattle: Association of Research Libraries, 2014.
- Nguyen, Linh Cuong. "Establishing a Participatory Library Model: A Grounded Theory Study." *Journal of Academic Librarianship* 41, no. 4 (2015): 475–87. doi:10.1016/j.acalib.2015.03.018.
- Nichols Hess, Amanda, Katie Greer, Shawn V. Lombardo, and Adriene Lim. "Books, Bytes, and Buildings: The Academic Library's Unique Role in Improving Student Success." *Journal of Library Administration* 55, no. 8 (2015): 622–38. doi:10.1080/01930826.2015.1085241.
- Nichols, Jane. "Nuanced and Timely: Capturing Collections Feedback at Point of Use." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 615–21. Seattle: Association of Research Libraries, 2014.
- Nicol, Erica Carlson, and Mark O'English. "Rising Tides: Faculty Expectations of Library Websites." *portal: Libraries and the Academy* 12, no. 4 (2012): 371–86.



- Nitecki, Danuta. "Space Assessment as a Venue for Defining the Academic Library." *The Library Quarterly* 81, no. 1 (2011): 27–59.
- Nitecki, Danuta A., and Eileen G. Abels. 2013. "Exploring the Cause and Effect of Library Value." *Performance Measurement and Metrics* 14, no. 1 (2013): 17–24. doi:10.1108/14678041311316103.
- Noh, Younghee. "A Study Measuring the Performance of Electronic Resources in Academic Libraries." *Aslib Proceedings* 64, no. 2 (2012): 134–53. doi:10.1108/00012531211215169.
- Nolfi, David, Maureen Diana Sasso, and Lori Koelsch. "Collaborating with Faculty to Assess Undergraduate Information Literacy in Degree Programs." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 142–45. Seattle: Association of Research Libraries, 2014.
- Northam, Sarah, Gail Johnston, Megan Beard, Scott Lancaster, and John Atabaev. "The Stat Solicitor: Proving Academic Value through Statistics." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 447–54. Seattle: Association of Research Libraries, 2014.
- Oakleaf, Megan. "Staying on Track with Rubric Assessment: Five Institutions Investigate Information Literacy Learning." *Peer Review* 14, no. 1 (2011): 18–21.
- Oakleaf, Megan. "3 Years of Rubric Research: The Take Aways for Information Literacy Teaching, Learning, & Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 470–75. Seattle: Association of Research Libraries, 2014.
- Oakleaf, Megan. "Are They Learning? Are We? Learning Outcomes and the Academic Library." *The Library Quarterly* 81, no. 1 (2012): 61–82.
- Oakleaf, Megan. "Correlating Library Services, Expertise, and Resources with Student Learning." *Information Outlook* 18, no. 2 (2014): 13–16. doi:10.1017/CBO9781107415324.004.
- Oakleaf, Megan, and Amy VanScoy. "Instructional Strategies for Digital Reference: Methods to Facilitate Student Learning." *Reference & User Services Quarterly* 49, no. 4 (2010): 380–90.
- Odeh, Atif Yousef. "Use of Information Resources by Undergraduate Students and Its Relationship with Academic Achievement." *Libri* 62, no. 3 (2012): 222–32. doi:10.1515/libri-2012-0018.
- Pan, Denise, Ignacio J. Ferrer-Vinent, and Margret Bruehl. "Library Value in the Classroom: Assessing Student Learning Outcomes from Instruction and Collections." *The Journal of Academic Librarianship* 40, no. 3-4 (2014): 332–38. doi:10.1016/j.acalib.2014.04.011.
- Passonneau, Sarah. "Instant Messaging, A Synchronous Virtual Reference Tool That Mirrors Higher Education's Mission and Students' Needs: How Grounded Theory Placed the Library in the Middle of the Mix." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 581–92. Washington, DC: Association of Research Libraries, 2010.
- Pellegrino, Catherine. "But What Did They Learn? What Classroom Assessment Can Tell You about Student Learning." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 175–80. Washington, DC: Association of Research Libraries, 2010.

- Pemberton, Anne, and Linda Siefert. "Assessing Information Literacy in General Education: A Collaborative Approach Using a Metarubric." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 265–68. Seattle: Association of Research Libraries, 2014.
- Poll, Roswitha. "Can We Quantify the Library's Influence? Creating an ISO Standard for Impact Assessment." *Performance Measurement and Metrics* 13, no. 2 (2012): 121–30. doi:10.1108/14678041211241332.
- Porat, Lynne. "Marketing and Assessment in Academic Libraries: A Marriage of Convenience or True Love?" In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 743–48. Washington, DC: Association of Research Libraries, 2010.
- Radcliff, Carolyn, Megan Oakleaf, and Michele Van Hoeck. "So What? The Results and Impact of a Decade of IMLS-Funded Information Literacy Assessments." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 801–9. Seattle: Association of Research Libraries, 2014.
- Radcliff, Sharon, and Elise Wong. "Assessing Argument, Critical Thinking and Information Literacy Learning Outcomes." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 386–87. Seattle: Association of Research Libraries, 2014.
- Rawls, Michael. "Can Academic Analytics Tell Us How Libraries Impact Faculty Scholarly Research Productivity in Different Disciplines?" In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 710–20. Seattle: Association of Research Libraries, 2014.
- Rawls, Michael. "Measuring the Impact of Electronic Library Materials on the University's Research Mission." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 67–76. Charlottesville, VA: Association of Research Libraries, 2012.
- Ray, Lauren, and Katharine Macy. "Assessment in Space Designed for Experimentation: The University of Washington Libraries Research Commons." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 507–16. Seattle: Association of Research Libraries, 2014.
- Research Libraries UK and the Research Information Network. "The Value of Libraries for Research and Researchers: A RIN and RLUK Report." RLUK and RIN, March 2011. <http://www.rluk.ac.uk/wp-content/uploads/2014/02/Value-of-Libraries-report.pdf>.
- Richardson, Joanna, Therese Nolan-Brown, Pat Loria, and Stephanie Bradbury. "Library Research Support in Queensland: A Survey." *Australian Academic & Research Libraries* 43, no. 4 (2012): 258–77. doi:10.1080/00048623.2012.10722287.
- Riehle, Catherine Fraser, and Sharon A. Weiner. "High-Impact Educational Practices: An Exploration of the Role of Information Literacy, Critical Thinking, and Lifelong Learning." *College & Undergraduate Libraries* 20, no. 2 (2013): 127–43. doi:10.1080/10691316.2013.789658.

