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Running Head: SCHOLARLY PRODUCTIVITY

Scholarly productivity of U.S. LIS faculty*

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Abstract

One aspect of faculty effectiveness can be measured through research productivity, and publication and citation rates can serve as an indicator of that productivity. This study, the fourth in a series to examine LIS faculty and program productivity as measured by publication and citation, uses the same methodology as the previous investigations. A consistent data instrument (the *Social Science Citation Index*) provided publication and citation data for LIS faculty, covering the years 1999 to 2004. Tables show the faculty and programs with the highest publication and citation rates, both overall and per capita, as well as a cumulative ranking of LIS programs based on faculty research productivity. This study, in conjunction with the three previous, documents an increase in LIS research productivity, suggesting an increase in faculty effectiveness.

1. Introduction

There is mounting concern regarding the efficiency and effectiveness of colleges and universities. Measures of efficiency are often tied to instrumental economic measures, such as student credit hours generated relative to tuition rates or productive versus leisure time of faculty (Vedder, 2004). Measures of effectiveness, however, are not as clear-cut. Effectiveness is defined by the goals of academic institutions and programs; good teaching and solid scholarship tend to be two more common measures of effectiveness. Nonetheless, these concepts are relatively ambiguous, and vary in importance between institutions. The prestigious research grant may be less well-regarded at a small liberal arts college than at a research university. Different measures of teaching effectiveness might be obtained from students' end-of-semester evaluations, peer teaching assessments, measures of student output, or learning outcomes assessment. A "true" measure of effectiveness will always be elusive. However, a systematic assessment of effectiveness which uses consistent criteria can help illuminate a field's progress toward effectiveness.

One way to measure effectiveness in scholarship is by examining faculty productivity. Hayes (1983) examined this matter first for the years 1969-1980. That study was succeeded by one done by Budd and Seavey (1996), covering the years 1981-1992. A third piece by Budd (2000) covered a shorter time period, 1993-1998. All three studies were consistent in design and execution and were straightforward in methodology. The design established by Hayes in the first study has been adopted in the subsequent work. For the purposes of comparing change over time, data from the two most recent studies (Budd, 2000; Budd & Seavey, 1996) are used in this paper. The data from the Hayes study are not available for comparison. As the fourth in a series, this study is guided by the research questions of the previous three: "How productive (in terms of

research and publication) are LIS faculty members? How do productivity levels vary by rank? Who are the most productive individuals? Which are the most productive programs?" (Budd & Seavey, 1996, p. 4). Some longitudinal data is available as a result of three previously conducted studies of faculty productivity in LIS.

1.2 What Is "Productivity"?

For this report, productivity is taken here as a measure of faculty effectiveness. Since contribution to a field's body of knowledge is a purpose of academic units, the publishing activities can be legitimately defined as effectiveness. Further, since faculties' work influences the work within a field, citations received can also be legitimately defined as productivity. A working assumption, then, is that faculty who produce more published pieces of research and whose published research is more highly cited are more effective at influencing the field's body of knowledge than faculty with fewer publications and citations. Beyond publications and citations, other measures of an individual's research productivity might include the number of research grants written per year, conference papers presented, or research awards received. For LIS, however, publication and citation are more visible and easily accessible than alternate measures, and have remained a valid unit of measurement for faculty productivity for a very long period of time.

The three previously published works on the topic of LIS faculty productivity have included reviews of extant literature on evaluation by means of counting publications and citations. All of these works mention a number of caveats that have to be heeded: (1) it is difficult and enormously time consuming to account for all publications by a substantial number of individuals; (2) not all publications are equal in that a one-page response to another author is not same as a book; (3) secondary sources that can be used to track publications and citations are

not exhaustive; and (4) citation to the works of others can be made for numerous reasons. All of these concerns are valid; any examination of productivity as defined by publication and citation rates must acknowledge them. One way to address the worries about publication (as an indicator of faculty productivity) is to establish means of identifying and counting publications that are consistent and equitably applied. Hayes offered a consistent and equitable, if flawed, means in the first study in LIS; the means he established carry through to the present. The single source for both publications and citations was and is *Social Sciences Citation Index* (*SSCI*), available online in recent years through Web of Science©. *SSCI* indexes citations in over 1700 social science journals, and searches may be conducted either by number of articles indexed by a particular author or by number of times a particular author is cited in the articles indexed. Nisonger (2004, p. 162) points out that the database's coverage is far from complete, especially for non-US and non-English language publications. *SSCI*'s coverage of electronic journals is similarly incomplete; of the five titles identified by Nisonger & Davis (2005) as having the greatest perceptions of prestige, none were indexed. *SSCI* does comprise a consistent source for the two measures, and continued use of it does provide for comparisons over time and across studies.

2. Procedures

The population (full-time LIS faculty) and data instrument (the online edition of *SSCI*) are consistent with the three previous studies; the time period picks up where the last study left off and covers six years, from 1999-2004. Productivity, always an elusive measure, is also defined here in the same way it was in the previous studies. Individual productivity relies on the number of articles each individual is credited with authorship for in *SSCI* for the six-year period, and the citations each individual's published work receives, also as tracked in *SSCI*. *SSCI*

indexes only journal articles, and publications are counted using *SSCI*'s "Article" designation. *SSCI* defines "article" primarily through elimination: that is, an article is not an editorial, letter, book review, abstract, etc. Conference proceedings are not an *SSCI* category; however, the proceedings of the American Society for Information Science & Technology conference are considered as articles.

