

Characteristics of Journal Authorship by Academic Librarians

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A widely held belief that academic librarians are strongly encouraged to publish in order to retain employment may exist. The present study examines authorship in thirty-six library and information science journals over a five-year period and finds that a small proportion of four-year institutions is responsible for formal contributions to the literature. Furthermore, of those individuals contributing to the literature, the vast majority make only one contribution in the five-year period.



Dozens of articles have been written on faculty status. Still, it is an issue that, in one permutation or another, continues to be a part of the lives of academic librarians. Institutions and individuals have formulated arguments designed to praise certain structures and/or damn others. Emily Werrell and Laura Sullivan recently published a review of literature on the subject that has appeared since 1974, and Kee DeBoer and Wendy Culotta surveyed the literature on the subject written in the 1980s; their work need not be repeated in detail here.^{1,2} One of the most intriguing features of the issue is the multifaceted nature of the beast. Faculty (or its *confrere*, academic) status encompasses such aspects of academic librarianship as governance, bargaining, salary, performance review, and time management. A key component of faculty status is frequently that of publishing requirements and activity. This component is the basis of the present study.

One question that arises relates to the extensiveness of the requirement to publish in academic libraries. Is publication essential to tenure or continuing appoint-

ment? While there may be a widely held belief that working in *any* academic library means that one has to publish, there is evidence to the contrary. The results of this investigation tend to reenforce that evidence. Ronald Rayman and Frank Goudy sought an answer to this question in 1980. They surveyed ARL libraries, and of the 68 respondents, only ten (15 percent) stated that publication was required.³ Another 41, or 60 percent, acknowledged that publication was encouraged, though not required. By combining the *required* and *encouraged* categories, Rayman and Goudy's data suggest that publication is necessary in 75 percent of the ARL libraries. One factor, noted by Rayman and Goudy, that may well affect the number of publications emanating from academic libraries is the fact that 33 of the responding libraries (49 percent) offer no release time to librarians for research and publishing activities.⁴ Payne and Wagner replicated the study of Rayman and Goudy, using ACRL university libraries as the population. They found that only three of 43 responding libraries require publication for tenure and/or promotion.⁵ Twenty libraries (54 percent of respondents) offer no release time.

In 1985 W. Bede Mitchell and L. Stanislava Swieszkowski surveyed full and associate members of the Center for Research Libraries. Of the 138 respondents, 81 stated that they grant some form of tenure and, of those 81, 38 (46.9 percent) require evidence of research and publication for tenure.⁶ Only half of the libraries requiring publication make release time available to librarians.

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In spite of the fact that release time for research and publication is not abundant and that librarians report that they have little time to devote to the activity, many contributions are made to library literature each year by academic librarians.⁷ The purpose of the present study is to examine the publishing activity of this group. Other efforts at this kind of analysis have been made in the recent past; this paper is intended to be an extension of and expansion upon those studies.⁸ Focus here will be exclusively on authors in the library literature who are academic librarians. In addition, we will analyze the institutional affiliations of those authors to see what patterns emerge.

METHODOLOGY

Previous studies aimed at analyzing patterns and characteristics of authorship by academic librarians have focused on limited numbers of journals. Sylvia Krausse and Janice Sieburth selected twelve journals; Paula Watson chose eleven.^{9,10} While the journals selected by those researchers include titles of special interest to academic librarians, such as *College & Research Libraries* and *Journal of Academic Librarianship*, other journals in the field address issues pertinent to the work of academic libraries. For this reason, thirty-six journals are included in the present study; these are listed in appendix A. The journals selected are national in scope, contain some

portion of their content that is judged relevant to the academic enterprise, and are likely to be looked upon favorably in promotion and tenure reviews. In fact, sixteen of the journals included here are also on the list of thirty-one titles in the ranking study of David Kohl and Charles Davis, which seeks to determine in which journals library educators and academic library directors think librarians should publish.¹¹ Not all of the thirty-six journals are refereed, but such titles as *Library Trends* are important to the field and are included.

