Research Productivity Among Librarians: Factors Leading to Publications at Penn State

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Librarians at the Pennsylvania State University are consistently among the most published in academic library journals. This study explored the factors contributing to research productivity among a cross section of Penn State librarians. Personal motivation, intellectual curiosity, and education were important factors in practice-, institutional-, and discipline-based research among the 38 librarians surveyed here. However, being part of an institution, where everyone is expected to participate in research, may be the most critical factor.

tudies of research productivity in library and information sciences often place Pennsylvania State University among the top five institutions.[1] (Only one other institution shares this distinction: the University of Illinois at Urbana-Champaign.) The demands of promotion and tenure, along with institutional support—in travel funds and research grants—contribute to this accomplishment. The question arises, however, whether meeting institutional expectations is the only reason librarians conduct research and publish. Similarly, is institutional support alone responsible for librarians' success? This study explores the various factors that contribute to active research among Penn State librarians.

Previous research has identified several institutional factors that contribute to librarians' research success. Faculty status and corresponding research expectations are often cited as one major reason.[2] Institutional support in funding and release time is also thought to be critical.[3] In addition, there have been studies of various institutional initiatives, such as mentoring programs,[4] peer support groups,[5] and research clubs;[6] these initiatives appear to benefit most librarians with limited research experience.

Personal factors may also explain the research success of some librarians. John M. Budd and Charles A. Seavey (1990) suggested that "individuals who are motivated to write and publish likely gravitate to [doctoral] institutions where such activity is expected and valued."[7] Mickey Zemon and Alice Harrison Bahr (1998) discovered researchers in undergraduate institutional settings, where publication is seldom required, publish "to share their innovation and/or concerns and to achieve recognition."[8] Educational training is also viewed as an important factor. Dwight F. Burlingame and Joan Repp (1982) found that "academic librarians holding advanced degrees or doctorates are more likely to publish than those who do not hold these credentials."[9]

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Several authors have recommended that future studies concentrate on librarians' research success within specific institutional settings. Charles A. Schwartz (1991) encourages researchers to take:

> … a more interpretative approach in which productivity is investigated in the context of specific institutional surroundings. The aim of the inquiry would thus shift from discovering general 'laws' of research productivity, to understanding particular cases of effective factors in particular settings.[10]

Ann C. Weller, Julie M. Hurd, and Stephen E. Wiberley, Jr. (1999) also identified the need for research that would further our understanding of "the relationship between the characteristics of an institution and the publishing productivity of its librarians."[11] This study follows these recommendations. It looks at the personal and social factors within a specific institutional setting, that of Penn State, where librarians are expected to participate in, and the Libraries provide support for, research endeavors.

Methodology

Although previous studies have gathered information with self-administered questionnaires, no one has conducted personal interviews with research-practitioners. Using this method allows librarians to describe in their own words what motivates them to conduct research; what programs, experiences, or support they have found useful; and what hindrances they have faced.

Tenured and tenure-track librarians at Penn State's 24 campuses were sent a letter describing the study and asking whether they would agree to a one-hour interview. Of the 85 eligible librarians, 77 responded affirmatively, suggesting a high level of interest in the study.[12] Of these 77, four librarians were selected for pilot interviews. (Pretest interviews had already been conducted with faculty members in other fields to develop the interview structure and master the mechanics of tape-recording the sessions.) Initially, 25 librarians were randomly selected from the 73 remaining volunteers. Because the distance between the main campus at University Park and the other 23 campus locations ranges from 44 to 227 miles, other librarians in the vicinity of a randomly selected interviewee were contacted to secure more interviews that day. Thus, another 13 librarians were added to the randomly selected 25.

