Academic Librarian Research: A Survey of Attitudes, Involvement, and Perceived Capabilities

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This article reports on the development and results of a recent survey of academic librarians about their attitudes, involvement, and perceived capabilities using and engaging in primary research. The purpose of the survey was to inform the development of a continuing education program in research design. It updates earlier studies of academic librarian research; with the introduction of a confidence scale, it also contributes new insights regarding how prepared librarians believe themselves to be with regard to conducting research. The authors found that confidence in one's ability to perform the discrete steps in the research process is a statistically significant predictor of a librarian conducting research and disseminating the results. The analysis of the responses to the confidence scale and other survey questions suggests several paths for future research about academic librarians and their research agendas.

ibrarians in an academic setting are integrally involved with providing research services to faculty, students, and staff of higher education institutions. Though familiar with the research process and responsible for supporting others in their academic agendas, it is said, "librarians generally do not publish their research."[1] A 2007 study by Hildreth and Aytac, however, suggests otherwise. They found, from a sample of 206 articles (out of 401) published between 2003 and 2005 in 23 library and information science (LIS) journals, that 47.1 percent of the articles were written by librarians ("practitioner-researchers") alone, 43.2 percent by academics ("academic-researchers" who teach in schools of Library and Information Science), and 9.71 percent by mixed research teams. With regard to quality, Hildreth and Aytac found "little difference in the quality and organization of published reports," but there is room for improvement on the part of both practitioners and academic researchers.[2] Motivated by a desire to help academic librarians improve their research skills and, thus, the quantity and quality of their research, the authors of this study explore ways in which librarians have developed these skills in the past and how that process might be improved in the future.

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The reasons to support the research of academic librarians are varied and well argued: "Conducting research can contribute to career advancement for librarians, especially academic librarians on tenure track";[3] "[l]ooking analytically at librarianship through research fosters growth, curiosity, awareness and promotes new learning";[4] and "[e]ffective interaction between research and practice will produce a strong theoretical framework within which a practitioner community can develop and thrive,"[5] to cite only three examples. Accreditation bodies require that academic institutions engage in evidence-based decision making. Thus, it has become more important for libraries to study their own operations in a systematic and reliable manner. Many academic librarians work at institutions where librarians are required to conduct research for promotion and/or tenure. However, given the current emphasis on evidence-based management, all academic librarians should possess the knowledge and skills to conduct operations research.

For the purpose of this study we are defining research broadly to include theoretical research, designed to advance knowledge in the field of library and information science, and operations research, planned to inform decision making (often called evidence-based management). We use the following working definition of research, taken from the survey instrument designed by Powell, Baker, and Mika,[6] shared with us via an e-mail message:

> The process of arriving at dependable solutions to problems/questions/hypotheses through the planned and systematic collection, analysis, and interpretation of data: it may be applied or theoretical in nature and use quantitative or qualitative methods. (This definition does not include library research that is limited to activities such as compiling bibliographies and searching catalogs).

Literature Review

The reasons why some academic librarians do not conduct research may be attributed to a variety of causes, many of which have been tested in the literature. Several of the obstacles to conducting research are: reported lack of time to complete a research project, unfamiliarity with the research process, lack of support for research (both emotional and monetary), lack of access to research, lack of confidence, discouraging jargon, inadequate education in research methods, and lack of motivation.[7]

Despite the benefits of conducting research and their desire to conduct research, the reasons that librarians may not conduct research are as diverse as our population. One of those reasons in particular has been examined in the literature quite a bit: uneven training in research design. Research training at the master's level is especially varied, leading to an uneven skill set among librarians. In 1992, Smith and Adams commented that, "Stephenson reported that 69 percent of the basic research courses were required courses for M.L.S. students. Three years later, our survey shows that the percentage has dropped to 55 percent."[8] In 2001, O'Connor and Park noted, "Only half of the 24 top-rated programs required MLS students to take research methods."[9] In February 2010, 61 percent of the 49 American Library Association (ALA)-accredited LIS degree programs with online information about degree requirements listed research methods as a required course in the curriculum.[10] Furthermore, research methods courses in LIS schools tend to focus on the needs of doctoral students, who plan to conduct theoretical research as LIS faculty. These courses may or may not prepare practicing librarians for the wide variety of research that may be required of them, ranging from the most practical to the most theoretical, from research conducted in pursuit of operational improvements to contributions to knowledge about library and information science. A survey conducted in November

2009 found no statistically significant relationship between taking a research methods course and a librarian's research involvement—ranging from reading published research to conducting one's own research and publishing it.[11]

Once a librarian completes the LIS program and enters the profession, one's attention shifts to continuing education—one of the hallmarks of a professional. Many academic librarians become practitioner-researchers, defined as professionals who "approach projects and problems in ways that yield (1) solutions, (2) an enlarged understanding of their actual field of work—their *practice*, and (3) improvements in practice."[12] However, the nonuniformity of training in the practical aspects of how to conduct research is pronounced once master's-level students in information and library science complete their degree training and enter the professional field. Even if their training was sound, by the time librarians are ready to apply a research strategy to a problem in their professional environment, that skill set may be diminished due to the time lag. To retrain oneself (or obtain first-time training) on how to succeed in a research project requires a commitment of time few professionals have allotted in their days; as a result, some of the research that is done in librarianship and information science is poorly designed or is completed but not reported in the published literature.