- Rinto, Erin E., and Elisa I. Cogbill-Seiders. "Library Instruction and Themed Composition Courses: An Investigation of Factors That Impact Student Learning." *The Journal of Academic Librarianship* 41, no. 1 (2015): 14–20. doi:10.1016/j.acalib.2014.11.010.
- Ritterbush, Jon. "Assessing Academic Library Services to Distance Learners: A Literature Review of Perspectives from Librarians, Students, and Faculty." *Reference Librarian* 55, no. 1 (2014): 26–36. doi:10.1080/02763877.2014.853274.
- Robertson, Mark. "Perceptions of Canadian Provosts on the Institutional Role of Academic Libraries." *College & Research Libraries* 76, no. 4 (2015): 490–511. doi:10.5860/crl.76.4.490.
- Roy, Abhik, Adwait Khare, Ben S. C. Liu, Linda M. Hawkes, and Janice Swiatek-Kelley. "An Investigation of Affect of Service Using a LibQUAL+™ Survey and an Experimental Study." *The Journal of Academic Librarianship* 38, no. 3 (2012): 153–60. doi:10.1016/j.acalib.2012.03.018.
- Rutner, Jennifer. "Still Bound for Disappointment? Another Look at Faculty and Library Journal Collections." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 297–310. Washington, DC: Association of Research Libraries, 2010.
- Samson, Sue. "Information Literacy Learning Outcomes and Student Success." *Journal of Academic Librarianship* 36, no. 3 (2010): 202–10. doi:10.1016/j.acalib.2010.03.002.
- Santos, Ieda M., Nagla Ali, and Anthony Hill. "Students as Co-Designers of a Virtual Learning Commons: Results of a Collaborative Action Research Study." *Journal of Academic Librarianship* 42, no. 1 (2015): 8–14. doi:10.1016/j.acalib.2015.09.006.
- Saunders, Laura. "Academic Libraries' Strategic Plans: Top Trends and Under-Recognized Areas." *Journal of Academic Librarianship* 41, no. 3 (2015): 285–91. doi:10.1016/j.acalib.2015.03.011.
- Saunders, Laura, and Megan Oakleaf. "Assessment of Information Literacy as a Student Learning Outcome: Overcoming Barriers and Achieving Standards." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 292–300. Charlottesville, VA: Association of Research Libraries, 2012.
- Saurina, Elvira, Nick Kelly, Maximiliano Montenegro, Carlos Gonzalez, Magdalena Jara, Rosa Alarcon, and Felipe Cano. "Exploring the Relationship between Undergraduate Students' Use of Library Resources and Learning Outcomes." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 476–82. Seattle: Association of Research Libraries, 2014.
- Savage, Devin. "Collaborating across Campus to Articulate the Value of Research Consultations." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 558–60. Seattle: Association of Research Libraries, 2014.
- Scales, B. Jane, and Marilyn Von Seggern. "Experiencing the Assessment Cycle: Government Document Instruction to Undergraduates." *DttP: Documents to the People* 38, no. 3 (2010): 22–26. <http://search.proquest.com/docview/822521322?accountid=14542>.

- Scharf, Meg, and Bob Fox. "The Role of Student Advisory Boards in Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 146–48. Seattle: Association of Research Libraries, 2014.
- Schonfeld, Roger C., and Ross Housewright. "Faculty Survey 2009: Key Strategic Insights for Libraries, Publishers, and Societies." Ithaka S+R, April 7, 2010. [http://www.sr.ithaka.org/wp-content/uploads/2015/08/Faculty\\_Study\\_2009.pdf](http://www.sr.ithaka.org/wp-content/uploads/2015/08/Faculty_Study_2009.pdf).
- Schonfeld, Roger C., Ross Housewright, and Kate Wulfson. "Ithaka S+R US Faculty Survey 2012." Datasets. doi:10.3886/ICPSR34651.
- Schwieder, David, and Lisa Janicke Hinchliffe. "NCES Datasets and Library Value: An Exploratory Study of the 2008 Data." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 657–68. Charlottesville, VA: Association of Research Libraries, 2012.
- Searing, Susan E., and Alison M Greenlee. "Faculty Responses to Library Service Innovations: A Case Study." *Journal of Education for Library and Information Science* 52, no. 4 (2011): 279–94.
- Self, James. "Library Assessment: More than Numbers." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 495–500. Charlottesville, VA: Association of Research Libraries, 2012.
- Selingo, Jeffrey J. *2026 The Decade Ahead: The Seismic Shifts Transforming the Future of Higher Education*. Washington DC: The Chronicle of Higher Education, 2016.
- Shepstone, Carol. "Finding the Library: An Institutional Assessment of the Undergraduate Experience." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 251–60. Washington, DC: Association of Research Libraries, 2010.
- Simon, John. "Dollars and Sense: The New Financial Realities of Higher Education." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 19–22. Charlottesville, VA: Association of Research Libraries, 2012.
- Sites, Martha, Donna Tolson, and Anda Webb. "Telling the Story: Library Assessment for University Leadership." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 337–44. Charlottesville, VA: Association of Research Libraries, 2012.
- Sivak, Allison, and Richard Hayman. "Interdisciplinary Collection Assessment Model." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 663–76. Washington, DC: Association of Research Libraries, 2010.
- Slight-Gibney, Nancy, and Wendy Ames. "GRAD Connect." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 555–57. Seattle: Association of Research Libraries, 2014.

- Smith, Meggan D., and Amy B. Dailey. "Improving and Assessing Information Literacy Skills through Faculty-Librarian Collaboration." *College & Undergraduate Libraries* 20, no. 3-4 (2013): 314–26. doi:10.1080/10691316.2013.829370.
- Soria, Krista M., Jan Fansen, and Shane Nackerud. "Library Use and Undergraduate Student Outcomes: New Evidence for Students' Retention and Academic Success." *portal: Libraries and the Academy* 13, no. 2 (2013): 147–64. doi:10.1353/pla.2013.0010.
- Spadafora, David. "Short-Term Costs for Long-Term Benefits." *Journal of Library Administration* 52, no. 1 (2012): 108–23. doi:10.1080/01930826.2012.629967.
- Speare, Marie. "LibQUAL+(R) Triads Pilot: Results from the University of Manitoba Libraries." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 707–18. Charlottesville, VA: Association of Research Libraries, 2012.
- Staley, David J., and Kara J. Malenfant. "Futures Thinking for Academic Librarians: Higher Education in 2025." *Information Services and Use* 30, no. 1-2 (2010): 57–90. doi:10.3233/ISU-2010-0614.
- Steele, Patricia, and Nancy Fried Foster. "Multidisciplinary Rethinking and Redesign of Library Space." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 261–68. Charlottesville, VA: Association of Research Libraries, 2012.
- Stemmer, John, and David Mahan. "Assessing the Library's Influence on Undergraduate Outcomes with Student Usage Surveys." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 77–88. Charlottesville, VA: Association of Research Libraries, 2012.
- Stewart-Mailhot, Amy, Mary O'Kelly, and Danielle Theiss. "Assessment in Action: A Journey through Campus Collaboration, a Learning Community, and Research Design." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 388–90. Seattle: Association of Research Libraries, 2014.
- Stewart, Christopher. "Measuring Information Literacy: Beyond the Case Study." *The Journal of Academic Librarianship* 37, no. 3 (2011): 270–72. doi:10.1016/j.acalib.2011.03.003.
- Stielow, Fred. "Accreditation, ROI, and the Online Academic Library." *Computers in Libraries* 31, no. 9 (2011), <http://www.infotoday.com/cilmag/nov11/Stielow.shtml>.
- Stone, Graham, and Bryony Ramsden. "Library Impact Data Project: Looking for the Link between Library Usage and Student Attainment." *College & Research Libraries* 74, no. 6 (2013): 546–59. doi:10.5860/crl12-406.
- Strub, Maurini, and Melissa Laning. "Putting a UX Lens on Library Space Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 693–95. Seattle: Association of Research Libraries, 2014.
- Szentkiralyi, Zoltan. "Patron Usage of Information Commons at SMU." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 561–65. Seattle: Association of Research Libraries, 2014.