Citations are also counted using *SSCI*'s designations. In this measure, *SSCI* indexes citations to books and other forms of scholarly communication, and these are included in the measure of faculty citation. An important caveat to note is the difference between identification of cited authors for *SSCI* "source" documents – those indexed as articles – and non-source documents such as books or book chapters. When a non-source document with multiple authors is cited, only the first author is indexed in *SSCI*'s citation search. A source document has received full indexing, and when that document is cited, all authors are included in the citation search. For instance, Danny Wallace and Connie Van Fleet co-authored a book in 2001. *SSCI* credits Wallace, the first author, with five citations (including three reviews) for this work. Van Fleet, the second author, receives no citations for this work. However, Wallace and Van Fleet both receive citations for a co-authored article in 1998.

Institutional productivity mirrors the measures for individuals. The total number of publications and citations for individuals at each program are cumulated. Per capita figures are obtained by ascertaining the average size (number of full-time faculty) of each program for the time period. That figure is the denominator and the total publications and citations are, respectively, the numerators. Figures that are as representative as possible require determining with which programs individuals were affiliated during the time period. For example, Bryce Allen was on the faculty at the University of Missouri for 1999-2001, so his publications and

citations for only those three years are counted in Missouri's total. Some shortcomings to *SSCI* have been discussed in the two previous studies. These include the fact that *SSCI* does not include all LIS-related journals; that it does not cover all areas in which LIS faculty may publish; and that *SSCI* does not index books or book chapters unless they are included as citations in another article. Another concern stems from potential differences or incompatibilities between universities' use of academic years and *SSCI*'s use of calendar years. Faculty members promoted from assistant to associate professor would most likely join their new rank in August of their promotion year. While they would be counted as associate professors for that year, they would have spent more than half that year as assistant professors. Despite these drawbacks, however, *SSCI* does include many journals and provides a consistent way to measure faculty productivity in terms of publication and citation. An advantage to using *SSCI* is that it does not limit its coverage only to LIS publications, and may index faculty work published outside the traditional LIS journals.

As with previous studies, LIS faculty are restricted to full-time assistant, associate, and full professors employed by a school whose LIS master's program is accredited by the American Library Association. In some instances, it is not an easy matter to identify individuals' affiliations with accredited programs. If the program's Web site or other communication devices indicate that an individual's primary teaching duties are within the program, that individual's publications and citations are included. In previous studies, LIS faculty rank and affiliation were determined through the annual membership directory of the Association for Library and Information Science Education (ALISE). As the directory was not produced regularly during the period studied, and as not all faculty of LIS programs are ALISE members, additional means of identifying faculty rank and affiliation were used. Faculty vitae and publications were examined

for affiliation and rank notations, and program Web sites were analyzed over time using the Internet Archive (n.d.).

For the purposes of isolating output by program or academic rank, when faculty change rank or affiliation, their output is tied to each of their ranks and programs. For instance, Mary K. Chelton was promoted from Associate Professor to Professor in 2003, therefore her publications from 1999-2002 are counted in the Associate Professor category, while publications from 2003-2004 count in the Professor category. To reiterate, the same principle applies to changes in institutional affiliation. Andrew Dillon moved from Indiana University to the University of Texas-Austin in 2002. His publications from 1999-2001 are counted toward his Indiana career; his 2002-2004 publications are counted toward Texas.

3. Results

3.1Productivity by Individuals

For the six-year period of analysis, the number of faculty at each rank, those with at least one publication, and those with at least one citation are shown in Table 1. A Chi-square test indicates significant difference between faculty ranks (by numbers of publications), $\chi^2(2, N = 746) = 73.277$, $p < .05$. Likewise, there is a significant difference in citation rates among academic ranks, $\chi^2(2, N = 746) = 10.186$, $p < .05$.

[Insert Table 1 about here.]

Table 2 ranks the twenty most productive faculty during the 1999-2004 time period by number of articles listed in *SSCI*. Four faculty names appear on this list and on the lists of the two previous studies evaluating publications from 1993 to 1998 and from 1981 to 1992: Carol Tenopir, Charles R. McClure, Marcia Bates, and Peter Hernon. Several other faculty appear on this list and the 2000 list: Peter Jasco, Blaise Cronin, John M. Budd, Amanda H. Spink, Dietmar

Wolfram, and Paul B. Kantor. Kathleen de la Peña McCook appears on this list and the list covering publications from 1981-1992.

[Insert Table 2 about here.]

Table 3 ranks the twenty faculty with the most citations to their work. Again, several faculty who appeared in the previous lists also appear in this list. Tefko Saracevic appears in all four citation lists over the life of this study. Appearing on the three most recent lists are Nicholas J. Belkin, Carol Tenopir, Christine L. Borgman, Marcia J. Bates, Peter Hernon, and Raya Fidel. Appearing on this list and the 2000 citations list are Gary Marchionini, Blaise Cronin, Rob Kling, Amanda H. Spink, Paul B. Kantor, and John M. Budd.

[Insert Table 3 about here.]