Interviews were conducted between March and June 2005. They usually took place at the respondent's home campus. An interview guide was created to explore previously identified factors thought to contribute to research success. (See Appendix: Interview Guide.) Each question had a series of probes to further explore each factor.[13] However, rather than directly question respondents about specific factors, they were encouraged to describe their own experience with a research project. How they selected research topics, what institutional resources were used, what difficulties they encountered, and what advice they would give new librarians were commonly explored topics. Respondents were encouraged to elaborate on any areas that were particularly important to them. It is important to note that the interviews were intentionally informal. Narratives or accounts in the person's own words were sought rather than quantifiable data.[14]

Institutional Setting

As part of a research institution, Penn State University Libraries places considerable importance on research among its librarians. Librarians have faculty status at Penn State and are required to conduct research and present their findings whatever their campus location in the statewide system of libraries. The Promotion and Tenure (P&T) Criteria do not specify the number or type of publications, but there is an expectation that librarians should strive for single-authored articles in peer-reviewed journals and that these publications should reflect

their primary library assignment. After tenure, research and scholarly activities remain an important component of the librarian's annual performance evaluation. In addition, "all tenured faculty are reviewed during the seventh year after gaining tenure, their most recent promotion, or after the last extended review."[15] These post-tenure reviews also evaluate the librarian's research activities.

The Libraries support librarians in their research endeavors in several ways. Every librarian receives a fixed amount of money to attend conferences and professional development workshops. They can also apply for additional funds for travel and research through several internal grants.

In April 2004, the Libraries developed a formal mentoring program, which assigns a mentor to new colleagues. The mentor is expected to "help new faculty members understand the promotion and tenure process, the culture of the Libraries and Pennsylvania State University, and expand the new faculty member's knowledge of other areas of the Libraries."[16]

Although there is no formal policy, librarians can negotiate with their immediate supervisor for time away from the reference or public service desk, or technical service duties, for research activities. Tenured librarians are also eligible for sabbaticals.

Finally, the Library Faculty Organization (LFO), which represents faculty in the governance structure, provides additional support. The LFO Faculty Affairs Committee organizes an annual P&T workshop, which typically includes several presentations on conducting and publishing research. A second committee, the Research Committee, distributes requests for paper and conference presentation proposals to LFO members and sponsors a col-

loquium at which librarians can present their research.

Librarian Profile

In many ways the librarians interviewed were similar to all Penn State librarians but there were also notable differences. The average number of years at Penn State was the same for both groups. In addition, the percentage of librarians interviewed at satellite campuses with only one other librarian was very similar. However, the profile of the 38 participating librarians differs from all Penn State librarians in several ways. As shown in table 1, there were fewer women interviewed (47% versus 56%) but more tenured librarians (76% versus 65%).

In addition, the librarians who were interviewed had slightly more publications on average than Penn State librarians as a whole. The number of publications was determined by checking the *Library Literature Index* for articles published in the 36 core journals identified in Budd and Seavey's 1990 study on library research productivity.[17] Only articles published after the librarian's start date at Penn State were counted. If coauthored, each author was equally credited based on the number of authors. For example, an article with three authors was counted as one-third for each author. The 38 librarians interviewed had an average of 2.3 articles in these journals compared to 1.9 articles for all Penn State librarians. (See

TABLE 1		
A Profile of all Penn State Librarians and of those Interviewed		
Characteristics	**All Librarians**	**Interviewees**
Years at Penn State (Average)	12	12
Satellite Campus*	17%	16%
Female	56%	47%
Tenured	65%	76%
Number of Librarians	86	38
*Satellite campus is a term created by the author to identify the 15 campuses with only two librarians.		

table 2, "Publications in Core Journals by Penn State Librarians.") The proportion of librarians with no publications in the core journals was similar for both groups (27% and 24%). However, the proportion of interviewees with more than three published articles was greater for the interviewees (37% versus 26%). Thus, there is a slight bias in the interviews. Tenured male librarians who have successfully published in core library journals are better represented.