- Tang, Karen. "Did They Find It? Developing a Revised Materials Availability Survey." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 706–9. Seattle: Association of Research Libraries, 2014.
- Tawatao, Christine, Rachel Hungerford, Lauren Ray, and Jennifer L. Ward. "LibGuides Usability Testing: Customizing a Product to Work for Your Users." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 369–86. Washington, DC: Association of Research Libraries, 2010.
- Tawatao, Christine, Verletta Kern, Nia Lam, and Robin Chin Roemer. "Watch and Learn: Assessment of Online Video Tutorials." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 566–70. Seattle: Association of Research Libraries, 2014.
- Tenopir, Carol. "Measuring the Value of the Academic Library: Return on Investment and Other Value Measures." *The Serials Librarian* 58, no. 1-4 (2010): 39–48. doi:10.1080/03615261003623005.
- Tenopir, Carol. "Building Evidence of the Value and Impact of Library and Information Services: Methods, Metrics and ROI." *Evidence Based Library and Information Practice* 8, no. 2 (2013): 270–74.
- Tenopir, Carol, Lisa Christian, and Donald King. "Scholarly Reading Patterns of US Graduate and Undergraduate Students." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 535–40. Seattle: Association of Research Libraries, 2014.
- Tenopir, Carol, Rachel Volentine, and Donald W. King. "UK Scholarly Reading and the Value of Library Resources: Summary Results of the Study Conducted Spring 2011." Center for Information and Communication Studies, University of Tennessee, February 1, 2012. <https://www.iisc-collections.ac.uk/Documents/Reports/UK%20Scholarly%20Reading%20and%20the%20Value%20of%20Library%20Resources%20Final%20Report.pdf>.
- Teske, Boris, Michael DiCarlo, and Dexter Cahoy. "Libraries and Student Persistence at Southern Colleges and Universities." *Reference Services Review* 41, no. 2 (2013): 266–79. doi:10.1108/00907321311326174.
- Theodore-Shusta, Eileen, and Araba Dawson-Andoh. "Engaging the Campus Community in Conversations on Diversity." *College & Research Libraries News* 75, no. 6 (2014): 328–31.
- Thomas, Brittney, Sam Van Horne, Wayne Jacobson, and Matthew Anson. "The Design and Assessment of the Learning Commons at the University of Iowa." *The Journal of Academic Librarianship* 41, 6 (2015): 804–13. doi:10.1016/j.acalib.2015.09.005.
- Thomas, Dana, and Kevin Manuel. "'Absolutely Amazing!': A Comparative Study of User Satisfaction with Summon(R)." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 571–82. Seattle: Association of Research Libraries, 2014.
- Thorpe, Angie, Ria Lukes, Diane J. Bever, and Yan He. "The Impact of the Academic Library on Student Success: Connecting the Dots." *portal: Libraries and the Academy* 16, no. 2 (2016): 373–92.

- Town, J. Stephen. "Value, Impact and the Transcendent Library: Progress and Pressures in Performance Measurement and Evaluation." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 267–76. Washington, DC: Association of Research Libraries, 2010.
- Town, J. Stephen, and Martha Kyrillidou. "Developing a Values Scorecard." *Performance Measurement and Metrics* 14, no. 1 (2013): 7–16. doi:10.1108/14678041311316095.
- Town, Stephen. "Making Value Measurement a Reality: Implementing the Value Scorecard." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 721. Seattle: Association of Research Libraries, 2014.
- Tuamsuk, Kulthida, Kanyarat Kwecien, and Jutharat Sarawanawong. "A University Library Management Model for Students' Learning Support." *International Information and Library Review* 45, no. 3-4 (2013): 94–107. doi:10.1016/j.iilr.2013.10.002.
- Turner, Nancy. "Librarians Do It Differently: Comparative Usability Testing with Students and Library Staff." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 387–94. Washington, DC: Association of Research Libraries, 2010.
- Vance, Jason M., Rachel Kirk, and Justin G. Gardner. "Measuring the Impact of Library Instruction on Freshmen Success and Persistence: A Quantitative Analysis." *Communications in Information Literacy* 6, no. 1 (2012): 49–58. doi:10.7548/cil.v6i1.189.
- Walsh, Taylor. *Unlocking the Gates: How and Why Leading Universities Are Opening up Access to Their Courses*. Princeton: Princeton University Press, 2011.
- Washburn, Allyson, and Sheila Bibb. "Student Information Seeking Behaviors: A Case Study In Collaboration." In *Proceedings of the 2012 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Martha Kyrillidou, Angela Pappalardo, Jim Self, and Amy Yeager, 323–30. Charlottesville, VA: Association of Research Libraries, 2012.
- Watts, John, and Stephanie Mahfood. "Assessing Library Research Consultations: A Mixed-Method Approach." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 583–89. Seattle: Association of Research Libraries, 2014.
- Weaver, Margaret. "Student Journey Work: A Review of Academic Library Contributions to Student Transition and Success." *New Review of Academic Librarianship* 19, no. 2 (2013): 101–24. doi:10.1080/13614533.2013.800754.
- Weiner, Sharon A., Tomalee Doan, and Hal Kirkwood. "The Learning Commons as a Locus for Information Literacy." *College & Undergraduate Libraries* 17, no. 2-3 (2010): 192–212. doi:10.1080/10691316.2010.484275.
- Weiner, Sharon, and Charles Watkinson. "What Do Students Learn from Participation in an Undergraduate Research Journal? Results of an Assessment." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 338–76. Seattle: Association of Research Libraries, 2014.

- Willcoxson, Lesley, Julie Cotter, and Sally Joy. "Beyond the First-Year Experience: The Impact on Attrition of Student Experiences throughout Undergraduate Degree Studies in Six Diverse Universities." *Information Research* 20, no. 1 (2015): 331–52. doi:10.1080/03075070903581533.
- Wilson, Lizabeth A. "Creating Sustainable Futures for Academic Libraries." *Journal of Library Administration* 52, no. 1 (2012): 78–93. doi:10.1080/01930826.2012.630241.
- Wolfe, Kate S. "Emerging Information Literacy and Research-Method Competencies in Urban Community College Psychology Students." *The Community College Enterprise* 21, no. 2 (2015): 93–99.
- Wolff, Christine, Alisa B. Rod, and Roger C. Schonfeld. 2016. "Ithaka S+R US Faculty Survey 2015." Ithaka S+R, April 4, 2016. [http://www.sr.ithaka.org/wp-content/uploads/2016/03/SR\\_Report\\_US\\_Faculty\\_Survey\\_2015040416.pdf](http://www.sr.ithaka.org/wp-content/uploads/2016/03/SR_Report_US_Faculty_Survey_2015040416.pdf).
- Wong, Shun Han Rebekah, and Dianne Cmor. "Measuring Association between Library Instruction and Graduation GPA." *College & Research Libraries* 72, no. 5 (2011): 464–73. doi:10.5860/crl-151.
- Wong, Shun Han Rebekah, and T. D. Webb. "Uncovering Meaningful Correlation between Student Academic Performance and Library Material Usage." *College & Research Libraries* 72, no. 4 (2011): 361–70. doi:10.5860/crl-129.
- Wu, Ming-der, and Shih-chuan Chen. "Graduate Students Appreciate Google Scholar, but Still Find Use for Libraries." *The Electronic Library* 32, no. 3 (2014): 375–89. doi:10.1108/EL-08-2012-0102.
- Yu, Jen-chien. "Show This, Not That: How to Communicate Assessment Results." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 455–61. Seattle: Association of Research Libraries, 2014.
- Zaugg, Holt. "Library Impact Study." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 722–28. Seattle: Association of Research Libraries, 2014.
- Ziegenfuss, Donna Harp, and Stephen Borrelli. "The Engaged Librarian: Crafting an Effective Assessment Plan to Determine the Impact of a Key Strategic Library Initiative." In *Proceedings of the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Sarah Durso, Steve Hiller, Martha Kyrillidou, and Angela Pappalardo, 753–65. Seattle: Association of Research Libraries, 2014.
- Zucca, Joe. "Data Farms or a Field of Dreams? Libraries Can Build Infrastructure for Collaborative Assessment." In *Proceedings of the 2010 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment*, edited by Steve Hiller, Kristina Justh, Martha Kyrillidou, and Jim Self, 515–24. Washington, DC: Association of Research Libraries, 2010.