3.2Productivity by Program

In keeping with the previous studies, Table 4 enumerates the programs that have produced the most journal articles over the six-year period from 1999 to 2004. The list ranks programs from 1 to 20; due to a tie between Kent State and the University of Maryland, the list includes 21 schools. The majority of LIS programs in the 1996 and 2000 studies were housed at "Research I" universities, per the classification system devised by the Carnegie Foundation for the Advancement of Teaching. The Carnegie Classification was revised in 2000; both the names of the categories and the criteria for inclusion in each category have been updated (Carnegie classification of institutions of higher education, 2005). The Carnegie Classification has been revised again since the data collection period, but the categories listed here are those that were in use at the time of the collection. The Doctoral/Research-Extensive category (defined as awarding at least 50 doctoral degrees per year across at least 15 disciplines) comes closest to matching what was the Research University I category. The majority of programs in this list were

Doctoral/Research-Extensive institutions. Some of the ranked programs, however, are at other types of institutions. Drexel University is classified as a Doctoral/Research-Intensive institution (defined as awarding at least 20 doctoral degrees per year). Masters-Intensive institutions (defined as awarding at least 20 master's degrees per year across at least 3 disciplines) such as Simmons College, which has appeared on previous ranked lists, as well as Queens University and Long Island University, appear in some of the rankings. It is certainly not surprising that the Doctoral/Research-Extensive universities are most heavily represented; institutional impetus to publish, plus a rewards system that recognizes publications, can provide something of a self-selecting (as well, perhaps, as a self-eliminating) environment.

[Insert Table 4 about here.]

In terms of productivity by school, there is strong consistency between the lists of high-producing schools over time. Of the 21 programs, 11 have previously appeared on both the 2000 and 1996 lists, 2 only on the 1996 list, and 2 only on the 2000 list. However, there has been some mobility in ranking during the years studied. While Indiana University and the University of North Carolina-Chapel Hill have consistently appeared in the top five producers and Tennessee did so in 2000, Syracuse University increased its ranking from the 2000 list. Florida State University debuts in the top five in this list. Other schools appearing for the first time on this list are the University of Washington, Queens College, the University of South Florida, Wayne State University, and Kent State University.

Program productivity indicates a certain strength, but bears the possibility of bias. A program with 40 faculty who produce one article each would appear higher on the list than a program of eight faculty who produce four articles each. Factors such as per capita teaching loads can affect the numbers of articles published, but the raw figures are the focus here. To

account for any skew that faculty size may contribute to the list, Table 5 lists programs' journal article productivity per capita. Consistent with the 1996 and 2000 studies, per capita journal production was calculated by determining how many faculty held the rank of assistant professor or higher at a program during each year of the study, 1999 to 2004. Faculty size was averaged for the six years of the current study.

[Insert Table 5 about here.]

The programs listed in Table 5 echo those from Table 4 fairly closely. The University of Arizona, Texas Woman's University, and the University of Iowa feature in this list, while Drexel University, the University of Michigan, and Kent State University drop from the list. However, the ranking of programs is less consistent between Tables 4 and 5. Tennessee moves from second to first place when looking at per capita productivity. Programs such as Missouri, Hawaii, Milwaukee, and Texas Woman's demonstrate considerable publishing strength despite their small faculty sizes.

Table 6 presents the 20 programs which have the most citations to their faculties' work. While productivity alone is one measure of program prestige, the influence of faculty work is another. While the 1996 and 2000 studies looked at citations to journal articles alone, this study looks at total citations in the *SSCI* database. In other words, citations to editorials, letters, abstracts, etc., are included in the present study. This eliminates the possibility of comparisons other than the most general. However, it bears noting that of the programs receiving the most citations to faculty work from 1999-2004, 14 had appeared in the 1996 and 2000 studies.

[Insert Table 6 about here.]

Program citations per capita are presented in Table 7. As with Tables 4 and 5, there is considerable similarity between Tables 6 and 7. Of the programs reported in table 6, 18 of them

appear in Table 7. Catholic and Hawaii replace Texas and North Texas in terms of citations per capita. Programs that receive many citations are also those programs that receive many citations per capita. These results are also consistent with the 1996 and 2000 studies, with 10 programs appearing in all three studies and another 3 appearing in two of the three studies.

[Insert Table 7 about here.]

The 1996 and 2000 studies were able to corroborate their results by comparing composite rankings with rankings provided respectively by White's (1993) study and the *U.S. News and World Report* rankings of 1999. No ranking studies of LIS education programs have been conducted since 1999; however, Table 8 provides a cumulative ranking based on this study. The points value awarded for each school is derived by adding values for rankings on Tables 4 through 7. For instance, Indiana's rank of 1 on Table 4 merited 20 points, Tennessee earned 19 points for ranking at 2, Florida State earned 18 for its third place ranking, and so forth. When multiple schools tied for the same place, the point value for all rankings were added and divided by the number of tied schools. The tie between Illinois, Rutgers, and Washington for 6th place on Table 4 was resolved by adding the rankings (15, 14, 13), dividing the total by three, and assigning that average value to each of the three schools. Similar calculations were done for Tables 5, 6, and 7, and those point values were added to produce the cumulative point value in Table 8. Schools appearing on the list have tended to be on the 1996 and 2000 lists as well; eight schools appear on all three lists, and another eight appear on this list and one of the two preceding.

[Insert Table 8 about here.]

4. Discussion

This latest iteration of the study of LIS faculty productivity indicates that past trends relating to both individual and institutional productivity continue into the recent years. Programs and individuals that have been productive in the past tend to remain productive. There have been some changes over time, though. Some individuals who appeared on this list were too young to have shown up in the previous studies. For example, John Carlo Bertot and Karen (Pettigrew) Fisher are listed here among those faculty with the most publications. On the other hand, some retirements and deaths are the causes of the absence of some names from lists in the present study. The lists of productive individuals continue to demonstrate some diversity; researchers are affiliated with a variety of programs, and conduct inquiry into a variety of topics. The work of these individuals represents something of a cross-section of the discipline's concerns.