The time period selected for study was the five-year period 1983-87. Each issue of the journals listed was inspected. Only full-length articles appearing in the target journals are included in the study; notes, editorials, book reviews, columns, and responses are excluded. For each article, the author's name is recorded, as is the author's institutional affiliation. Total credit for authorship of each article equals one (1); for multi-authored articles credit is assigned fractionally to each author, according to the practice of Watson.¹² If there are two authors, each receives .5 credit, for three each receives .33, and so on. Institutional credit is likewise assigned. Institutional affiliation is taken from the article itself or from information on contributors to the journal issue. Credit is given on the basis of the author's affiliation at the time the article was published.

FINDINGS

A total of 1,656 articles written by academic librarians from 1983 through 1987 provide the basis for examination. It is recognized that academic librarians may not compose a majority of contributors to the library literature. In 1982, Krausse and Sieburth found that academic librarians had authorial responsibility for 42.3 percent of the articles in the twelve journals they analyzed.¹³ Watson found that, for the period 1979 through 1983, academic librarians wrote 44.2 percent of the articles in eleven journals.¹⁴ She also found that the next largest group of authors was library school faculty and students, so academic librarians formed a majority group among practitioners. This holds only for the eleven

journals she studied; inclusion of journals in other specialized areas, such as *Public Libraries*, would alter the percentages.

The 1,656 articles were written by 1,373 different individuals. As can be expected, the vast majority of individuals were responsible, in full or in part, for only one contribution each. In fact, 1,027 librarians had their names attached to only one article. Only 128 individuals were identified as sole or coauthors of more than two articles each. The most prolific authors—those with total credit of four or more (including full and fractional credit)—are listed in table 1.

As is noted above, a relatively small number of individuals are responsible for multiple contributions. A question that arises with regard to this group of data is whether or not it conforms to Alfred Lotka's law, which states that "the number (of authors) making n contributions is about $1/n^2$ of those making one; and the proportion of all contributors, that make a single contribution, is about 60 percent."¹⁵

Lotka's computation included derivation of the percentage of the total number of contributors making n contributions. The formula to determine the percentage (f) is

$$f = 600/\pi^2 n^2$$

The signification $F_o(X)$ can represent the cumulative value of f . In order to make comparisons it is necessary to calculate observed percentages and the cumulative value of the percentages expressed as $S\xi(X)$.

Lotka's original work was based on analysis of author data from *Chemical Abstracts*. From his observations he formulated the above statement. This phenomenon, which has come to be referred to as Lotka's law, is not intended as an explanation of why some authors are more prolific than others. Because of varying modes of behavior, patterns of productivity will differ among disciplines. For instance, the average faculty members in physics will be responsible for more journal articles than the average faculty member in English. Within a given discipline there will be variance also, due in part to differences of motivation and demand. These two variables may be related; those individ-

uals who are motivated to write and publish likely gravitate to institutions where such activity is expected and valued.

It remains to be seen whether the verbal expression of Lotka's law exhibits statistical regularity. Russel Coile demonstrates that the Kolmogorov-Smirnov (K-S) test, a nonparametric goodness-of-fit test, is the appropriate measure of the conformity of observed theoretical data.¹⁶ This test is used to determine how well the actual patterns of authorship match the predictions of Lotka. The K-S statistic at the .01 level of significance, which is equal to $1.63/N$, must be greater than the maximum deviation of $S\xi(X)$ and $F_o(X)$ (expressed as $D = \max |F_o(X) - S\xi(X)|$) for such conformity to exist. Table 2 presents the authorship data in terms of Lotka's law.