## Notes

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1. The Project Plan is available at <http://www.oclc.org/content/dam/research/themes/acrl-agenda-timeline.pdf>. The first draft is available on the project page at <http://www.oclc.org/research/themes/user-studies/acrl-agenda.html>.
2. 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](http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/val_report.pdf).
3. Margaret Brown-Sica, "Using Academic Courses to Generate Data for Use in Evidence Based Library Planning," *Journal of Academic Librarianship* 39, no. 3 (2013): 275-287. doi:10.1016/j.acalib.2013.01.001; Krista Soria, Jan Fransen, and Shane Nackerud, "Library Use and Undergraduate Student Outcomes: New Evidence for Students' Retention and Academic Success," *portal: Libraries and the Academy* 13, no. 2 (2013): 147-164.
4. 1<sup>st</sup> International Conference on Learning Analytics and Knowledge 2011, "Analytics," accessed January 4, 2017, <https://tekri.athabascau.ca/analytics/>.
5. The virtual forum "Update on ACRL Action-Oriented Research Agenda," presented November 15, 2016, by Connaway, Kitzie, Mikitish, and Hammond, is available for viewing at [https://www.youtube.com/watch?v=PhOIR3u\\_Gdo&feature=youtu.be](https://www.youtube.com/watch?v=PhOIR3u_Gdo&feature=youtu.be). "What do we want to know: Completing an action-oriented research agenda," presented at the 2016 Library Assessment Conference (LAC), November 2, 2016, by Connaway and Carbery, is available <http://www.slideshare.net/LynnConnaway/what-do-we-want-to-know-completing-an-actionoriented-research-agenda>.
6. Association of College and Research Libraries, *Value of Academic Libraries; Chronicle of Education* Editors, "An Executive Summary," *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>.
7. Association of College and Research Libraries, *Value of Academic Libraries*.
8. Association of College and Research Libraries, *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.
9. 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?" *Journal of Academic Librarianship* 39, no. 3 (2013): 288-296; Amanda B. Albert, "Communicating Library Value: The Missing Piece of the Assessment Puzzle," *Journal of Academic Librarianship* 40 (2014): 634-637.
10. 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>.

- 
11. Peter Herson, Robert Dugan, and Danuta Nitecki, *Engaging in Evaluation and Assessment Research* (Santa Barbara: Libraries Unlimited, 2011).
12. Jon R. Hufford, "A Review of the Literature on Assessment in Academic and Research Libraries, 2005 to August 2011," *portal: Libraries and the Academy* 13, no. 1 (2013): 5-35. doi: 10.1353/pla.2013.0005.
13. Paul Coleman and Ada Jarred, "Regional Association Criteria and The Standards for College Libraries: The Informal Role of Quantitative Input Measures for Libraries in Accreditation," *The Journal of Academic Librarianship* 20, no. 5 (1994):273-284; Madeline Kelly, "Applying the Tiers of Assessment: A Holistic and Systematic Approach to Assessing Library Collections," *The Journal of Academic Librarianship* 40, no. 6 (2014): 585-591; Association of College & Research Libraries, *Standards for Libraries in Higher Education* (Chicago: Association of College and Research Libraries, 2011). <http://www.ala.org/acrl/standards/standardslibraries>.
14. Ben Hunter and Robert Perret. "Can Money Buy Happiness? A Statistical Analysis of Predictors for User Satisfaction," *The Journal of Academic Librarianship* 37, no. 5 (2011): 402-408; Graham Matthews and Graham Walton, "Strategic Development of University Library Space: Widening the Influence," *New Library World* 115, no. 5-6 (2014): 237-249; ARL Statistics, "Home," accessed January 5, 2017, <https://www.arlstatistics.org/home>.
15. Boris Teske, Michael DiCarlo, and Dexter Cahoy, "Libraries and Student Persistence at Southern Colleges and Universities," *Reference Services Review* 41, no. 2 (2013): 266-279. <http://dx.doi.org/10.1108/00907321311326174>.
16. Shane Nackerud, Jan Fransen, Kate Peterson, and Kristen Mastel, "Analyzing Demographics: Assessing Library Use Across the Institution," *portal: Libraries and the Academy* 13, no. 2 (2013): 131-145; Valery King and Sara Christensen-Lee, "Full-time Reference with Part-time Librarians: Dealing with Staffing Realities, Meeting User Needs," *Reference & User Services Quarterly* 54, no. 1 (2014): 34-43. doi:10.5860/rusq.54n1.34.
17. Stephen Bollinger, Nina Exner, and Octavious Spruill, "Trying to Measure Success: A Mid-size Academic Library Grapples with Assessing a Popular Tablet Loan Project," in *Mobile Devices: Services with Intention*, ed. Rebecca K. Miller, Heather Moorefield-Lang, and Carolyn Meier (*Library Technology Reports* 51, 9-15) (Chicago: ALA TechSource, 2015).
18. Liangzhi Yu, Qiulan Hong, Song Gu, and Yazun Wang, "An Epistemological Critique of Gap Theory Based Library Assessment: The Case of SERVQUAL," *Journal of Documentation* 64, no. 4 (2008): 511-551. <http://www.emeraldinsight.com/doi/abs/10.1108/00220410810884066>.
19. Colleen Cook, Fred Heath, and Bruce Thompson, "Users' Hierarchical Perspectives on Library Service Quality: A "LibQUAL+" Study," *College & Research Libraries* 62, no. 2 (2001): 147-153. doi: 10.5860/crl.62.2.147; Martha Kyrillidou and Fred M. Heath, "The Starving Research Library User: Relationships Between Library Institutional Characteristics and Spring 2002 LibQUAL+(™) Scores," *Journal of Library Administration* 40, no. 3-4 (2004): 1-11. [http://dx.doi.org/10.1300/J111v40n03\\_01](http://dx.doi.org/10.1300/J111v40n03_01); Colleen Cook and Bruce Thompson, "Psychometric Properties of Scores from the Web-based LibQUAL+ Study of Perceptions of Library Service Quality," *Library Trends* 49, no. 4 (2001): 585-604. [https://www.ideals.illinois.edu/bitstream/handle/2142/8369/librarytrendsv49i4d\\_opt.pdf?sequence=1](https://www.ideals.illinois.edu/bitstream/handle/2142/8369/librarytrendsv49i4d_opt.pdf?sequence=1); Bruce Thompson, Colleen Cook, and Martha Kyrillidou, "Concurrent Validity of LibQUAL+™ Scores: What Do LibQUAL+™ Scores Measure?" *The Journal of Academic Librarianship* 31, no. 6 (2005): 517-522. <http://dx.doi.org/10.1016/j.acalib.2005.08.002>; Youhua Wei, Bruce Thompson, and C. Colleen Cook, "Scaling Users' Perceptions of Library Service Quality Using Item Response Theory: A LibQUAL+™ Study," *portal: Libraries and the Academy* 5, no. 1 (2005): 93-104. [http://www.libqual.org/documents/admin/scaling\\_perceptions.pdf](http://www.libqual.org/documents/admin/scaling_perceptions.pdf); LibQUAL+, "General Information," accessed January 4, 2017, [https://www.libqual.org/about/about\\_lq/general\\_info](https://www.libqual.org/about/about_lq/general_info).