Arguably, authorship of core journal articles is only one measure of research productivity. Publishing articles in other refereed journals, authoring books, contributing to edited volumes, and giving conference presentations are other indicators. Fortunately, 32 of the 38 respondents provided the author with a copy of their *curriculum vitae*. In addition to their 82 core journal articles, these librarians authored 58 articles in other refereed journals. They have also written or edited 28 books and contributed 105 chapters in books, proceedings, or encyclopedias. Furthermore, three have served as journal editors, seven have sat on editorial boards, and four have written regular feature columns in professional publications. They have written over 220 book reviews and have given approximately 430 conference presentations. Thus, core journal publication appears to be strongly associated with other indicators.

TABLE 2
Publications in Core Journals by All Penn State Librarians and by Interviewees

Core Publications	All Librarians	Interviewees
0	27%	24%
0.3 – 3.2	47%	39%
3.3 – 8.2	26%	37%
Total Number of Publications	163	88
Average Number of Publications	1.9	2.3

Findings
Motivation

Significantly, no one interviewed indicated that P&T was the only reason they did research or that, having been awarded tenure, they no longer felt the need or the desire to do so. It may have been the initial reason; but many librarians found that they continued to conduct research and publish after crossing the P&T line. As one librarian said, "Having been pushed for 4 to 5 years to write, it becomes a habit." Similarly, several voiced doubts about whether they would have engaged in research if it were not expected of them, but now found it worthwhile. "I am not sure I would ever have started out thinking about problems that could be articulated into articles if I did not have P&T hanging over my head. However, having said that, I now love it and wish I could spend more time doing it," commented another interviewee.

While institutional expectations were initially very important, most respondents cited other reasons for doing research. Some clearly enjoy doing research and were attracted to their position at Penn State because of its research expectations. "I wanted to get to a place where not only is it accepted but expected and encouraged—that's heaven!" Several viewed it as an expectation of being an academic librarian. "I have always seen librarianship and research as going hand in hand." There were also those who felt a professional obligation because engagement in research strengthens and improves library services. "The importance of research is to identify new knowledge that will enhance practice."

Many librarians were motivated by an intellectual curiosity, "If you find the right question, you want to pursue it," or a personal sense of satisfaction. "I feel like I really accomplished something. That I have learned something in the process of do-

ing the research and writing about it." There was also the reluctantly admitted pleasure of being recognized. "Being cited gave me great satisfaction."

Research Agendas

As expected, most librarians interviewed described their research as practice-based. "Everything I have done is based firmly on practice. I don't have ideas that just come to me that don't relate to what I am doing." They saw their research as being applicable to daily operations and resulting in better service. "My research developed to improve services." The prevalence of practice-based research was also due in part to the ease with which it could be incorporated into one's primary assignment. "The more of what you do on the day-to-day basis that can fit into what you publish, the more likely you are to complete those projects."

There were also librarians whose research could be better described as institutional-based. Institutional-based research originates from one's position or the programs and services unique to Penn State University Libraries. Several main campus librarians acknowledged the benefits of being one of only a handful of librarians nationally in their subject area. As such, they described their position as giving them "a wide array of things to write about. Every project that I'm working on could be turned into an article or presentation." They often spoke of the importance of their research in helping smaller libraries who did not have a librarian with their subject expertise. Thus, a report on preparing materials to be moved from circulation to storage by the Preservation Librarian, for example, was seen as having value to libraries that are faced with this process but do not have a full-time librarian in such a position.

In addition to institutional-based publications originating from a highly specialized position, there were also librarians whose publications developed out of a task force or special project. (This was more common at the main

campus than the branch campuses.[18]) As one librarian reported, "One of the first things I worked on when I came here was the result of a task force." Having one's research develop out of a special project was viewed as particularly beneficial for librarians with limited research experience. It often provided them with opportunities to collaborate with librarians more knowledgeable about the research process. Indeed, several task force or committees structure their activities with the goal of eventually achieving a research publication. "You have already started the research by finding out the best practices. You may call people or post a question to a listserv or read some articles. You probably will do all of these things—but that's the literature review!" Given the time and energy invested in committee appointments, many expressed the value of converting this work into publications whenever possible.