Problem Statement

Given that a librarian has completed formal education, at least for the time being, what are the best options for a practitioner who seeks to become a practitioner-researcher but lacks the necessary skills or knowledge to conduct research? How does this librarian become a practitioner-researcher, capable of producing reliable and valid research? We focused on a continuing education experience that would teach or review the research procedures outlined in Rebecca Watson-Boone's article "Academic Librar-

ians as Practitioner-Researchers."[13] To assess how academic librarians currently participate in research, describe their own research design backgrounds, rate their own confidence levels in performing the discrete tasks of a research project, and report on institutional support for research, we designed and implemented a national survey targeting academic librarians. This study is exploratory in nature; it was not designed to draw conclusions about the population of academic research librarians. We wanted to gather data and comments from a large number of academic librarians and so pursued a convenience sample rather than a representative sample.

We used the results of the survey to inform the curriculum of a proposed professional continuing education opportunity on the topic of research design for academic librarians. Because we wanted to develop a curriculum that addressed more than simply acquiring a skill set, we designed a survey that would help us understand academic librarian research from a holistic viewpoint.

Methods:
Survey Design

The goal of our survey was to gather information from academic librarians in four areas of concern: their current research practice, including reading published research; a self-evaluation of their confidence in performing the discrete steps in the research process; a list of methods training courses in which they have participated; and demographic and institutional data related to support of library research. These areas of concern are directly informed by the obstacles to conducting research that have been reported in the literature.

Some of the questions in the survey were adapted from previous surveys.[14] We generated the confidence scale used at question 10 (Q10). All of the questions had a forced response except for the feedback request at question 19 (Q19). For the survey instrument, see Appendix A.

We focused on the four areas previously mentioned to gain specific information to assist in the development of a proposed curriculum on research design. We needed to understand the interests and limitations of academic librarians in how they currently perform research to construct a curriculum that was appropriate for their expectations and time limitations on the job. Knowing how confident academic librarians feel about their capabilities in performing research would allow us to tailor the curriculum to focus on areas in which most librarians felt the least confident. Having data on how many methods or research design courses academic librarians have participated in the past would help us know at what level of complexity to design the curriculum. Understanding how the research agendas of academic librarians are supported at their home institutions helped us understand how reasonable it is to expect that what they learn during our curriculum may be implemented once the course has been completed.

Current Research Practice

To understand the interests and limitations of academic librarians in their pursuits of research, we posed several questions in the survey about their current research practice. Understanding how an academic librarian consumes professional literature, whether or not this activity is expected as part of his job, and whether or not the librarian conducts research are integral to the development of a proposed curriculum for a continuing education opportunity.

We asked the participants several questions about their current research practice, beginning with how the participant stays current with library and information science (and other relevant subject area) literature. To begin, we asked if it was assumed that the participant reads research literature as part of her job as a professional librarian (Q1). Then we asked if the participant is allowed time on the job for reading research literature

(Q2). We asked if the participant regularly scans the tables of contents or abstracts of research-based articles and then followed by asking if he regularly reads the full content of research-based articles (Q3, 4). If the participant does regularly read research-based articles, we asked him to list the titles of two journals in which he regularly reads those articles (Q6). If the participant does not regularly read research-based articles, we asked her to enumerate the possible reasons why, giving six options plus an "other" category that she could complete (Q5).

The next three questions were about conducting research. We asked if the participant has conducted research since completing his library or information science (LIS) master's degree, giving an optional response for "n/a (Do not have an LIS master's degree)" (Q7). If a respondent indicated that he has conducted research, we then asked if he has disseminated the results of the research to an external audience (Q8). If she responded that she has disseminated the results, we asked how they were disseminated; we listed eight possible options plus an "other" category that she could complete (Q9).

Confidence

There is ample psychological research in the area of perceived self-efficacy— "people's beliefs about their capabilities to produce effects"[15]—related to work-related performance and achievement.[16] Assuming that Bandura's idea of reciprocal determinism is correct, we would expect that the confidence of academic librarians in their ability to perform discrete tasks in a research process, along with environmental factors (hence the survey questions about demographic data), would be related to behavior (that is, conducting/disseminating research).

At Q10 we asked the respondents to rate their confidence in performing the discrete steps in a research project, on a scale of 1 to 5, with 1 being "Not at all confident" and 5 being "Very confident." We measured ten discrete steps: turning

your topic into a question that can be tested; designing a project to test your question; performing a literature review; identifying research partners, if needed; gathering data; analyzing data; reporting results in written format; reporting results verbally; determining appropriate format for disseminating results (poster/presentation/article); identifying appropriate places to disseminate results (publication/conference).

Methods Training

Acknowledging the prior research on the variations in research methods training, it was important for us to gather information about which—if any—coursework related to research methods academic librarians may have participated in, to build a curriculum that is at an appropriate level of complexity for academic librarians.

We asked three questions related to training related to research. We asked if the participant believes that his LIS master's degree adequately prepared him to *read and understand* research-based literature (Q11) and then asked if the participant believes that it adequately prepared him to *conduct* original research (Q12), both with an optional response for "n/a (Do not have an LIS master's degree)." We asked the participant to check any educational activities about research methods in which she has ever participated and to check all that applied. The seven possible activities we listed are: formal master's degree LIS course(s); formal doctoral degree LIS course(s); formal master's degree non-LIS course(s); formal doctoral degree non-LIS course(s); continuing education program(s); staff development program(s) provided by your organization; and self-education activities. We listed an option for "none" as well as an "other" category that she could complete (Q13).