- 
20. Lorraine J. Haricombe and Bonna J. Boettcher, "Using LibQUAL+(™) Data in Strategic Planning: Bowling Green State University," *Journal of library administration* 40, no. 3-4 (2004): 181-195. [http://dx.doi.org/10.1300/J111v40n03\\_14](http://dx.doi.org/10.1300/J111v40n03_14); Steve Hiller, "Another Tool in the Assessment Toolbox: Integrating LibQUAL+(™) into the University of Washington Libraries Assessment Program," *Journal of Library Administration* 40, no. 3-4 (2008): 121-137. [http://dx.doi.org/10.1300/J111v40n03\\_10](http://dx.doi.org/10.1300/J111v40n03_10); Amy E. Knapp, "We Asked Them What They Thought, Now What Do We Do? The Use of LibQUAL+(™) Data to Redesign Public Services at the University of Pittsburgh," *Journal of library Administration* 40, no. 3-4 (2004): 157-171. [http://dx.doi.org/10.1300/J111v40n03\\_12](http://dx.doi.org/10.1300/J111v40n03_12); Stephen R. Shorb and Lori Driscoll, "LibQUAL+(™) Meets Strategic Planning at the University of Florida," *Journal of Library Administration* 40, no. 3-4 (2008): 173-180. [http://dx.doi.org/10.1300/J111v40n03\\_13](http://dx.doi.org/10.1300/J111v40n03_13); Judy T. Greenwood, Alex P. Watson, and Melissa Dennis, "Ten Years of LibQual: A Study of Qualitative and Quantitative Survey Results at the University of Mississippi 2001–2010," *The Journal of Academic Librarianship* 37, no. 4 (2011): 312-318. <http://www.sciencedirect.com/science/article/pii/S0099133311000735>; John H. Heinrichs, Thomas Sharkey, and Jeen-Su Lim, "Relative Influence of the LibQUAL+™ Dimensions on Satisfaction: A Subgroup Analysis," *College & Research Libraries* 66, no. 3 (2005): 248-265. doi: 10.5860/crl.66.3.248; Sherri Jones and Jessica Kayongo, "Identifying Student and Faculty Needs through LibQUAL+™: An Analysis of Qualitative Survey Comments," *College & Research Libraries* 69, no. 6 (2008): 493-509. doi: 10.5860/crl.69.6.493; Yu, Hong, Gu, and Wang, "An Epistemological Critique of Gap Theory Based Library Assessment," 511-551; Jeffrey N. Gatten, "Measuring Consortium Impact on User Perceptions: OhioLINK and LibQUAL+™," *The Journal of Academic Librarianship* 30, no. 3 (2004): 222-228. <http://dx.doi.org/10.1016/j.acalib.2004.02.004>; Tom Sanville, "Defending and Expanding Library Turf-The Need for Scalable Consumer Research," *Journal of Library Administration* 40, no. 3-4 (2004): 13-17. [http://dx.doi.org/10.1300/J111v40n03\\_02](http://dx.doi.org/10.1300/J111v40n03_02); Flo Wilson, "LibQUAL+(™) 2002 at Vanderbilt University: What Do the Results Mean and Where Do We Go from Here?" *Journal of Library Administration* 40, no. 3-4 (2008): 197-240. [http://dx.doi.org/10.1300/J111v40n03\\_15](http://dx.doi.org/10.1300/J111v40n03_15); Maria Anna Jankowska, Karen Hertel, and Nancy J. Young, "Improving Library Service Quality to Graduate Students: Libqual+™ Survey Results in a Practical Setting," *portal: Libraries and the Academy* 6, no. 1 (2006): 59-76. [http://www.libqual.org/documents/admin/Jankowska\\_Hertel\\_Young.pdf](http://www.libqual.org/documents/admin/Jankowska_Hertel_Young.pdf); Bruce Thompson, Colleen Cook, and Martha Kyriolidou, "Using Localized Survey Items to Augment Standardized Benchmarking Measures: A LibQUAL+ Study," *portal: Libraries and the Academy* 6, no. 2 (2006): 219-230. doi: 10.1353/pla.2006.0029; Michael J. Roszkowski, John S. Baky, and David B. Jones, "So Which Score on the LibQUAL+™ Tells Me If Library Users are Satisfied?" *Library & Information Science Research* 27, no. 4 (2005): 424-439. <http://dx.doi.org/10.1016/j.lisr.2005.08.002>; Abhik Roy, Adwait Khare, Ben S. C. Liu, Linda M. Hawkes, and Janice Swiatek-Kelley, "An Investigation of Affect of Service Using a LibQUAL+™ Survey and an Experimental Study," *The Journal of Academic Librarianship* 38, no. 3 (2012): 153-160. <http://dx.doi.org/10.1016/j.acalib.2012.03.018>; Xi Shi, and Sarah Levy, "A Theory-guided Approach to Library Services Assessment," *College & Research Libraries* 66, no. 3 (2005): 266-277. <http://crl.acrl.org/content/66/3/266.full.pdf>.
21. Ben Hunter and Robert Perret, "Can Money Buy Happiness? A Statistical Analysis of Predictors for User Satisfaction," *The Journal of Academic Librarianship* 37, no. 5 (2011): 402-408. <http://dx.doi.org/10.1016/j.acalib.2011.06.004>.
22. Angie Thorpe, Ria Lukes, Diane J. Bever, and Yan He, "The Impact of the Academic Library on Student Success: Connecting the Dots," *portal: Libraries and the Academy* 16, no. 2 (2016): 373–392. [https://www.press.jhu.edu/journals/portal\\_libraries\\_and\\_the\\_academy/portal\\_pre\\_print/articles/16.2thorpe.pdf](https://www.press.jhu.edu/journals/portal_libraries_and_the_academy/portal_pre_print/articles/16.2thorpe.pdf); Osman Celik and Roxanne Peck, "If You Expand, They Will Come: Textbook Affordability through Expansion of Course Reserves: The Case of UCLA Library's Course Reserves via Strategic Partnership with the Campus Independent Bookstore," *Technical Services Quarterly* 33, no. 3 (2016): 268-278. doi:10.1080/07317131.2016.1169788; M. Sara Lowe, Char Booth, Sean Stone, and Natalie Tagge, "Impacting Information Literacy Learning in First-year Seminars: A Rubric-based Evaluation," *portal: Libraries and the Academy* 15, no. 3 (2015): 489-512. doi:10.1353/pla.2015.0030; Amanda Nichols Hess, Katie Greer, Shawn V. Lombardo, and Adriene Lim, "Books, Bytes, and Buildings: The Academic Library's Unique Role in Improving Student Success," *Journal of Library Administration* 55, no. 8 (2015): 622-638. doi:10.1080/01930826.2015.1085241; Denise Pan, Ignacio J. Ferrer-Vinent, and Margret Bruehl, "Library Value in the Classroom: Assessing Student Learning Outcomes from Instruction and

---

Collections,” *The Journal of Academic Librarianship* 40, no. 3-4 (2014): 332–338.  
doi:10.1016/j.acalib.2014.04.011.