The interviews also revealed a third type of research among Penn State librarians. It could be described as discipline-based research and reflects the librarian's academic subject interests and education. "My interest in [research area] goes back to my time in graduate school." Librarians who conduct discipline-based research often talked of spending years examining an issue. They often traced their research back to their thesis or dissertation in an academic field other than library science. Their research was further developed during their initial years of practice—even if those years were not at Penn State. "When I look at all of the college courses I had, the degrees I earned, and the experiences I had, this brings it all together." They described discussing ideas and concepts in their subject areas with scholars who may not be librarians. Although they have published in refereed journals, their accomplishments will not necessarily appear in library research productivity lists because they are publishing outside the field of library and information sciences. These librarians more closely resembled the teaching fac-

ulty who were interviewed as part of the pretest. Each of those four faculty members stated that their research developed from their dissertation. Even if they were no longer doing research on that author or that period of history, they could link their new endeavors to their earlier work.

Practice-, institutional-, and discipline-based research are not exclusive of one another. Indeed, librarians may have publications in all three areas. However, librarians with discipline-based research clearly viewed it as a product of their education, while librarians successful in publishing practice- or institutional-based research seldom cited their educational background as a contributing factor.

Education

Several librarians credited their educational training and preparation for their research skills. Those who did typically gave credit to an earlier degree in English or History rather than Library Science. These librarians appreciated the writing-intensive nature of the degree program they completed. Those who majored in History, moreover, described the rigorous demands of a research methodology course as contributing to their success as researchers. "The library degree gave me the resources. What helped from my history degree is how to do research, how to write to a specific topic, what you want to say. Writing, re-writing, and critiquing in the historical methods class was invaluable." Librarians who cited their graduate degree in library science as helpful were more likely to express appreciation for instructors who were actively engaged in research themselves and thereby served as role models. "The professors modeled very positive attitudes about research and why it is valuable."

Librarians with doctorates—whatever the field—distinguished themselves by their confidence in research methodologies. "A Ph.D. is a research degree—that's the whole point!" They approached problems from a research perspective. "You start with your research question and after reading and thinking about it you develop a hypothesis. If you don't have a hypothesis, you don't have much." They credited their education as good preparation for doing research.

Although education was frequently cited by interviewees, when core journal publications are examined it has little seeming influence. Librarians with an MLS degree averaged only 2.5 articles compared to 2.7 for those with a second master's and 2.5 for those with doctorates. However, when other refereed publications, books, and parts of books are considered, the average number of publications increases with education. As illustrated in table 3, librarians with a library science graduate degree had on average only 6.5 publications; those with a second master's, 9.4; and those holding a doctorate, 10.9. This supports Burlingame and Repp's finding that librarians holding advanced degrees are more likely to publish—when one considers all publications.[19]

TABLE 3			
Average Number of Publications by Education (CV Subsample)			
Education	MLS Only	2nd Master's	Doctorate
Core Journals	2.5	2.7	2.5
Additional Refereed Journals	1.4	2.3	2.0
Books	0.7	1.3	0.7
Parts of Books	1.9	3.1	5.7
Average Number of Publications	6.5	9.4	10.9
Number of Librarians	14	9	9

Writing

All librarians in this study enjoyed the exploration of solutions to problems and the search for information—the research process. However, when it came to writing, the responses varied. A few found it easy because of their years of writing or their educational training. "Writing is not difficult for me; I came from a college that was writing intensive." Most, however, found writing hard work, "just holy hell!" Even successful researchers with academic backgrounds in English would describe their difficulties. "Writing has always been extremely painful. It doesn't come easy. The English background helped but the only way to be a good writer is to write and to keep doing it."