Demographic Information

To understand the environments in which the participants worked and conducted research, we asked for some brief demographic information. We were interested to learn the educational attainment of the participants, if they were eligible for tenure and promotion, and how librarian research activities were supported at their current institutions.

We asked five questions to gather demographic information. We asked the participant to check all of the following research support options that his institution or library provided for librarians, giving seven possibilities plus an option for "no research support for librarians" (Q14). We asked if the participant's position is eligible for tenure and/or promotion, with three options for response: tenure and promotion; promotion only; not eligible for tenure or promotion (Q15). We asked if the participant has tenure (Q16). We then asked if the participant has been through the tenure and/or promotion process at her current or previous institution (Q17). Last, we asked if the participant has another MA, MS, or PhD, in addition to her LIS degree, giving an optional response for "n/a (Do not have an LIS master's degree)" (Q18).

In question 19 (Q19), we presented an optional text entry box for comments and feedback. On the last screen of the survey, we featured citations to publications that informed some of the questions, a definition of research, and Kennedy's contact information if the participant wanted a report of the results of the survey.

Through field testing, we estimated that the survey would take fewer than five minutes to complete.

The survey protocol was reviewed by the Institutional Review Board at our university. The survey was field tested by local librarians, and we incorporated some suggestions for changes prior to wider dissemination.

Survey Dissemination

The survey was disseminated via e-mail to listservs that have academic librarians as members. The e-mail content was a request for participation, with a URL link to

the informed consent notice; at the bottom of the notice was the link to the survey. See the call for participation in Appendix B.

The survey was valid from December 13, 2010, through December 31, 2010.

The link to the survey was available to anyone who chose to select it. There was no follow-up via the listservs after the initial post.

Results

We examined the survey responses in regard to our four areas of concern: the current research practice of academic librarians; a self-evaluation of their confidence in performing the discrete steps in the research process; a list of methods training courses they have participated in; and demographic and institutional data related to support of library research.

Of the 918 participants who began the survey, 809 of them completed it. For this analysis, incomplete surveys were not eliminated. We used all available data from each question to assist us in the development of our curriculum and did not remove surveys that were begun but not completed. The analysis here does not intend to generalize to the population of academic librarians, since the sample of respondents was not systematically gathered. To be clear about the results we are summarizing, we will report the total number of respondents (*n*) of each question. Since each question had a forced response, the questions at the end have fewer total responses as participants dropped out of the survey.

Reading and Conducting Research

It is clear that the respondents to this survey are involved in staying current with research-based literature. Eighty-eight percent (*n* = 906) say that it is assumed they will read research-based literature as part of their job as a professional librarian, and 80 percent (*n* = 906) are allowed time on the job to do so; about 4 percent did not know if it was assumed they will read research-based literature as part of their job, and about 7 percent

did not know if they were allowed time on the job to read. Seventy-eight percent (*n* = 906) scan tables of contents of journals that contain research-based literature, but only 66 percent regularly read the full content of those articles. The main reason stated for not regularly reading research-based literature is time; an overwhelming 201 respondents noted this reason. Fifty-nine respondents noted that they did not enjoy reading research articles / no interest. Of those respondents who regularly read research-based articles, they identified *College & Research Libraries* as the main journal they read, followed by *The Journal of Academic Librarianship* (see Appendix C for the top twenty journals noted in response to Q6, listing the titles of two journals in which the respondents regularly read research-based articles).

Sixty-two percent of respondents (*n* = 858) have conducted research since completing the LIS degree, with 3 percent noting that they did not have an LIS master's degree. Of the 528 respondents that conducted research since completing the LIS degree, only 77 percent (406) of them disseminated the results of their research. The main venues sought for dissemination were: presented at national conference; presented at regional conference; published in a refereed journal; and presented at home institution in an informal forum.

Confidence

We asked the respondents to rate their confidence in performing the discrete steps in a research project, on a scale of 1 to 5, with 1 being "Not at all confident" and 5 being "Very confident." The highest number of respondents in the first step (285; *n* = 818) marked their confidence at 4 for "Turning your topic into a question that can be tested." A total of 271 respondents (*n* = 818) marked their confidence at 3 for "Designing a project to test your question." Fully 513 respondents (*n* = 819) marked their confidence at 5 for "Performing a literature review"; 252 respondents

(*n* = 819) marked their confidence at 4 for "Identifying research partners, if needed." A total of 327 respondents (*n* = 819) marked their confidence at 4 for "Gathering data," while 264 respondents (*n* = 819) marked their confidence at 3 for "Analyzing data." Whereas 316 respondents (*n* = 819) marked their confidence at 4 for "Reporting results in written format," 323 (*n* = 819) marked their confidence at 4 for "Reporting results verbally," and only 294 respondents (*n* = 818) marked their confidence at 4 for "Determining appropriate format for disseminating results (poster/presentation/article)." A total of 289 respondents (*n* = 819) marked their confidence at 4 for "Identifying appropriate places to disseminate results (publication/conference)." See Appendix D for a few examples of line graphs of each of the tasks and their responses on the confidence scale.

Please note in the line graphs that the majority of respondents rated themselves at points 3 or 4 on the 5-point confidence scale, signifying that they feel more confident than not in their abilities to perform the discrete tasks of a research project. We created a variable during analysis called Average Confidence, and, for the ten steps on the 5-point scale (a possible 50 points), an average of 37.2 was calculated. An exception to this relatively high average is made at the rating of ability to perform a literature search; here the majority rate themselves at point 5, which is "Very confident" on this scale.