23. Soria, Fransen, and Nackerud, “Library Use and Undergraduate Student Outcomes,” 147-164; Atif Yousef Odeh, “Use of Information Resources by Undergraduate Students and Its Relationship with Academic Achievement,” *Libri* 62, no. 3 (2012): 222-232.

24. Sue Samson, “Information Literacy Learning Outcomes and Student Success,” *The Journal of Academic Librarianship* 36, no. 3 (2010): 202-210. <http://dx.doi.org/10.1016/j.acalib.2010.03.002>; Brian Lym, Hal Grossman, Lauren Yannotta, and Makram Talih, “Assessing the Assessment: How Institutions Administered, Interpreted, and Used SAILS,” *Reference Services Review* 38, no. 1 (2010): 168-186. <http://dx.doi.org/10.1108/00907321011020806>; Stephen “Mike” Kiel, Natalie Burclaff, and Catherine Johnson, “Learning by Doing: Developing a Baseline Information Literacy Assessment,” *portal: Libraries and the Academy* 15, no. 4 (2015): 747-766. [https://www.press.jhu.edu/journals/portal\\_libraries\\_and\\_the\\_academy/portal\\_pre\\_print/articles/kiel.pdf](https://www.press.jhu.edu/journals/portal_libraries_and_the_academy/portal_pre_print/articles/kiel.pdf); Jackie Belanger, Ning Zou, Jenny Rushing Mills, Claire Holmes, and Megan Oakleaf, “Project RAILS: Lessons Learned about Rubric Assessments of Information Literacy Skills,” *portal: Libraries and the Academy* 15, no. 4 (2015): 623–644. [https://www.press.jhu.edu/journals/portal\\_libraries\\_and\\_the\\_academy/portal\\_pre\\_print/articles/belanger.pdf](https://www.press.jhu.edu/journals/portal_libraries_and_the_academy/portal_pre_print/articles/belanger.pdf).

25. Association of College and Research Libraries, *Request for Proposals: Action-oriented Research Agenda*.

26. OED Online, “Learn,” Oxford University Press, accessed January 4, 2017, <http://www.oed.com/view/Entry/106716>.

27. “Learning,” in *International Encyclopedia of the Social Sciences*, ed. David L. Sills, vol. 9. (New York: Macmillan, 1968), 120. <http://go.galegroup.com/ps/i.do?p=GVRL&sw=w&u=new67449&v=2.1&it=r&id=GALE%7CCX3045000696&asid=b35129393a0470a5f1f0794445983fa9>.

28. George D. Kuh, Jillian Kinzie, John H. Schuh, and Elizabeth J. Whitt, *Student Success in College: Creating Conditions that Matter* (San Francisco: John Wiley & Sons, 2011), iv.

29. George D. Kuh, Jillian Kinzie, Jennifer A. Buckley, Brian K. Bridges, and John C. Hayek, “What Matters to Student Success: A Review of the Literature,” Commissioned Report for the National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success, National Postsecondary Education Cooperative (July 2006): 5, [https://nces.ed.gov/npec/pdf/kuh\\_team\\_report.pdf](https://nces.ed.gov/npec/pdf/kuh_team_report.pdf); Andrea Venezia, Patrick M. Callan, Joni E. Finney, Michael W. Kirst, and Michael D. Usdan, “The Governance Divide: A Report on a Four-State Study on Improving College Readiness and Success,” National Center for Public Policy and Higher Education (September 2005), [http://www.highereducation.org/reports/governance\\_divide/](http://www.highereducation.org/reports/governance_divide/).

30. Cindy A. Kilgo, Jessica K. Ezell Sheets, and Ernest T. Pascarella, “The Link between High-impact Practices and Student Learning: Some Longitudinal Evidence,” *Higher Education* 69, no. 4 (2015): 509-525.

31. Agnieszka Bielinska-Kwapisz, “Impact of Writing Proficiency and Writing Center Participation on Academic Performance,” *International Journal of Educational Management* 29, no. 4 (2015): 382-394.

32. Julia Bredtmann, Carsten J. Crede, and Sebastian Otten, “Methods for Evaluating Educational Programs: Does Writing Center Participation Affect Student Achievement?” *Evaluation and Program Planning* 36, no. 1 (2013): 115-123. <http://dx.doi.org/10.1016/j.evalprogplan.2012.09.003>.



- 
33. M. Kade Callahan and Donalda Chumney, "Write Like College: How Remedial Writing Courses at a Community College and a Research University Position 'At-Risk' Students in the Field of Higher Education," *Teachers College Record* 111, no. 7 (2009): 1619-1664.
34. E. Ní Fhloinn, O. Fitzmaurice, C. Mac an Bhaird, and C. O'Sullivan, "Student Perception of the Impact of Mathematics Support in Higher Education," *International Journal of Mathematical Education in Science and Technology* 45, no. 7 (2014): 953-967. <http://dx.doi.org/10.1080/0020739X.2014.892161>.
35. Ibid.
36. Elizabeth D. Phillips, "Improving Advising Using Technology and Data Analytics," *Change: The Magazine of Higher Learning* 45, no. 1 (2013): 48-55.
37. Ibid., 48.
38. Kilgo, Sheets, and Pascarella, "The Link between High-impact Practices and Student Learning," 509-525.
39. Rosalind Latiner Raby, Gary M. Rhodes, and Albert Biscarra, "Community College Study Abroad: Implications for Student Success," *Community College Journal of Research and Practice* 38, no. 2-3 (2014): 174-183.
40. Benjamin F. Hadis, "Gauging the Impact of Study Abroad: How to Overcome the Limitations of a Single-cell Design," *Assessment & Evaluation in Higher Education* 30, no. 1 (2005): 3-19. doi: 10.1080/0260293042003243869.
41. Ibid.
42. Lynn Silipigni Connaway, William Harvey, Vanessa Kitzie, and Stephanie Mikitish, "How Far Have We Come and What Do We Do Next? An Agenda for Action-based Research on Student Learning and Success" (excerpt of proposal narrative), 4, <http://www.oclc.org/content/dam/research/themes/acrl-agenda.pdf>.
43. Association of College and Research Libraries, *Value of Academic Libraries*.
44. 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](http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/contributions_y2.pdf).
45. Ibid.
46. ACRL Research Planning and Review Committee, *Environmental Scan 2015*.
47. 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* 77, no. 6 (2016): 274-281.
48. ACRL Research Planning and Review Committee, *Environmental Scan 2015*.
49. Association of College and Research Libraries Research Planning and Review Committee, "2016 Top Trends in Academic Libraries."
50. Dagobert D. Runes, *The Dictionary of Philosophy* (New York: Philosophical Library, 2001), 346.
51. Association of College and Research Libraries, *Value of Academic Libraries*.