One of the most frequent suggestions made to new librarians by the respondents, as well as others, is to ask a colleague to read a draft before submitting it for publication. Surprisingly, few librarians followed their own advice, though there were exceptions. When writing about a new service, authors often shared early drafts with their colleagues who helped create the service. Generally, however, librarians found their coworkers to be too kind when critiquing their writing; they were too supportive and failed to give the critical feedback needed. "I have difficulty finding someone to read drafts because I think [my colleagues] are too kind and would not be critical of anything I write." It was also difficult for some librarians to share early drafts. "It's embarrassing, especially when you know it's not quite right but you need another point of view. You really need someone you can trust and not think too badly of you because your writing is so poor."

Several librarians did not feel they needed to have someone read an article before submitting it to a journal. "I don't usually have anyone read drafts. I go over my work two to three times. Everything that I have ever submitted has been taken as is or had very minor revisions." These librarians often relied directly on the journal editor or reviewers. "That's really

their job." Most respondents credited reviewers' comments for strengthening their articles. "I have a better article as a result. It forced me to think harder and do more in-depth analysis and I am glad for that." Some librarians also described disagreements with reviewers and successfully defended their work. Only a few found reviewers' comments to be too tough or critical.

It was interesting to learn how many librarians relied on their spouse, significant other, or children to proofread an article. "My children are very good proof-readers. Plus, they get it back to me on time." Yet, some recognized the strain in these requests. "My husband reads my work before I send it off. I don't have him read everything—that would be cruel and unusual!"

Finding Time

Writing is labor-intensive. Given the demands of their positions, almost all librarians interviewed identified time as the major hindrance to accomplishing research. "What I lack is the time to write" or "I usually tell people that I have got a job and a half" were common sentiments. Finding time required ingenuity, discipline—and diplomacy.

Librarians differed greatly in their writing habits. Some followed a regular routine for writing, setting aside time every morning or evening or taking one day a week to write at the library or off campus. Others followed a more haphazard approach, finding time whenever their schedules permitted. "If I want to write something, I will come in and try to schedule some time in the morning and just blitz through it." Some designated time over the summer. "I need one day a week during the summer to write an article." Others indicated that they blocked out a period of time only when they are close to finishing a project. "When I am ready to write the article, I typically stay at home for a week." Flexibility in schedules was seen as particularly valuable by many. "If I had to be in the library from 9 to 5, I

would not have been able to produce half as much as what I have done."

There is no formal policy at Penn State regarding released time for research. Rather, this is negotiated with one's immediate supervisor and colleagues. This informal practice is extremely helpful. It accommodates and recognizes the unique writing habits of the librarian researcher.

Supportive Environment

All of the respondents had a clear understanding of Penn State's research requirements and the support available. Most had utilized funds to attend conferences. Several were recipients of the Libraries' research grants. Many had received additional support, such as research assistants, special equipment, software packages, or acquisition of research materials. P&T workshops and posted calls for papers and presentations were mentioned by many as helpful. In addition, several interviewees have taken sabbaticals and valued that experience. "My sabbatical was a defining moment. I enjoyed the intellectual activity of taking apart a question and reading the literature around it."

Because interviews were conducted only one year after the Libraries established this program in 2004, and only a few of the librarians interviewed had had meetings with their assigned mentor, it was too early to assess the success of the new mentoring program. In many ways, however, the new mentoring program only formalized informal practices already present. Previously, some supervisors, on their own initiative, assigned a mentor to a new librarian. Some librarians reported seeking out someone to help them become familiar with the research expectations. Having a mentor provided opportunities to explore research ideas, get advice on where to publish, share frustrations, and create timelines to work on projects. As one librarian reported, "We started out meeting monthly and at the very first meeting she said 'By the next time we meet, I want you to have some research ideas.'"