We expected that whether or not an academic librarian had conducted research since completing a LIS degree was predicted by how confident the librarian felt in performing the discrete steps of a research project. To test this association, we created two variables: Average Confidence and Conduct Research. Average Confidence was constructed from Q10, as noted above. Conduct Research was constructed from Q7 by removing the cases for those respondents who did not have an LIS master's degree, leaving behind only those cases that have a yes/no response to the question, "Have you conducted research since you completed your library or information science (LIS) master's degree?" We found by running a logistic regression in SPSS 16.0 using the enter method that a significant model emerged: $F_{1,792} = 111.174$, $p = 0.000$; adjusted R square = .122. The predictor variable Confidence has a Beta = -.351 and $p = 0.000$. This suggests that confidence in performing the discrete steps in a research project may be useful as a predictor for whether or not an academic librarian conducts research.

Methods Training

We asked three questions related to research methods training. Fifty-seven percent (*n* = 815) believe that their LIS master's degrees adequately prepared them to read and understand research-based literature, but only 26 percent (*n* = 815) believe that their LIS master's degrees adequately prepared them to conduct original research. Of the educational activities about research methods in which they have ever participated, the top three are: self-education activities (such as professional reading, online tutorial); formal master's degree LIS course(s) (for instance, research methods, statistics); and continuing education program(s) (examples: courses, workshops, conference programs).

We expected that, if the academic librarians noted that they felt that their LIS master's degrees had adequately prepared them to conduct research, then they would report having conducted research since the completion of their degrees. Analysis indicates, however, that there is no statistically significant relationship between conducting research and belief that the LIS master's degree prepared them to conduct research (chi-square with 1 degree of freedom = 0.278, $p = 0.598$). This test and other analyses presented in this article suggest that the motivators for why an academic librarian chooses to conduct research are multifaceted, that there is not only one predictor for the behavior.

Demographic Information

We asked five questions about institutional support and demographics. In response to the question about research support options provided by their institutions or libraries, 466 (*n* = 809) noted that there are travel funds (partial reimbursement) available, and 452 noted workshops or other forms of continuing education. Ninety-eight responded that their institutions or libraries provided no research support for librarians.

Forty-five percent (*n* = 809) responded that their positions were eligible for tenure and promotion, and 28 percent (*n* = 809) had achieved tenure. Forty-eight percent (*n* = 809) had been through the tenure and/or promotion process at their current or previous institutions. Forty percent of respondents (*n* = 809) have another MA, MS, or PhD, in addition to their LIS degree.

Discussion

The survey was designed to gather data to assist in the development of a curriculum for a professional continuing education opportunity in the area of research design. The results of the survey assisted in tailoring the curriculum in the following ways:

Current research practice. We learned from the survey that academic librarians are currently participating in reading research-based literature as part of their jobs. The largest stated barrier to reading literature was time. It is possible that the curriculum can contain discussions of time management or talking points to use with institutional management about how to schedule time for reading/research.

Confidence. The regression analysis demonstrated that confidence may be a predictor for whether or not an academic librarian conducts research. This finding suggests that the curriculum should include instruction on completing the discrete steps in the research process, as well as a system for demonstrating their understanding of the steps. In this way we will be able to add to the literature surrounding confidence.

Methods training. We expect to include in the curriculum several data gathering and analysis methods so that the academic librarians are competent in the basic social science research methods. Our focus in the curriculum will be related to using those methods to conduct research rather than reading literature reporting on research, since more librarians felt more adequately trained to read about rather than conduct research.

Demographic information. We hoped to find an equal percentage of respondents reporting that their positions are eligible for tenure/promotion and research support at the home institution for librarians. We found that 70 percent of the respondents are eligible for either tenure and promotion or promotion only. The most critical aspect for conducting research is time, but only 39 percent of the respondents report that their institutions provide release time for librarian research. It is our best hope that the professional education opportunity provides methods that academic librarians may use to conduct their research more efficiently and streamlined, since time will continue to be an issue.

In November 2009, Lili Luo investigated the role that research methods education plays in enhancing LIS practice. She surveyed LIS practitioners regarding the "effect of taking a research methods course on the work on LIS practitioners," and the results of her study were published as the authors were writing this article. Luo's study supports our finding that there is no statistically significant relationship between taking a research methods course in LIS school and research activity as a librarian. In her discussion section, however, Luo noted that more than half her respondents welcomed continuing education opportunities on research methods, suggesting that we are on the right track with regard to a post-MLS/MLIS research methods workshop. Our focus on academic librarians was also supported; Luo notes, "Academic librarians were more motivated than

public librarians in pursing knowledge in research methods via continuing education, and those who engaged in research at work were more interested in continuing education opportunities than those who did not."[17]

Institute for Research Design in Librarianship

The purpose of conducting this study was to find ways in which the researchers might support academic librarians in their efforts to conduct research and disseminate the results. Conducting research is a complex task, with many discrete elements. The psychological literature suggested that self-efficacy might be an important factor in encouraging academic librarians to undertake research. Bandura asserts that beliefs about self-efficacy can be developed by four main sources of influence: mastery experiences; vicarious experiences; social persuasion; and somatic and emotional states.[18] We concluded that a research institute could be designed to provide academic librarians with both mastery experiences and social persuasion. Mastery experiences build confidence through success and provide an individual with the ability to persevere in the face of obstacles, which is especially important in performing difficult tasks. Social persuasion consists of structuring situations in which an individual receives encouragement, experiences success, and receives encouragement in working through challenges.