Consistent with the previous studies, assistant professors in this study were much less likely than associate or full professors to have at least one citation, and associate professors were less likely than full professors to have at least one citation. Budd's 2000 (p. 235) speculation is herein supported that higher-ranking faculty, who have had longer careers, have more time for accumulating publications and developing a body of research to be cited. It should be noted that the process of research, writing, and publication can, at times, be a lengthy one. Therefore, assistant professors may be disadvantaged by the time required to get work into print. However, the idea of faculty having "at least one" publication or citation is somewhat misleading, as productive faculty are likely to have more than one and even nonproductive faculty are reasonably likely to have at least one given a long enough career.

The continued reappearance of select faculty on publication and citation rankings over a 36-year period of time indicates that productive faculty tend to remain productive throughout their careers, and that faculty whose research is highly cited remain influential throughout their

careers. This could be due to the influence of one or two seminal works which remain essential, but for many of the cited faculty, this is also due to the regular production of articles and the consistent generation of new ideas and viewpoints. For example, Belkin's 1982 article in the *Journal of Documentation* received 76 citations during the present time period (a total of 235 citations). While this single article received numerous citations, the figure of 76 is still only a portion of his total of 395.

At the institutional level, some programs have grown (in many respects) in recent years, and the growth is reflected in current rankings. Florida State, Washington, and Michigan have increased both the numbers of faculty and the scope of their programs of late, which may contribute to increases in publications and citations to faculty's work. The cumulative ranking shows little difference from that of Budd (2000). Florida State and Washington appear in this study, and Simmons fell a few places in the cumulative raking (no longer in the top 15, but still in the top 20). Berkeley, no longer ALA-accredited, is not included in the present study. On the whole, however, institutions (especially the ranked institutions) demonstrate increases in raw numbers of publications and (for the most part) citations, suggesting some related increases in effectiveness.

4.1Increase in Scholarly Productivity

In 1996, Budd and Seavey cited Tjoumas & Blake's (1992) assertion that tenure decisions privileged research and publication over teaching (p. 4). They suggested that assistant professors coming into LIS education since 1981 "have had to deal with pressures to publish," explaining the lack of statistical difference between their and their senior colleagues' publication rates. Results taken from all three studies suggest a slight increase in productivity rates. In terms of raw percentages, increases are occurring over all ranks. For instance, while only 45.3% of full

professors had at least one publication in the period ranging from 1981-1992, 57.1% of professors had at least one publication in the period from 1999-2004. For associate professors, 44.4% had at least one publication in the 1981-1992 period, increasing to 55.3% during the 1993-1998 period, with a further increase to 57.5% for the period of the present analysis. The smallest percentage increase was for assistant professors, of whom 42.9% had at least one publication in the 1981-1992 period. This figure dropped to 41.3% when considering the 1993-1998 period, increasing to only 45.6% for the 1999-2004 period.

However, this increase is statistically significant only in the case of associate professors. Using chi-square tests to compare productivity between 1981-1992 and 1993-2004 suggests that significantly more associate professors are publishing in the most recent twelve-year period than in the previous period, $\chi^2(1, N = 810) = 11.590$, $p < .05$. Chi-square figures comparing faculty publication rates for the two periods did not differ significantly for assistant professors, $\chi^2(1, N = 925) = 0.063$, $p > .05$, nor for full professors, $\chi^2(1, N = 763) = 3.724$, $p > .05$. Citation rates for assistant, associate, and full professors are not significantly different between the two periods.

Further evidence supporting an increase in productivity comes from comparing the total number of publications per program over the years of the study. Indiana had 77 publications during the 12-year period from 1981-1992. During the subsequent 12-year period, 1993- 2004, their program produced 156 articles. Another example is the University of Pittsburgh. During the 1981-1992 period, Pittsburgh produced 33 articles; from 1993-2004, they produced 82 articles. This increase in publication output is not restricted to two programs; for all 11 programs which appeared in the three lists, all produced more publications during the second 12-year period than during the first. Numbers of faculty have increased at several programs between the first and second 12-year periods, possibly contributing to increases in publication.

The lack of difference in the rate of assistant professors with more than one publication is not surprising: assistant professors generally start with a publication rate very near zero, and frequently spend only six years in that rank. Therefore, this is likely to be the rank with the largest percentage of people who have less than one publication. This has not changed over time: assistant professors are at the beginning of their careers now as they were in 1981. This finding bears watching, though, as LIS doctoral students are increasingly well-published. However, some institutions of higher education have guidelines insisting on a certain level of productivity in order for faculty to advance. Further, associate and full professors may still be required to demonstrate productivity as part of a post-tenure review or promotion to professor, but they also have developed connections through their years of service that they can count on to provide future research opportunities. Publication is one way of demonstrating productivity, and can be measured objectively (counted) as an overt demonstration of individual and programmatic success.