In addition to having a mentor, there were numerous stories of librarians helping one another informally. As one librarian recalled, "Someone helped me so I feel like I need to do that for others." Those with tenure often expressed an obligation to junior colleagues. "I feel that it is my duty to be a mentor for people who haven't written an article." In describing the role of the tenured librarian helping new colleagues, one librarian said, "Obligation makes it sound negative. I think it is a privilege." There were various stories about how this help was given. "Within a few months of being here [someone] sent me an e-mail saying 'Here's a really interesting topic that you may want to pursue.'" Librarians serving as editors for books or special journals would request contributions from colleagues. Tenured librarians would seek out an untenured librarian to coauthor a publication and were often willing to relinquish lead authorship to them. "[Librarian] is the point person, the lead to pull it all together, because she is on the tenure-track."

Several stated that they also benefited from being surrounded by librarians who were actively engaged in research. "Everybody is deeply immersed in research. So, the more people [who] are doing it, the more it feeds off each other." Likewise, the environment was generally seen as supportive. "When I was interviewed and met with the P&T committee, they stressed how collaborative it was. When I came here, I was pleasantly surprised to find out how true it was." Many saw the administration and their colleagues as wanting them to succeed. As one among many respondents observed, the Library's administration will do whatever they can to help their staff be successful researchers. "The attitude is 'if we hire you, we want you to get tenure six years from now.'"

Conclusion

Previous research has concentrated on the impact of specific factors contributing to publication productivity. These

have shown that librarians at institutions where research is expected as a requirement for promotion and tenure publish more. Likewise, it has been thought that in-house programs (such as writing support groups) benefit librarians in their research endeavors. This qualitative study adds to the literature by identifying a range of factors that are significant. As one of the leading institutions in library research, Penn State is an appropriate setting for this investigation.

Penn State expects its librarians to conduct research. It is a requirement of the promotion and tenure process as well as part of the librarian's annual review. Limited financial support is available to attend conferences and to defray the costs of research. Additional support comes from competitive research grants. There is no formal policy on released time to conduct research because it is seen as part of one's duties and responsibilities.

Although one cannot underestimate the influence of promotion and tenure and annual evaluations, this study also found personal factors motivated librarians to undertake research. For instance, most of the librarians in the narratives reviewed here expressed a commitment to add to the body of professional knowledge. Others spoke of their desire to enhance and expand services within the library, their intellectual curiosity, or a sense of satisfaction with the outcome of "being published."

Formal research training also appears to be a factor, but its lack, "librarians are not trained in this type of work," does not prevent librarians from being accomplished researchers. From a limited sample of *curriculum vita*, librarians with a Master's in Library Science published the same number of core journal articles on average as those with a second master's or a doctorate. However, earning a degree in a writing-intensive discipline, such as History or English, did give many librarians valuable research training. Such a degree contributed to a sense of confidence in their writing and research skills. It is

only when one considers all publications (books, parts of books, and other refereed journals) that having a doctorate appears to influence productivity.

Possibly the most significant factor at Penn State was the collegial support conveyed in formal and informal mentoring. Even before the formalization of a mentoring program, Penn State librarians had been mentoring one another. Suggestions for possible publications, leads to publications, willingness to collaborate reflected a well-established camaraderie achieved among librarians collectively engaged in research. Librarians who are motivated to do research and publish appreciate being surrounded by like colleagues. "Everyone is deeply immersed in research. So, the more people are doing it, the more it feeds off each other. It builds synergy." Even librarians lacking research confidence have found it supportive. As one librarian said, "No one indicated that [research] would be easy, but everyone indicated that it was doable and that they had every confidence that I would be able to do it." For those lacking confidence, the demands of promotion and tenure pushed them in new directions. "I may not have dived into the pool without that initial push." Even with the difficulty many have writing and finding the time to do so, one can be successful and come to share what one librarian described as "a love for research." As illustrated by these interviews, librarians who are self-motivated to do research and publish, as well as those who lack confidence and research experience, benefit from a collegial environment in which involvement in research and publication is normative.

Moreover, this collegial climate supports diverse research styles and agendas. Penn State does not have a prescriptive formula of research support. Research is expected, but how it must be done is left to the individual librarian. Released time for research, whether it be daily, weekly, or during breaks, for example, is negotiated with colleagues and supervisors. Nor are the contents of research agendas

prescribed; practice-, institutional-, and discipline-based are all valued. Thus, the full range of styles and interests found in this qualitative study are facilitated.