As a result of the findings of this study, we have designed a project to create a ten-day summer Institute for Research Design in Librarianship. The purpose of the institute is to increase the number of academic librarians with specific skills in conducting and disseminating the results of research in an environment designed to increase self-efficacy. The target audience would be librarians who have a done some preliminary planning for a research project but lack the confidence to finalize the proposal and conduct the study without advice and support.

Participants would bring a draft research proposal, to be revised and refined during the institute. Two experienced social sciences researchers/instructors would teach librarians research design and foster a collegial atmosphere in which academic librarians would finalize a feasible research proposal. After completing an intensive series of class exercises and hands-on writing sessions focused on the research process, Institute Scholars would leave ready to conduct a research study at their home libraries. Once the scholars had returned to their home institutions, the institute leaders would provide them with ongoing support through social networking tools—a project Web site, a project wiki and a project blog. The goal of the project is to create a cost-effective, sustainable model for academic librarians to become skilled researchers, capable of supporting one another in their investigative work.

Limitations of This Study and Future Research

We collected data from a convenience sample and were surprised by the large number of respondents, especially considering that the survey was open for only two weeks with only one announcement of it via e-mail distribution lists. The number of completed surveys suggests that this is a topic in demand and worthy of expanded consideration for future research endeavors.

If funded, the proposed Institute for Research Design in Librarianship will be the subject of intense study. We have developed a detailed evaluation plan designed to test our hypotheses regarding the effectiveness of the workshop environment and the relationship between self-efficacy and research productivity.

A meta-analysis of research on self-efficacy and work-related performance revealed that there may be a "mismatch between the domains of self-efficacy and task performance."[19] Confidence in one's ability to complete the discrete steps in a research process may be different from

actually performing the tasks of research. Further study would need to be done to determine if the self-assessments reported in the survey described here are truly meaningful. A recent study suggests that self-efficacy is a better predictor of performance for jobs or tasks of low complexity than for those of medium or high complexity.[20] Each of the discrete steps in the research process is relatively complex, but self-efficacy may be a better predictor for the successful completion of some of them than for others. Relatively little research has been conducted on self-efficacy and research productivity;[21] given the claims for importance of self-efficacy in work-related performance, this area deserves further investigation.

The analysis of the survey data reported here demonstrates that confidence may be a predictor for conducting research, but we know that this does not represent the whole picture. Having some background information about current research practice, confidence, methods training, and demographic information gives us a partial perspective but does not address completely the possible motivators for conducting research. In his writings, Schrader describes broadly the motivators and research culture in Canadian academic libraries.[22] Schwartz suggests that research focus more specifically on an institutional effect, and Fennewald takes up the challenge in discussing motivators for academic librarians at Pennsylvania State University (PSU).[23] In his article, Fennewald describes a culture of research that exists at PSU, concluding that "being part of an institution where everyone is expected to participate in research may be the most critical factor" in librarian research productivity. Librarians without formal research training still learned to do research, because it is expected and your colleagues will support your efforts. Fennewald suggests that his case study be replicated at other institutions. Given the power of culture, a further exploration might ask: What may generally define a research culture? How might we create a research culture in an academic library that does not serve a research institution? The impact of library science education on developing a culture of evidence-based practice has been described by Partridge & Hallam and is further discussed in the literature about evidence-based librarianship.[24]

Another potentially profitable line of inquiry might be to study published academic librarian practitioner-researchers as a group to learn how others might replicate their success. The library literature is filled with the work of prolific academic librarian researchers. By examining their backgrounds, their work habits, and more, it might be possible to create appropriate learning opportunities and support mechanisms for other academic librarians. Neville and Henry's "Support for Research and Service in Florida Academic Libraries" might be narrowed to research support and expanded beyond Florida.[25] Our survey suggests that many librarians are conducting research and, more important, many more would like to be conducting research. Our most successful representative researchers might give us important clues to helping other librarians perform at an equally high level.

Summary

This article reported on the development and results of a recent survey of academic librarians about their attitudes, involvement, and perceived capabilities using and engaging in primary research. The survey results support some prior studies in the area of research methods training in LIS degree programs and provide guidance for us in the development of a curriculum for a proposed Institute for Research Design in Librarianship.

Despite the barriers to research noted by the participants, time being the most mentioned, we find that these academic librarians are actively engaged in the research process. The participants confirmed that they believe their LIS master's degree training adequately prepared them to read and understand research

but did not prepare them to conduct it. Despite their perceived lack of preparation, they are producing and reporting research.

This article contributes a new perspective on the topic of how librarians think of their own abilities to conduct research with the introduction of a confidence scale and opens a line of inquiry for possible future research activities related to self-efficacy and research productivity. The analysis presented in this article supports the idea that confidence may be a predictor for conducting research and the operationalization of other sources of influence could be determined as Institute Scholars complete their training.

Two other potentially profitable research agendas are identified in this article: defining a research culture in a library setting and performing a systematic review of published academic librarian practitioner-researchers to learn how to replicate their success.

Appendix A.
The Survey Instrument

Welcome to the Library Research Survey. Please complete this survey only one time.

For purposes of this study, we are defining research as: The process of arriving at dependable solutions to problems/questions/hypotheses through the planned and systematic collection, analysis, and interpretation of data: it may be applied or theoretical in nature and use quantitative or qualitative methods. (This definition does not include library research that is limited to activities such as compiling bibliographies and searching catalogs.)