The increases in numbers of publications among LIS faculty are in keeping with trends for faculty in general. Recent examination of publishing patterns of faculty at research universities and other doctoral-granting institutions finds that publication rates have increased from the early 1990s through 2004. Reasons for the overall increases are open to speculation; one possibility is that the greater accessibility of the journal literature through databases and aggregators has heightened attention to publishing on campuses. Hyland (2000, p. 170) implies that some academic fields privilege quantity of publications over quality of research and "confer promotion and substantiation on the length of personal bibliographies." Also, there may have been some complex changes in social networking (perhaps again enhanced by technology) that have influenced citation patterns. In today's climate, the need for external and objective signs of

success is much greater than in previous generations. Faculty have an external motivation to continue publishing (in addition to any internal motivations they may have), and schools have an impetus to hire and retain faculty who can demonstrate this productivity.

4.2The Influence of Blended Programs

Budd (2000) noted that LIS programs were evolving from traditional library and information studies schools to more interdisciplinary and merged programs. He suggested that "the results of the changes may be reflected in the productivity of programs' faculties" (2000, p. 243). The tables and the above comments indicate that many of the programs and individuals who were productive several years ago are still productive. There have been some additions and deletions from lists, but faculties are dynamic in that people retire or move, new faculty are hired, and some programs have grown in numbers of faculty.

Beyond faculty changes, programs themselves are in transition. Some programs that were important players in previous rankings have closed, such as the programs at the University of Chicago and Columbia University. Some programs report to different academic units than they did when this series of studies began, and they may be housed in departments with new programs. As one example, the program that in 1994 was the standalone School of Information Science at the University of Tennessee merged with the College of Communication in 2002 to form the College of Communication and Information. The University of Michigan's School of Information retooled itself in the mid-1990s, and now combines LIS faculty with faculty in computer science, organizational research, and economics. These new alliances might allow for new research directions, new publication venues, and new standards of productivity. There may be more externally funded research than there was in the past; the journals that faculty publish in may vary over time; and co-authorship may indicate expanded disciplinary connections. There

has been some research on why LIS programs might merge with other programs and take on new specializations (e.g., Hildreth & Koenig, 2002), but little examination of how that affects faculty research productivity. A different kind of examination from the one conducted here, such as a detailed content analysis of a program's publication pattern before and after a merger, may illustrate some changes in kind or quality of publication. Such a study would be more time-consuming than the present one, but might well inform us about directions that programs and their faculties are taking.

4.3Using Citation Counts to Measure Productivity

There may be some questions raised by this series of studies regarding the validity of citation counts as a measure of productivity. One source of concern may be related to sub-disciplinary differences in citation behavior. Individuals working in areas that tend to be more empirical and/or technical may receive more citations because the publication rate (in journals) in those areas are higher or because the communities in those areas employ citation in somewhat different ways than those in other areas; this would be a point for further study. Still, the ranked list includes some individuals whose work, it may be said, is in the social sciences tradition. Another concern may be that citation does not encompass other kinds of acknowledgement. Cronin and Shaw (2002) have examined Web hits and media mentions as additional indicators of symbolic capital. When they compared these additional measures to the ranked list of individuals in the Budd study, they found that there are positive correlations, but the correlation between citation ranking and the other two rankings is not as strong as that between Web and media rankings (p. 1269). They conclude that

> The world of citation is a closed world of the clerisy; we trade citations with other scholars, not with the public at large. The world of the Web, by contrast, is more open and egalitarian in character (equal opportunity invocation, if you will); here we are mentioned/linked to by our peers, but also, on occasion, by practitioners and, indeed, sundry others who may have a special or passing interest in some of the issues we address in our lives as academics and/or public intellectuals. (pp. 1269-70)

Cronin and Shaw make an important point, but the investigation of Web hits is now complicated by an ever-expanding universe of possibilities. For example, in Cronin & Shaw (2002), Cronin is the recipient of 1,548 Web hits. In a search of Google conducted on August 16, 2005, using "Blaise Cronin" as the search term, there were 9,800 hits. In some ways the increased number of hits emphasizes the point that Cronin and Shaw make, but in other ways it presents a conundrum as to how best to investigate the meaning of these hits in terms of symbolic capital.

Though a report is scheduled in 2006, *U.S. News and World Report* has not conducted a survey of LIS programs since 1999. The rankings produced from that survey are not likely to hold much relevance to the present state of LIS education. Given that there have been personnel changes in most, if not all, programs, perceptions relating to programs' quality may have altered since 1999. If the publication does conduct another survey in the near future, those results can be compared with this examination of productivity. The resulting correlation may indicate some coincidence between publishing/citation and perceptions of quality, even though there may not be a causal relationship. At the present time some programs are continuing to expand into a variety of fields; the impact of the transformations will affect future studies of faculty productivity. One factor that future investigators will have to address is alluded to above; it is

becoming difficult to determine which individuals are affiliated directly and primarily with LIS programs and which individuals are indirectly affiliated with these programs and are primarily attached to other programs within the schools. For comparison with this and previous studies, that kind of determination will have to be made.

5. Conclusion

As used in this project, "productivity" is limited to article publication and citation. While these are still the main criteria used to assess faculty productivity in higher education, these are not the only avenues of research productivity. Using only these criteria necessarily excludes certain types of scholarly activity, such as book authorship and conference presentation, and certain venues of publication, such as Web-based journals, blogs, or other new forms of information transfer. The choice of research tool has implications for the inclusive representation of LIS researchers. Hayes' (1983, p. 152) original intention was to provide "benchmarks against which to make comparisons" of individuals' productivity compared to average productivity of LIS faculty. More recent studies suggest that using *SSCI* publication and citation data leads to a skewed impression of LIS faculty productivity. Meho & Spurgin (2005, p. 1327) suggest that certain subspecializations (archives, digital libraries, and school media/children's literature, to name but three) are less likely to be indexed by *SSCI*, and consequently, certain LIS researchers are less likely to appear on this list. If used to establish benchmarks, this list must be used cautiously.