This is but one case study. Further studies should be conducted at other institutions to provide comparative data.

Notes

1. John M. Budd and Charles A. Seavey, "Characteristics of Journal Authorship by Academic Librarians," *College & Research Libraries* 51 (Sept. 1990): 463–70; Ann C. Weller, Julie M. Hurd, and Stephen E. Wiberley, Jr., "Publication Patterns of U.S. Academic Librarians from 1993 to 1997," *College & Research Libraries* 60 (Jul. 1999): 352–62; "University Science Indicators: Library and Information Science: Most Prolific U. S. Universities, 1999–2003," *In-cites*. Available online at www.in-cites.com/research/ 2005/april_11_2005-1.html. [Accessed 20 May 2005]; Stephen E. Wiberley, Jr., Julie M. Hurd, and Ann C. Weller, "Publication Patterns of U.S. Academic Librarians from 1998 to 2002," *College & Research Libraries* 67 (May 2006): 205–16.

2. Dwight F. Burlingame and Joan Repp, "Factors Associated with Academic Librarians' Publishing in the '70s: Prologue for the '80s," in *Options for the 80s: Proceedings of the Second National Conference of the Association of College & Research Libraries*, eds. Michael D. Kathman and Virgil F. Massman (Greenwood, Conn.: JAI Press, 1982), 395–404; Sylvia C. Krause and Janice F. Sieburth, "Patterns of Authorship in Library Journals by Academic Librarians," *Serials Librarian* 9 (Spring 1985): 127–38; Betsy Park and Robert Riggs, "Tenure and Promotion: A Study of Practices by Institutional Type," *Journal of Academic Librarianship* 19 (May 1993): 72–77; Deborah B. Henry and Tina M. Neville, "Research, Publication, and Service Patterns of Florida Academic Librarians," *Journal of Academic Librarianship* 30 (Nov. 2004): 435–51.

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4. Sue Johnston and Coralie McCormack, "Developing Research Potential Through a Structured Mentoring Program: Issues Arising," *Higher Education* 33 (Apr. 1997): 251–64; Lois Kuyper-Rushing, "A Formal Mentoring Program in a University Library: Components of a Successful Experiment," *The Journal of Academic Librarianship* 27 (Nov. 2001): 440–46.

5. John A. Camp, David G. Anderson, and Anne Page Mosby, "In the Same Boat Together: Creating an Environment for Research and Publication," in *Building on the First Century: Proceedings of the Fifth National Conference of the Association of College & Research Libraries*, eds. Janice C. Fennell (Chicago: ACRL, 1989), 9–11; Jeannie P. Miller and Candace R. Benefiel, "Academic Librarians and the Pursuit of Tenure: The Support Group as a Strategy for Success," *College & Research Libraries* 59 (May 1998): 260–65; Richard Sapon-White, Valery King, and Anne Christie, "Supporting a Culture of Scholarship for Academic Librarians," *portal: Libraries and the Academy* 4 (2004): 407–21.

6. Darrell L. Jenkins, M. Kathleen Cook, and Mary Anne Fox, "Research Development of Academic Librarians: One University's Approach," *The Journal of Academic Librarianship* 7 (May 1981): 83–86; Kathleen Kenny, Linda D. Tietjen, and Rutherford W. Witthus, "Increasing Scholarly Productivity Among Library Faculty: Strategies for a Medium-Sized Library," *Journal of Academic Librarianship* 16 (Nov. 1990): 276–79.

7. Budd and Seavey, "Characteristics of Journal Authorship by Academic Librarians," 465.

8. Mickey Zemon and Alice Harrison Bahr, "An Analysis of Articles by College Librarians," *College & Research Libraries* 59 (Sept. 1998): 422–32.