Q1. Is it assumed that you will read research literature as part of your job as a professional librarian?
❑ Yes   ❑ No   ❑ Don't know

Q2. Are you allowed time on the job for reading research literature?
❑ Yes   ❑ No   ❑ Don't know

Q3. Do you regularly **scan the tables of contents** or abstracts of research-based articles in any journals like the ones listed here?
(This is a sample list of journals that contain research-based articles.)
College & Research Libraries
Information Processing & Management
Information Technology & Libraries
Journal of Academic Librarianship
Journal of the American Society for Information Science & Technology
Journal of Library Administration
Library Resources & Technical Services

❑ Yes   ❑ No

Q4. Do you regularly **read the full content** of research-based articles in any journals like the ones listed in the previous question?
❑ Yes (skip to **Q6**)
❑ No

Q5. If you do not regularly read research-based articles from the journals on the previous question, why not? Check all that apply. If you choose *Other*, please tell us why you do not regularly read any of those journals.
❑ Do not have enough expertise in research methods
❑ Do not consider research-based articles to be relevant to my job
❑ Prefer to read essays, opinion pieces, etc.
❑ It is not expected that I will read research articles
❑ I do not enjoy reading research articles / no interest
❑ I do not have time
❑ Other _____ (*text entry*)

[**Q6** displays if the answer to **Q4** is *Yes*]
Q6. List the titles of two journals in which you regularly read research-based articles.

Journal 1 _____ (*text entry*)
Journal 2 _____ (*text entry*)

Q7. Have you conducted research since you completed your library or information science (LIS) master's degree?
❑ Yes   ❑ No   ❑ n/a (Do not have an LIS master's degree)

[**Q8** displays if the answer to **Q7** is *Yes*]

Q8. Have you disseminated the results of your research to an external audience?
❑ Yes   ❑ No

[**Q9** displays if the answer to **Q8** is *Yes*]

Q9. How have you disseminated the results of your research? Check all that apply. If you choose *Other*, please tell us how you have disseminated the results of your research.
❑ Published a book (solo or co-author)
❑ Published in a book (contributed article)
❑ Published in a refereed journal (peer-reviewed, print or online)
❑ Published in a non-refereed journal (print or online)
❑ Published in conference proceedings
❑ Presented at a national conference
❑ Presented at a regional conference
❑ Presented at my home institution in an informal forum
❑ Other _____ (*text entry*)

Q10. On a scale of 1 to 5, with 1 being "Not at all confident" and 5 being "Very confident," how would you rate your confidence in performing the following steps in a research project?
_____ Turning your topic into a question that can be tested [Likert scale 1–5 presented for each entry]
_____ Designing a project to test your question
_____ Performing a literature review
_____ Identifying research partners, if needed
_____ Gathering data
_____ Analyzing data
_____ Reporting results in written format
_____ Reporting results verbally
_____ Determining appropriate format for disseminating results (poster/presentation/article)
_____ Identifying appropriate places to disseminate results (publication/conference)

Q11. Do you believe that your LIS master's degree adequately prepared you to **read and understand** research-based literature?
❑ Yes   ❑ No   ❑ n/a (Do not have an LIS master's degree)

Q12. Do you believe that your LIS master's degree adequately prepared you to **conduct** original research?
❑ Yes   ❑ No   ❑ n/a (Do not have an LIS master's degree)

Q13. Please check any educational activities about research methods in which you have ever participated. Check all that apply. If you choose *Other*, please tell us about the educational activities about research methods in which you have participated.
❑ Formal master's degree LIS course(s) (e.g., research methods, statistics)
❑ Formal doctoral degree LIS course(s) (e.g., research methods, statistics)
❑ Formal master's degree non-LIS course(s) (e.g., courses in other departments)
❑ Formal doctoral degree non-LIS course(s) (e.g., courses in other departments)
❑ Continuing education program(s) (e.g., courses, workshops, conference programs)
❑ Staff development program(s) provided by your organization
❑ Self-education activities (e.g., professional reading, online tutorial)
❑ None of these
❑ Other _____ (*text entry*)

Q14. Check all of the following research support options that your institution or library provides for librarians. Check all that apply.
❑ Release time
❑ Sabbaticals for librarians
❑ Travel funds (full reimbursement)
❑ Travel funds (partial reimbursement)
❑ Research design consultant or statistical consultant
❑ Research grants
❑ Workshops or other forms of continuing education
❑ No research support for librarians

Q15. Is your position eligible for tenure and/or promotion?
❑ Tenure and promotion
❑ Promotion only
❑ Not eligible for tenure or promotion

Q16. Do you have tenure?
❑ Yes   ❑ No

Q17. Have you been through the tenure and/or promotion process at your current or previous institution?
❑ Yes   ❑ No

Q18. Do you have another MA, MS, or PhD, in addition to your LIS degree?
❑ Yes   ❑ No   ❑ n/a (Do not have an LIS master's degree)

Q19. Do you have any comments or feedback for the researchers?
 (*text entry*)

Thank you for your response to this survey.
Some of the questions and the definition of *research* were adapted from:
    1. Henry, Deborah B., and Tina M. Neville. "Research, Publication, and Service Patterns of Florida Academic Librarians." *The Journal of Academic Librarianship* 30.6 (2004): 435–51.
    2. Powell, Ronald R., Lynda M. Baker, and Joseph J. Mika. "Library and Information Science Practitioners and Research." *Library & Information Science Research* 24 (2002): 49–72.

If you would like a report of the results of this survey, please e-mail Marie Kennedy at marie.kennedy@lmu.edu.