Despite the flaws in the research tool and the data used, the value of this project is in the consistency of the research design over four studies and covering a period of 36 years. When comparing results from this study with the previous studies, certain conclusions might be drawn

about the direction the profession is taking. Looking at the increase in publication and citation, it becomes apparent that LIS is maturing as a field of study and developing a larger body of research. Additionally, though the current analysis of highly published and cited faculty is admittedly biased toward certain subspecializations of the profession, analyzing the four successive lists of faculty gives the reader a historical analysis of the changing direction of LIS research. While research productivity is only one measure of faculty effectiveness, it is a necessary one. The production and publication of research helps the profession establish its theoretical and epistemological foundation. Without this foundation, the profession and its educators will founder.

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Table 1

Publication and Citation Productivity by Rank

Rank	*Number in Rank*	*At Least One Publication (%)*	*At Least One Citation (%)*
Assistant	292	45.6	58.1
Associate	244	57.7	81.2
Professor	210	57.1	89.9

Table 2

Individuals with the Most Journal Articles

Rank	*Name*	*Number*
1	Tenopir, Carol	59*
2	Jasco, Peter	32*
3	Cronin, Blaise	25
4	McClure, Charles R.	21
5	Budd, John M.	19
6	Bertot, John Carlo	15
7	Spink, Amanda H.	14#
8	Kling, Rob	13
9(T)	Bates, Marcia	12
9(T)	Fisher (Pettigrew), Karen E.	12
9(T)	Wolfram, Dietmar	12
12(T)	Kantor, Paul B.	11
12(T)	Lankes, R. David	11
12(T)	Marchionini, Gary	11
12(T)	McCook, Kathleen de la Peña	11
12(T)	Stanton, Jeffrey M.	11
12(T)	White, Marilyn D.	11
18(T)	Bruce, Bertram (Chip)	10
18(T)	Chelton, Mary K.	10

* The numbers for Carol Tenopir and Peter Jacso reflect the inclusion of columns they write for some library and information science journals.

The number for Amanda Spink includes only the publications for the time she has been at the University of Pittsburgh. When the publications for her time at Penn State University are added, her total is 39.

Table 3.

Individuals with the Most Citations to Works

Rank	*Name*	*Number*
1	Saracevic, Tefko	438
2	Belkin, Nicholas J.	395
3	Resnick, Paul	365
4	Marchionini, Gary	356
5	Cronin, Blaise	324
6	Tenopir, Carol	304
7	Furnas, G. W.	300
8	Borgman, Christine L.	294
9	Mackie-Mason, J. K.	282
10	Kling, Rob	267
11	Kuhlthau, Carol C.	256
12	McCain, Katherine W.	246
13	Bates, Marcia J.	231
14	Hernon, Peter	224
15	Schatz, Bruce	219
16	Dillon, Andrew	207
17	Gasser, Les	195
18	Spink, Amanda H.	188*
19	Fidel, Raya	186
20	Kantor, Paul	165
21	Budd, John M.	160
22	Benjamin, Robert	156

23	Haythornthwaite, Carolyn	134
24	Lesk, Michael	123
25	Wolfram Dietmar	122

* The number of citations received by Amanda Spink includes only those while she has been at the University of Pittsburgh. When the citations to her work while she was at Penn State University are added, the total is 384.

Table 4.

Programs with the Most Journal Articles

Rank	*Program*	*Number*	*Carnegie Category*
1	Indiana	88	Doctoral/Research-Extensive
2	Tennessee	84	Doctoral/Research-Extensive
3	Florida State	78	Doctoral/Research-Extensive
4	Syracuse	76	Doctoral/Research-Extensive
5	North Carolina	62	Doctoral/Research-Extensive
6(T)	Illinois	57	Doctoral/Research-Extensive
6(T)	Rutgers	57	Doctoral/Research-Extensive
6(T)	Washington	57	Doctoral/Research-Extensive
9(T)	UCLA	56	Doctoral/Research-Extensive
9(T)	Wisconsin-Milwaukee	56	Doctoral/Research-Extensive
11	Missouri	45	Doctoral/Research-Extensive
12	Pittsburgh	41	Doctoral/Research-Extensive
13	Queens	39	Master's-Intensive
14	Hawaii	36	Doctoral/Research-Extensive
15	Drexel	33	Doctoral/Research-Intensive
16	Michigan	32	Doctoral/Research-Extensive
17(T)	Simmons	27	Master's-Intensive
17(T)	South Florida	27	Doctoral/Research-Extensive
19	Wayne State	26	Doctoral/Research-Extensive

20(T)	Kent State	25	Doctoral/Research-Extensive
20(T)	Maryland	25	Doctoral/Research-Extensive

Table 5.