- 
52. For a discussion on mixed methods, see Lynn Silipigni Connaway and Marie L. Radford, *Research Methods in Library and Information Science* (Santa Barbara, California: Libraries Unlimited, 2017), 229-233.
53. Association of College and Research Libraries, *Value of Academic Libraries*.
54. Association of College & Research Libraries, "Assessment in Action: Academic Libraries and Student Success," accessed January 4, 2017, <http://www.ala.org/acrl/AiA#summaries>.
55. Alfred E. Goldman and Susan S. McDonald, *The Group Depth Interview* (Englewood Cliffs, NJ: Prentice Hall, 1987), 7.
56. Victoria L. Young, "Focus on Focus Groups," *College & Research Libraries News* 7 (July–August 1993): 391.
57. Connaway and Radford, *Research Methods in Library and Information Science*, 250.
58. *Ibid.*, 253.
59. *Ibid.*
60. *Ibid.*, 240.
61. *Ibid.*, 241
62. *Ibid.*, 176.
63. *Ibid.*, 300.
64. For a discussion of how to create codebooks, examples of how they can be used, and their effectiveness, see Chapter 6 and Chapter 10 in Connaway and Radford, *Research Methods in Library and Information Science*.
65. Kuh, Kinzie, Buckley, Bridges, and Hayek, "What Matters to Student Success," 5; Venezia, Callan, Finney, Kirst, and Usdan, "The Governance Divide."
66. *Ibid.*
67. For further instruction about how NVivo can be used for coding of data, Connaway and Radford, *Research Methods in Library and Information Science*, 290-296.
68. For a discussion on ICR, see Connaway and Radford, *Research Methods in Library and Information Science*, 315-317.
69. *Ibid.*, 299.
70. Earl Babbie, *The Practice of Social Research* (Belmont, CA: Thomson/Wadsworth Publishing Company, 2003).
71. Hae-Young Kim, "Statistical Notes for Clinical Researchers: Post-hoc Multiple Comparisons," *Restorative Dentistry & Endodontics* 40, no. 2 (2015): 172-176.
72. Connaway and Radford, *Research Methods in Library and Information Science*.

- 
73. Earl Babbie, *The Practice of Social Research* (Belmont, CA: Thomson/Wadsworth Publishing Company, 2003).
74. Yoav Benjamini and Yosef Hochberg, "Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing," *Journal of the Royal Statistical Society, Series B (Methodological)* 57, no. 1 (1995): 289-300.  
<http://www.stat.purdue.edu/~doerge/BIOINFORM.D/FALL06/Benjamini%20and%20Y%20FDR.pdf>. The following Excel spreadsheet assisted with this calculation:  
<https://www.marum.de/Binaries/Binary745/BenjaminiHochberg.xlsx>.
75. Runes, *The Dictionary of Philosophy*, 346.
76. John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed. (Thousand Oaks, CA: Sage, 2014).
77. Association of College & Research Libraries, "Assessment in Action: Academic Libraries and Student Success," accessed January 5, 2017, <http://www.ala.org/acrl/AiA>.
78. Brian Cox and Margie Jantti, (2012) "Discovering the Impact of Library Use and Student Performance," *EDUCAUSE Review*, July 17, 2012, <http://er.educause.edu/articles/2012/7/discovering-the-impact-of-library-use-and-student-performance>; Nackerud, Fransen, Peterson, and Mastel, "Analyzing Demographics," 131-145.
79. Joseph R. Matthews, "Assessing Library Contributions to University Outcomes: The Need for Individual Student Level Data," *Library Management* 33, no. 6-7 (2012): 389-402.  
<http://dx.doi.org/10.1108/01435121211266203>; Shun Han Rebekah Wong and T. D. Webb, "Uncovering Meaningful Correlation between Student Academic Performance and Library Material Usage," *College & Research Libraries* 72, no. 4 (2011): 361-370. doi: 10.5860/crl-129.
80. George D. Kuh and Robert M. Gonyea, "The Role of the Academic Library in Promoting Student Engagement in Learning," *College & Research Libraries* 64, no. 4 (2003): 256-282; Mark Emmons and Frances C. Wilkinson, "The Academic Library Impact on Student Persistence," *College & Research Libraries* 72, no. 2 (2010): 128-149; Beverly P. Lynch, Catherine Murray-Rust, Susan E. Parker, Deborah Turner, Diane Parr Walker, Frances C. Wilkinson, and Julia Zimmerman, "Attitudes of Presidents and Provosts on the University Library," *College & Research Libraries* 68, no. 3 (2007): 213-228. doi: 10.5860/crl.68.3.213; Barbara Fister, "Critical Assets: Academic Libraries, A View from the Administration Building," *Library Journal* 135, no. 8 (2010): 24-27.
81. Thomas D. Snyder, Cristobal de Brey, and Sally A. Dillow, *Digest of Education Statistics 2015* (NCES 2016-014) (Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, 2016). <https://nces.ed.gov/pubs2016/2016014.pdf>; ACRL Research Planning and Review Committee, "Top Trends in Academic Libraries: A Review of the Trends and Issues Affecting Academic Libraries in Higher Education," *College & Research Libraries News* 75, no. 6 (2014): 294-302; Katy Mathuews, "Moving Beyond Diversity to Social Justice: A Call to Action for Academic Libraries," *Progressive Librarian* 44 (2016): 6-27.  
[http://progressivelibrariansguild.org/PL\\_Jnl/pdf/PL44\\_spring16.pdf](http://progressivelibrariansguild.org/PL_Jnl/pdf/PL44_spring16.pdf).
82. Nackerud, Fransen, Peterson, and Mastel, "Analyzing Demographics," 131-145; James Sponsel, Sara Swanson, and Linda LeFauve, "Co-curricular Students as Stakeholders: Gauging Perceptions of an Academic Library" (*Assessment in Action* poster, 2016), <https://apply.ala.org/aia/docs/project/13997>; Sofia Leung, Stephanie Gamble, Ellen Raimond, Anne Madden Johnson, and Amalia Monroe-Gulick, "Exploring Undergraduate Student Use of Learning Studio Space at the University of Kansas (KU)" (*Assessment in Action* poster, 2016), <https://apply.ala.org/aia/docs/project/13909>; Anne Giffey, Ryan Lynch, Leah Adams-Curtis, Helen Hoyt, and Jeff Douglas, "The Seats Don't Lie: Study Preferences of STEM Students" (*Assessment in Action*, 2016), <https://apply.ala.org/aia/docs/project/10203>; Mary Beth Lock, Meghan Webb, Glenda Boyles, Le'Ron Byrd, John Champlin, and Ryan Shirey, "What's In It For

---

Me? Success, Motivation, and Gaps” (*Assessment in Action*, 2016), <https://apply.ala.org/aia/docs/project/10189>.

83. Jon Ritterbush, “Assessing Academic Library Services to Distance Learners: A Literature Review of Perspectives from Librarians, Students, and Faculty,” *Reference Librarian* 55, no. 1 (2014): 26-36. doi: 10.1080/02763877.2014.853274; Hufford, “Can the Library Contribute Value,” 288-296.

84. Association of College & Research Libraries, *Standards for Libraries in Higher Education*; Gap Analysis Subcommittee, “Final Report to ACRL VAL Committee from Gap Analysis Subcommittee Presented for ALA Annual Conference 2015” (2015), <http://www.acrl.ala.org/value/wp-content/uploads/2016/04/VAL-Cmte-Gap-Analysis-FINAL-ALA-Annual-2015.pdf>; Amanda Albert, “Communicating Library Value: The Missing Piece of the Assessment Puzzle,” *Journal of Academic Librarianship* 40, no. 6 (2014): 634-637. doi:10.1016/j.acalib.2014.10.001; Saunders, “Academic Libraries’ Strategic Plans,” 285-291; Rachel A. Fleming-May, Regina Mays, and Rachel Radom, “‘I Never Had to Use the Library in High School:’ A Library Instruction Program for At-Risk Students,” *portal: Libraries and the Academy* 15, no. 3 (2015): 433-456. doi:10.1353/pla.2015.0038.