As can be seen from table 2, the authorship data used for this study do not conform to Lotka's law. The deviation from the expected values is quite severe; while

TABLE 1
MOST PRODUCTIVE INDIVIDUALS

Rank	Name	Total Credit
1	Studwell, William	9.33
2	Stankus, Tony	9.0
3	Connolly, Bruce	6.5
4	Gorman, Michael	6.0
4	Stevens, Norman	6.0
6	Bailey, Bill	5.0
6	Burger, Robert H.	5.0
6	Cruse, Larry	5.0
6	DeGennaro, Richard	5.0
6	Dougherty, Richard M.	5.0
6	Martin, Susan K.	5.0
6	Morton, Bruce	5.0
6	Tuttle, Marcia	5.0
14	Mendelsohn, Henry N.	4.5
14	Pankake, Marcia	4.5
14	Zink, Steven D.	4.5
17	Atkinson, Hugh	4.0
17	Crotts, Joe	4.0
17	Goehner, Donna M.	4.0
17	Hewitt, Joe A.	4.0
17	Hilker, Emerson	4.0
17	Isaacson, David	4.0
17	McBride, Ruth B.	4.0
17	McCrank, Lawrence J.	4.0
17	Meyer, Evelyn S.	4.0
17	Rutledge, John	4.0
17	Schmidt, Karen A.	4.0
17	Sewell, Robert G.	4.0
17	Smith, Frederick E.	4.0
17	Swan, John	4.0
17	Watson, Paula D.	4.0
17	Williams, James W.	4.0

TABLE 2
APPLICATION OF LOTKA'S LAW

No. Cont.	Observed	$S\xi(X)$	Expected	$F_0(X)$	$ F_0(X) - S\xi(X) $
1	0.7480	0.7480	0.6079	0.6079	0.1401
2	0.1588	0.9068	0.1520	0.7599	0.1469
3	0.0510	0.9578	0.0675	0.8274	0.1304
4	0.0248	0.9826	0.0380	0.8654	0.1172
5	0.0109	0.9935	0.0243	0.8897	0.1038
6	0.0036	0.9971	0.0169	0.9066	0.0905
7	0.0015	0.9986	0.0124	0.9160	0.0826
8	0.0000	0.9986	0.0095	0.9285	0.0701
9	0.0000	0.9986	0.0075	0.9360	0.0626
10	0.0007	0.9993	0.0061	0.9421	0.0572

$D = \text{Max } |F_0(X) - S\xi(X)| = 0.1469.$

At .01 level of significance, K-S statistic = $1.63/1373 = 0.0440$

$D > 0.0440$; this does not fit Lotka's Law.

Lotka observed and formulated a decline in author productivity, the decline among academic librarians is steeper than Lotka anticipated. The steepness of the decline is evident in figure 1. The shapes of the curves are very similar, but the cluster of individuals at one contribution is substantially larger than the theory anticipates.

"While publication is required or encouraged at a number of institutions, the encouragement in terms of tangible assistance, such as release time, is not sufficient to produce multiple contributions by librarians."

Speculation regarding this set of data can lead to some conclusions: while publication is required or encouraged at a number of institutions, the encouragement (in terms of tangible assistance, such as release time) is not sufficient to produce multiple contributions by librarians; or, the number of institutions neither requiring nor encouraging publication results in little motivation to contribute to the literature. This is, however, speculation; more information regarding specific publication requirements, including definition of what constitutes publication, may shed more light on this aspect of the issue.

The 1,373 individuals in the population are affiliated with 384 different institutions. As is true with authors, some insti-

tutions are responsible for multiple contributions. One hundred thirty-four institutions appear only once each. The twenty most productive libraries are presented in table 3. Per capita contributions are based on the total professional library staff for 1985-86. It is possible, although unlikely, that the number of librarians would change enough over the five-year period to greatly affect these figures. Of the twenty institutions, eighteen are currently members of the Association of Research Libraries (one, the University of Illinois-Chicago, recently became a member). The other two are included among ACRL university libraries. That these larger libraries are the most productive is not surprising. These libraries have the benefit of numbers; their staff sizes are considerable. They also have broader and deeper resources—bigger collections, a research impetus on the campus at large, and large faculties that may be used as sources of information and expertise.