Appendix B
The E-mail Call for Participation

The following e-mail was posted to these listservs: ACQNET-L (Acquisitions Librarians Electronic Network), ATLANTIS (Theological librarians), AUTOCAT (Library Cataloging and Authorities Discussion Group), CALIBACA-L (California Academic & Research Libraries Association), COLLIB-L (College Librarians List), ERIL-L (Electronic Resources in Libraries), GAY-LIBN (Gay/Lesbian/Bisexual Librarians Network), ILI-L (Information Literacy Instruction Discussion List), IUG (Innovative Users Group), LIBREF-L (Discussion of Library Reference Issues), LITA-ERM (LITA Electronic Resources Management Interest Group), LRRT (Library Research Roundtable), Metadatalibrarians, SCIL (Southern California Instruction Librarians), West Arch (Western Archivists Listserv).

Subject line: Request to participate in the Librarian Research Survey

E-mail body: We invite you to participate in a study of research skills and support for research. You have been selected for this study because you are a librarian in an academic setting.

The purpose of this study is to learn how you would assess your own skills in completing discrete research tasks as well as to discover how your institution may support your research endeavors. We plan to use the results of this survey to influence the curriculum of a proposed continuing education opportunity for librarians in an academic setting.

The survey is Web-based and is expected to take about **5 minutes** to complete. We will not gather any identifying information about you.

Your participation in the study is completely voluntary and no risks are anticipated for you as a result of participating. The study has been reviewed by the Office of Research and Sponsored Projects at Loyola Marymount University.

Thank you for participating in this study.

Sincerely, Kristine Brancolini and Marie Kennedy

BEGIN THE STUDY BY GOING TO THIS LINK: http://library.lmu.edu/departments/acquisitions_serials/Informed_Consent.htm

Appendix C

Q6. List the titles of two journals in which you regularly read research-based articles.

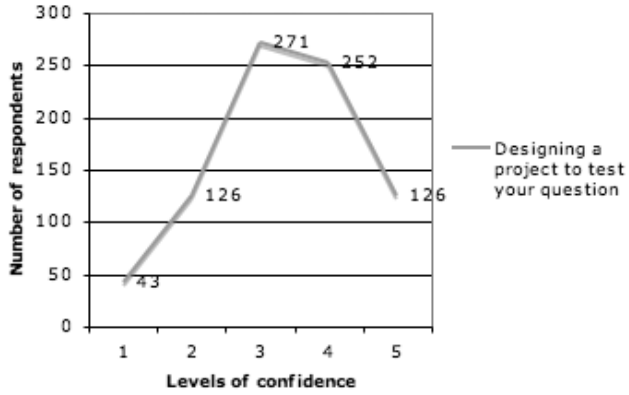|	
College & Research Libraries	270
The Journal of Academic Librarianship	128
Library Resources & Technical Services	50
Portal	33
Reference and User Services Quarterly	32
Information Technology and Libraries	22
Cataloging & Classification Quarterly	21
College & Research Libraries News	20
Reference Services Review	16
The Journal of the Medical Library Association	15
Communications in Information Literacy	12
Journal of the American Society for Information Science and Technology	12
Library Journal	12
Journal of Library Administration	9
ACRL	7
Serials Librarian	7
American Libraries	6
College & Undergraduate Libraries	6
Computers in Libraries	6
Library Trends	5

There were 145 distinct titles noted, 90 of which received only one mention. One of the titles in the top 20 listed in Appendix C—*ACRL*—is not a journal. It is unknown which journal the respondents were referring to when they mentioned it as one of the two journals they read.
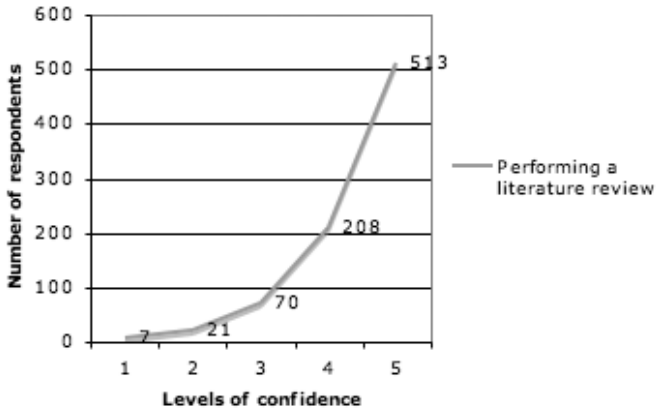
Appendix D
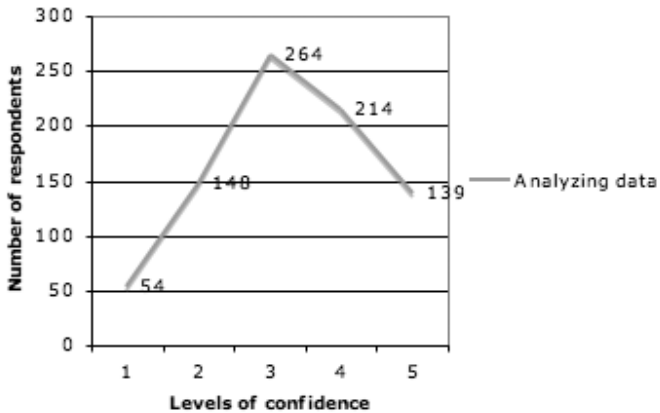## The Confidence Levels of Some of the Research Tasks

Designing a project to test your question

Number of respondents (y-axis)
Levels of confidence (x-axis)

Data points: 43, 126, 271, 252, 126

Legend: Designing a project to test your question

Performing a literature review

Number of respondents (y-axis)
Levels of confidence (x-axis)

Data points: 7, 21, 70, 208, 513

Legend: Performing a literature review

Analyzing data

Number of respondents (y-axis)
Levels of confidence (x-axis)

Data points: 54, 140, 264, 214, 139

Legend: Analyzing data

Notes

1. Ellen Crumley and Denise Koufogiannakis, "Developing Evidence-based Librarianship: Practical Steps for Implementation," *Health Information & Libraries Journal* 19, no. 2 (2002): 69.