85. Association of College and Research Libraries, *Value of Academic Libraries*; Association of College & Research Libraries, *Standards for Libraries in Higher Education*; Hufford, “Can the Library Contribute Value,” 288-296; Saunders, “Academic Libraries’ Strategic Plans,” 285-291; Maggie Gallup Kopp, “Academic Libraries, Institutional Missions, and New Student Recruitment: A Case Study,” *Reference Services Review* 41, no. 2 (2013): 192–200. doi:10.1108/00907321311326192; Amanda Bird, Kelly Rhodes McBride, and Elizabeth Cramer, “Modeling ACRL’s Standards for Libraries in Higher Education,” *College & Research Libraries News* 75, no. 11 (2014): 614-616. <http://crln.acrl.org/content/75/11/614.full.pdf+html>.

86. State Higher Education Executive Officers Association, *SHEF: FY 2015: State Higher Education Finance*, [http://sheeo.org/sites/default/files/project-files/SHEEO\\_FY15\\_Report\\_051816.pdf](http://sheeo.org/sites/default/files/project-files/SHEEO_FY15_Report_051816.pdf).

87. Megan Oakleaf and Martha Kyrillidou, “Revisiting the Academic Library Value Research Agenda: An Opportunity to Shape the Future,” *The Journal of Academic Librarianship* 42, no. 6 (2016): 757-764. <http://dx.doi.org/10.1016/j.acalib.2016.10.005>; Hufford, “A Review of the Literature on Assessment in Academic and Research Libraries,” 5-35; Ritterbush, “Assessing Academic Library Services to Distance Learners,” 26-36; Jody Condit Fagan, “The Effectiveness of Academic Library Deans and Directors: A Literature Review,” *Library Leadership & Management* 26, no. 1 (2012): 1–19; Margaret Weaver, “Student Journey Work: A Review of Academic Library Contributions to Student Transition and Success,” *New Review of Academic Librarianship* 19, no. 2 (2013): 101–124. doi:10.1080/13614533.2013.800754.

88. Connaway and Radford, *Research Methods in Library and Information Science*, 106.

89. Connaway and Radford, *Research Methods in Library and Information Science*, 229.

90. Association of College and Research Libraries, *Request for Proposals: Action-oriented Research Agenda*, 3.

91. Ibid.

92. Association of College & Research Libraries, “ACRL e-Learning Webcast Series: Learning Analytics: Strategies for Optimizing Student Data on Your Campus,” <http://www.ala.org/acrl/learninganalytics>; ARL Statistics, “ARL Statistics Analytics,” accessed January 5, 2017, <https://www.arlstatistics.org/about/analytics>.

93. Connaway, Harvey, Kitzie, and Mikitish, “How Far Have We Come and What Do We Do Next?”

94. Association of College and Research Libraries, *Request for Proposals: Action-oriented Research Agenda*, 3.



- 
95. For instance: "Umm so space is, is I think still very important. And even providing space for students who are 100% distance. Okay? But who crave to be on-campus. Uh, so our distance students are not allowed in our on-campus classrooms, because of, of numbers. But the library may or may not have that type of constraint. Right? So bringing in our distance students in meaningful ways so that they can more deeply engage in campus and use the library resources." (Provost Interviewee PP04)
96. Ibid.
97. Fister, "Critical Assets," 24-27; Lynch, Murray-Rust, Parker, Turner, Walker, Wilkinson, and Zimmerman, "Attitudes of Presidents and Provosts," 213-228; Mark Robertson, "Perceptions of Canadian Provosts on the Institutional Role of Academic Libraries," *College & Research Libraries* 76, no. 4 (2015): 490-511. doi:10.5860/crl.76.4.490.
98. Lynch, Murray-Rust, Parker, Turner, Walker, Wilkinson, and Zimmerman, "Attitudes of Presidents and Provosts," 226.
99. Robertson, "Perceptions of Canadian Provosts," 490-511.
100. Fister, "Critical Assets," 24-27.
101. Association of College & Research Libraries, *Standards for Libraries in Higher Education*.
102. Association of College & Research Libraries, "Assessment in Action."
103. Amanda Nichols Hess, Amanda, Katie Greer, Shawn V. Lombardo, and Adriene Lim, "Books, Bytes, and Buildings: The Academic Library's Unique Role in Improving Student Success," *Journal of Library Administration* 55, no. 8 (2015): 622-638. doi:10.1080/01930826.2015.1085241.
104. Kate S. Wolfe, "Emerging Information Literacy and Research-Method Competencies in Urban Community College Psychology Students," *The Community College Enterprise* 21, no. 2 (2015): 93-99.
105. Emmett Lombard, "The Role of the Academic Library in College Choice," *Journal of Academic Librarianship* 38, no. 4 (2012): 237-241. doi:10.1016/j.acalib.2012.04.001.
106. Brown-Sica, "Using Academic Courses to Generate Data," 275-287.
107. Soria, Fransen, and Nackerud, "Library Use and Undergraduate Student Outcomes," 147-164.
108. Association of College and Research Libraries Research Planning and Review Committee, "2016 Top Trends in Academic Libraries;" Association of College & Research Libraries, "ACRL e-Learning Webcast Series."
109. Margie Jantti and Jennifer Heath, "What Role for Libraries in Learning Analytics?" *Performance Measurement and Metrics* 17, no. 2 (2016): 2013-210.  
<http://dx.doi.org/10.1108/PMM-04-2016-0020>.
110. 1<sup>st</sup> International Conference on Learning Analytics and Knowledge 2011, "Analytics," accessed January 4, 2017, <https://tekri.athabascau.ca/analytics/>.
111. Association of College and Research Libraries, *Request for Proposals: Action-oriented Research Agenda*.
112. Margaret Brown-Sica, "Using Academic Courses to Generate Data for Use in Evidence Based Library Planning," *Journal of Academic Librarianship* 39, no. 3 (2013): 275-287.

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doi:10.1016/j.acalib.2013.01.001; Krista Soria, Jan Fransen, and Shane Nackerud, "Library Use and Undergraduate Student Outcomes: New Evidence for Students' Retention and Academic Success," *portal: Libraries and the Academy* 13, no. 2 (2013): 147-164.

113. *Ibid.*, 176.

114. Peter Herson, Robert Dugan, and Danuta Nitecki, *Engaging in evaluation and assessment research* (Santa Barbara: Libraries Unlimited, 2011).

115. 1<sup>st</sup> International Conference on Learning Analytics and Knowledge 2011, "Analytics," accessed January 4, 2017, <https://tekri.athabascau.ca/analytics/>.

116. Kuh, Kinzie, Buckley, Bridges, and Hayek, "What Matters to Student Success," 5; Venezia, Callan, Finney, Kirst, and Usdan, "The Governance Divide."

117. Dagobert D. Runes, *The Dictionary of Philosophy* (New York: Philosophical Library, 2001), 346.

118. Kuh, Kinzie, Buckley, Bridges, and Hayek, "What Matters to Student Success," 5; Venezia, Callan, Finney, Kirst, and Usdan, "The Governance Divide."

119. *Ibid.*

120. *Ibid.*