Per Capita Journal Articles by Program

Rank	*Program*	*Number*	*Carnegie Category*
1	Tennessee	7.64	Doctoral/Research-Extensive
2	Missouri	6.43	Doctoral/Research-Extensive
3	Hawaii	6.00	Doctoral/Research-Extensive
4	UCLA	4.31	Doctoral/Research-Extensive
5	Indiana	4.19	Doctoral/Research-Extensive
6	Florida State	3.71	Doctoral/Research-Extensive
7	Wisconsin-Milwaukee	3.29	Doctoral/Research-Extensive
8	North Carolina	3.26	Doctoral/Research-Extensive
9	Queens	3.25	Master's-Intensive
10	Rutgers	3.17	Doctoral/Research-Extensive
11	Arizona	3.00	Doctoral/Research-Extensive
12	Maryland	2.78	Doctoral/Research-Extensive
13	Pittsburgh	2.73	Doctoral/Research-Extensive
14(T)	Illinois	2.59	Doctoral/Research-Extensive
14(T)	Washington	2.59	Doctoral/Research-Extensive
16	Syracuse	2.38	Doctoral/Research-Extensive
17	Wayne State	2.36	Doctoral/Research-Extensive
18	Texas Woman's	2.29	Doctoral/Research-Intensive
19(T)	Iowa	2.25	Doctoral/Research-Extensive

19(T)	South Florida	2.25	Doctoral/Research-Extensive

Table 6.

Programs with the Most Citations to Faculties' Works

Rank	*Program*	*Number*	*Carnegie Category*
1	Michigan	1,739	Doctoral/Research-Extensive
2	Rutgers	1,591	Doctoral/Research-Extensive
3	Illinois	1,172	Doctoral/Research-Extensive
4	Indiana	1,156	Doctoral/Research-Extensive
5	North Carolina	1,040	Doctoral/Research-Extensive
6	UCLA	945	Doctoral/Research-Extensive
7	Syracuse	924	Doctoral/Research-Extensive
8	Washington	784	Doctoral/Research-Extensive
9	Maryland	487	Doctoral/Research-Extensive
10	Tennessee	485	Doctoral/Research-Extensive
11	Drexel	453	Doctoral/Research-Extensive
12	Simmons	424	Master's-Intensive
13	Pittsburgh	418	Doctoral/Research-Extensive
14	Florida State	363	Doctoral/Research-Extensive
15	Wisconsin-Milwaukee	309	Doctoral/Research-Extensive
16	Missouri	294	Doctoral/Research-Extensive
17	Texas	258	Doctoral/Research-Extensive
18	Long Island	236	Master's-Intensive
19	Queens	225	Master's-Intensive

20	North Texas	209	Doctoral/Research-Extensive

Table 7.

Per Capita Citations by Program

Rank	*Program*	*Number*	*Carnegie Category*
1	Rutgers	88.39	Doctoral/Research-Extensive
2	Michigan	75.48	Doctoral/Research-Extensive
3	UCLA	72.69	Doctoral/Research-Extensive
4	Indiana	55.05	Doctoral/Research-Extensive
5	North Carolina	54.74	Doctoral/Research-Extensive
6	Maryland	54.11	Doctoral/Research-Extensive
7	Illinois	53.27	Doctoral/Research-Extensive
8	Tennessee	44.09	Doctoral/Research-Extensive
9	Missouri	42.003	Doctoral/Research-Extensive
10	Washington	35.64	Doctoral/Research-Extensive
11	Syracuse	28.26	Doctoral/Research-Extensive
12	Pittsburgh	27.87	Doctoral/Research-Extensive
13	Catholic	25.71	Doctoral/Research-Extensive
14	Hawaii	23.50	Doctoral/Research-Extensive
15	Drexel	22.65	Doctoral/Research-Intensive
16	Simmons	22.32	Master’s-Intensive
17	Wisconsin-Milwaukee	19.06	Doctoral/Research-Extensive
18	Queens	18.75	Master’s-Intensive
19	Florida State	17.29	Doctoral/Research-Extensive

20	Long Island	16.86	Master’s-Intensive

Table 8.

Cumulative Ranking of Programs

Rank	*Program*	*Points*	*Carnegie Category*
1	Indiana	70	Doctoral/Research-Extensive
2	Rutgers	64	Doctoral/Research-Extensive
3	Tennessee	62	Doctoral/Research-Extensive
4	UCLA	61.5	Doctoral/Research-Extensive
5	North Carolina	61	Doctoral/Research-Extensive
6	Illinois	52.5	Doctoral/Research-Extensive
7(T)	Missouri	46	Doctoral/Research-Extensive
7(T)	Syracuse	46	Doctoral/Research-Extensive
9	Washington	44.5	Doctoral/Research-Extensive
10	Michigan	44	Doctoral/Research-Extensive
11	Florida State	42	Doctoral/Research-Extensive
12	Maryland	36.5	Doctoral/Research-Extensive
13	Wisconsin-Milwaukee	34.5	Doctoral/Research-Extensive
14	Pittsburgh	34	Doctoral/Research-Extensive
15	Hawaii	32	Doctoral/Research-Extensive
16	Queens	26	Master’s-Intensive
17	Drexel	22	Doctoral/Research-Intensive
18	Simmons	16.5	Master’s-Intensive
19	Arizona	10	Doctoral/Research-Extensive

20	Catholic	8	Doctoral/Research-Extensive

Correction – Adkins, D., & Budd, J. (2006). Scholarly productivity of U.S. LIS faculty. *Library & Information Science Research, 28,* 374-389.