9. Burlingame and Repp, "Factors Associated with Academic Librarians' Publishing in the '70s," 403.

10. Schwartz, "Research Productivity and Publication Output," 420

11. Weller, Hurd, and Wiberley, "Publication Patterns of U.S. Academic Librarians from 1993 to 1997," 360.

12. Librarians at the law library, medical school, and technical training school were omitted because of their unique circumstances in the Promotion and Tenure process.

13. John Lofland and Lyn H. Lofland, *Analyzing Social Settings: A Guide to Qualitative Observa-*

tion and Analysis, 3rd ed. (Belmont, Calif.: Wadsworth, 1995), 82–83.

14. Noriko Hara, Paul Solomon, Seung-Lye Kim, and Diane H. Sonnewald, "An Emerging View of Scientific Collaboration: Scientists' Perspectives on Collaboration and Factors That Impact Collaboration," *Journal of the American Society for Information Science and Technology* 54 (Aug. 2003): 952–65; Lofland and Lofland, *Analyzing Social Settings*.

15. Penn State University Libraries Human Resources, "Guideline UL-HRG01 Periodic Extended Reviews for Tenured Faculty" (Dec. 6, 2000) [Internal document].

16. Nancy L. Eaton, Letter describing new mentoring program along with attached documents (Mentoring Program Description, Apr. 26, 2004).

17. Budd and Seavey, "Characteristics of Journal Authorship by Academic Librarians."

18. Librarians at satellite campuses with only one other librarian—and thus fewer opportunities for collaboration—had fewer publications. On average, these librarians (15) had 0.5 publications in the core journals versus 2.1 publications for all other librarians (71).

19. Burlingame and Repp, "Factors Associated with Academic Librarians' Publishing in the '70s."

Appendix: Interview Guide

Introduction
Is using the tape recorder okay?
- There are 2 copies of the consent form. Could you read one of them, and if it is all right, sign it and give it to me. You can keep the other copy.

Brief explanation of the study
The study is about the research process. I am looking at the various factors that aid and hinder one in doing research. In the interview, I will be asking you to describe a specific project—how you selected the topic, conducted the research, and wrote your findings. We'll start by looking at just one project. Is this clear? Are there any questions you would like to ask me before we begin?

Interview Guide
What research project would you like to discuss?
✓ Based on a review of your curriculum vitae, is this one appropriate or would you like to choose another one?

How did you become interested in this topic?
✓ Personal observations
✓ Previous research 1
✓ Triggered by something read (journals, listservs, magazine) 1
✓ Conference 1
✓ Water cooler

What did you do next? How did you proceed?
✓ Readings 1
✓ Discussions

When did you realize that you had something that could lead to publication?
✓ Confirmation from others 1
✓ Self-recognition 1

Did you feel prepared to do the research?
✓ Education
  o Academic achiever
  o Good writing skills 1
✓ Professional development activities 1
✓ Collaboration
✓ Consultation with colleagues or faculty 1
  o Reliance on others to assist in weak areas

What helped you in doing the research?
✓ Institutional demand 1
  o Promotion and tenure 1
  o Peer pressure 1
✓ Institutional support
  o Release time 1

- o Sabbaticals 1
- o Funding 1
- ✓ Opportunities to discuss research with others 1
  - o Library colleagues 1
  - o Faculty 1
  - o Mentors 1
  - o Friends or family members 1

When do you find time to conduct research?
- ✓ Amount of time spent on the project 1
- ✓ Time management issues 1
- ✓ Is your present position conducive to research? 1

What hinders you in doing research?
- ✓ Attitude toward professional literature 1
- ✓ Institutional expectations 1

What aspect of the research did you enjoy most?
- ✓ Reviewing the literature 1
- ✓ Discussing problem with colleague 1
- ✓ Writing 1
- ✓ Seeing it in print 1
- ✓ Sense of accomplishment 1

What impact has the research had on you, your work, or the profession?

Let me summarize what you have said.

Is this process similar to previous experience?