2. Charles R. Hildreth and Selanay Aytac, "Recent Library Practitioner Research: A Methodological Analysis and Critique," *Journal for Library and Information Science Education (ALISE)* 48, no. 3 (Summer 2007): 254.

3. Ronald R. Powell, Lynda M. Baker, and Joseph J. Mika, "Library and Information Science Practitioners and Research," *Library & Information Science Research* 24 (2002): 49.

4. Crumley and Koufogiannakis, "Developing Evidence-based Librarianship," 62.

5. Gaby Haddow and Jane E. Klobas, "Communication of Research to Practice in Library and Information Science: Closing the Gap," *Library & Information Science Research* 26 (2004): 30.

6. This definition was used for the survey described in the Powell, Baker, and Mika study cited above.

7. Denise Koufogiannakis and Ellen Crumley, "Research in Librarianship: Issues to Consider," *Library Hi Tech* 24, no. 3 (2006): 333; Powell, Baker, and Mika, "Library and Information Science Practitioners and Research," 50; Sarah McNicol and Clare Nankivell, "The LIS Research Landscape: A Review and Prognosis," 2003, available online at www.ebase.bcu.ac.uk/cirtarchive/projects/past/LISlandscape_final%20report.pdf [accessed 8 May 2011].

8. Nathan M. Smith and Irene Adams, "Characteristics of Research Courses in Library Schools," *Journal of Education for Library and Information Science* 33, no. 1 (1992): 75.

9. Daniel O. O'Connor and Soyeon Park, "Crisis in LIS Research Capacity," *Library & Information Science Research* 23 (2001): 105.

10. Lili Luo, "Fusing Research into Practice: The Role of Research Methods Education," *Library & Information Science Research,* 33, no.3 (July 2011): 191-201, doi: 10.1016/j.lisr.2010.12.001 [accessed 11 May 2011].

11. Luo, "Fusing Research into Practice."

12. Rebecca Watson-Boone, "Academic Librarians as Practitioner-Researchers," *The Journal of Academic Librarianship* 26, no. 2 (March 2000): 85.

13. Watson-Boone, "Academic Librarians as Practitioner-Researchers," 90.

14. Deborah B. Henry and Tina M. Neville, "Research, Publication, and Service Patterns of Florida Academic Librarians," *The Journal of Academic Librarianship* 30, no. 6 (2004): 435–51; Powell, Baker, and Mika, "Library and Information Science Practitioners and Research," 49–72.

15. Albert Bandura, "Self-Efficacy," in *Encyclopedia of Human Behavior*, vol. 4, ed. V.S. Ramachandran (New York: Academic Press, 1994): 71.

16. Alexander D. Stajkovic and Fred Luhans, "Self-Efficacy and Work-related Performance: A Meta-Analysis," *Psychological Bulletin* 124, no. 2 (1998): 240–61.

17 Lili Luo, "Fusing Research into Practice."

18. Bandura, "Self-Efficacy," 71–72.

19. Stajkovic and Luhans, "Self-Efficacy and Work-related Performance," 241.

20. Timothy A. Judge, Christine L. Jackson, John C. Shaw, Brent A. Scott, and Bruce L. Rich, "Self-Efficacy and Work-Related Performance: The Integral Role of Individual Differences," *Journal of Applied Psychology* 92, no. 1 (2007): 107.

21. See: M. Susan Taylor, Edwin A. Locke, Cynthia Lee, and Marilyn E. Gist, "Type A Behavior and Faculty Research Productivity: What Are the Mechanisms?" *Organizational Behavior and Human Performance* 34 (1984):402–18.

22. Alvin M. Schrader, "Fostering a Research Culture in Canadian Academic Libraries," paper presented at Super Conference 2010, Ontario Library Association, available online at www.accessola2.com/superconference2010/thu/332/schrader.pdf [accessed 17 May 2011].

23. Charles A. Schwartz, "Research Productivity and Publication Output: An Interdisciplinary Analysis," *College & Research Libraries* 52 (Sept. 1991): 414–24; Joseph Fennewald, "Research Productivity among Librarians: Factors Leading to Publications at Penn State," *College & Research Libraries* 69 (Mar. 2008): 104–16.

24. Helen L. Partridge and Gillian C. Hallam, "Developing a Culture of Evidence Based Practice within the Library and Information Profession: The Impact of Library Science Education. A Teaching and Learning Model from the Queensland University of Technology," in *Proceedings Management, Marketing, Evaluation and Promotion of Library Services, Based on Statistics, Analyses and Evaluation in Your Own Library: Satellite Meeting of the IFLA Management and Marketing Section, 71st WLIC 2005, Bergen, Norway*, available online at http://eprints.qut.edu.au/32798/ [accessed 17 May 2011].

25. Tina M Neville and Deborah B. Henry, "Support for Research and Service in Florida Academic Libraries," *The Journal of Academic Librarianship* 33, no. 1 (Jan. 2007): 76–93.