Publication and citation numbers were miscounted for two faculty at the University of Wisconsin-Milwaukee. Jin Zhang had 15 articles and 27 citations to his credit, and Hong (Iris) Xie had 10 articles and 36 citations. This means that Zhang would rank 6th in journal article production, tied with John Carlo Bertot. Xie ranks 19th in journal article production, tied with Bertram (Chip) Bruce, Mary K. Chelton, and Peter Hernon (p. 378).

The total number of publications attributed to the University of Wisconsin-Milwaukee increases to 81, increasing their program journal production ranking to 3rd place in Table 4 (p. 380), and their article per capita ranking to 4th, with 4.76 articles per capita in Table 5 (p. 381). Their total citation count increases to 324, and UWM's ranking for citations to faculty's work remains at 15 in Table 6 (p. 382). However, UWM's citations per capita increases to 19.06, raising them to 17 in program rankings in Table 7 (p. 383).

The change in rankings for UWM has the effect of changing the cumulative ranking of programs. Rutgers and Tennessee tie for second place, UCLA and North Carolina tie for fourth place, and Syracuse and Wisconsin-Milwaukee tie for eighth place on Table 8 (p. 383).

Revised versions of tables 2, 4, 5, 6, 7, and 8 are attached.

Table 8.

Cumulative Ranking of Programs

Rank	*Program*	*Points*	*Carnegie Category*
1	Indiana	69	Doctoral/Research-Extensive
2 (T)	Rutgers	63	Doctoral/Research-Extensive
2 (T)	Tennessee	63	Doctoral/Research-Extensive
4 (T)	UCLA	60	Doctoral/Research-Extensive
4 (T)	North Carolina	60	Doctoral/Research-Extensive
6	Illinois	51.5	Doctoral/Research-Extensive
7	Missouri	46	Doctoral/Research-Extensive
8 (T)	Wisconsin-Milwaukee	45	Doctoral/Research-Extensive
8 (T)	Syracuse	44	Doctoral/Research-Extensive
10	Michigan	44	Doctoral/Research-Extensive
11	Washington	43.5	Doctoral/Research-Extensive
12	Florida State	40	Doctoral/Research-Extensive
13	Maryland	36.5	Doctoral/Research-Extensive
14	Pittsburgh	34	Doctoral/Research-Extensive
15	Hawaii	32	Doctoral/Research-Extensive
16	Queens	25	Master’s-Intensive
17	Drexel	22	Doctoral/Research-Intensive
18	Simmons	17.5	Master’s-Intensive
19	Arizona	10	Doctoral/Research-Extensive

20	Catholic	8	Doctoral/Research-Extensive

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14	Hawaii	23.50	Doctoral/Research-Extensive
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16	Simmons	22.32	Master’s-Intensive
17	Wisconsin-Milwaukee	19.06	Doctoral/Research-Extensive
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16	Syracuse	2.38	Doctoral/Research-Extensive
17	Wayne State	2.36	Doctoral/Research-Extensive
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Table 4.

Programs with the Most Journal Articles

Rank	*Program*	*Number*	*Carnegie Category*
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2	Tennessee	84	Doctoral/Research-Extensive
3	Wisconsin-Milwaukee	81	Doctoral/Research-Extensive
4	Florida State	78	Doctoral/Research-Extensive
5	Syracuse	76	Doctoral/Research-Extensive
6	North Carolina	62	Doctoral/Research-Extensive
7 (T)	Illinois	57	Doctoral/Research-Extensive
7 (T)	Rutgers	57	Doctoral/Research-Extensive
7 (T)	Washington	57	Doctoral/Research-Extensive
10	UCLA	56	Doctoral/Research-Extensive
11	Missouri	45	Doctoral/Research-Extensive
12	Pittsburgh	41	Doctoral/Research-Extensive
13	Queens	39	Master's-Intensive
14	Hawaii	36	Doctoral/Research-Extensive
15	Drexel	33	Doctoral/Research-Intensive
16	Michigan	32	Doctoral/Research-Extensive
17(T)	Simmons	27	Master's-Intensive
17(T)	South Florida	27	Doctoral/Research-Extensive
19	Wayne State	26	Doctoral/Research-Extensive

20(T)	Kent State	25	Doctoral/Research-Extensive
20(T)	Maryland	25	Doctoral/Research-Extensive

Table 2.

Individuals with the Most Journal Articles

Rank	*Name*	*Number*
1	Tenopir, Carol	59*
2	Jasco, Peter	32*
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4	McClure, Charles R.	21
5	Budd, John M.	19
6 (T)	Bertot, John Carlo	15
6 (T)	Jin Zhang	15
8	Spink, Amanda H.	14#
9	Kling, Rob	13
10 (T)	Bates, Marcia	12
10 (T)	Fisher (Pettigrew), Karen E.	12
10 (T)	Wolfram, Dietmar	12
13 (T)	Kantor, Paul B.	11
13 (T)	Lankes, R. David	11
13 (T)	Marchionini, Gary	11
13 (T)	McCook, Kathleen de la Peña	11
13 (T)	Stanton, Jeffrey M.	11
13 (T)	White, Marilyn D.	11
19 (T)	Bruce, Bertram (Chip)	10

19 (T)	Chelton, Mary K.	10
19 (T)	Hernon, Peter	10
19 (T)	Hong (Iris) Xie	10

* The numbers for Carol Tenopir and Peter Jacso reflect the inclusion of columns they write for some library and information science journals.

The number for Amanda Spink includes only the publications for the time she has been at the University of Pittsburgh. When the publications for her time at Penn State University are added, her total is 39.