A very brief questionnaire was mailed to the directors of the twenty most productive libraries and to a sample of other libraries represented by at least one contribution. Since the purpose of the sample is essentially to identify the occurrence of a publishing requirement, the following formula for the determination of sample size is used:¹⁷

$$n = \frac{(Z\alpha + Z\beta)^2 \sigma^2 \Delta}{\delta^2}$$

This formula is designed to limit the prob-

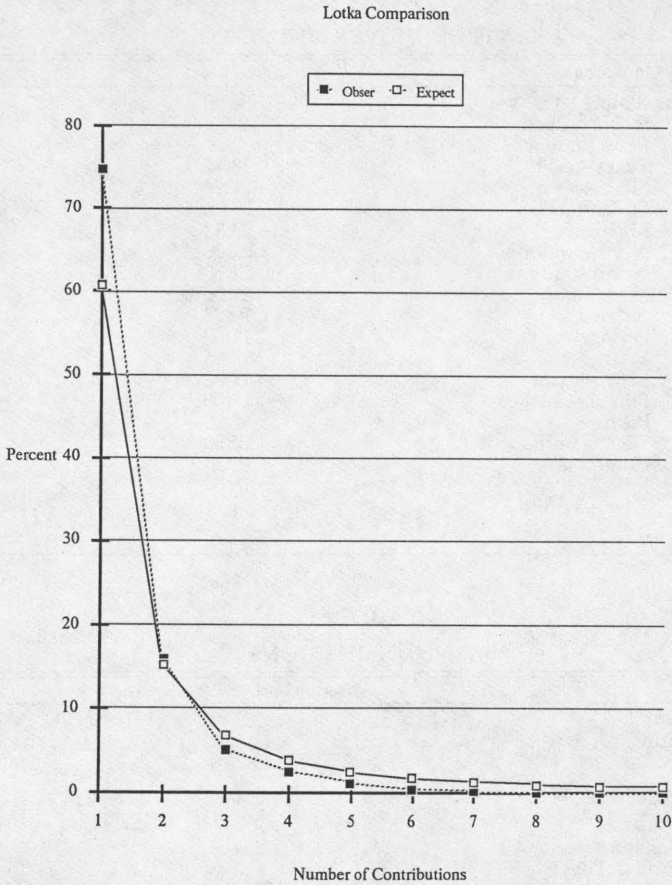


FIGURE 1
Decline in Author Productivity

ability of a Type I error (that is, the chance of rejecting a true hypothesis) to .05. One difficulty with the application of this formula revolves around the estimation of the values of σ^2 and δ^2 . This may be obviated by defining δ in terms of σ , so that $\sigma = \delta$ and $\sigma^2/\delta^2 = 1$. This operation results in $n = (2.58 + 1.29)^2 = 15$ (after rounding upwards). Since σ^2 cannot be estimated, Z scores should be replaced with t scores. One simple way to accomplish this is to multiply n by (error df + 3)/(error df + 1), with error df being n - 1. Employing this yields a sample size of seventeen. The sample libraries are listed in table 4.

The questionnaire asked three ques-

tions relevant to the present study: do librarians at the institution have faculty or academic status? If there is a form of faculty or academic status, is publication of articles in journals of library and information science required for purposes of tenure or continuing status and if there is a form of faculty or academic status, is publication required for promotion? Table 5 presents results of the survey.

Because of what would have been small cell sizes, the data are not analyzed beyond the percentages shown. The following comments are offered on the results presented in table 5. First, we had not expected the sample group to so closely

TABLE 3
MOST PRODUCTIVE INSTITUTIONS

Rank	Institution	Total Credit	Per Capita
1	Illinois	88.00	.693
2	SUNY-Albany	40.66	.667
3	Penn State	29.8	.266
4	Texas A&M	28.17	.433
5	Northwestern	27.50	.267
6	Ohio State	27.16	.251
7	Michigan	23.33	.161
8	Northern Illinois	22.66	.462
9	North Carolina	22.50	.197
10	Iowa State	21.50	.448
11	Indiana	19.83	.182
12	Pennsylvania	18.50	.167
13	Minnesota	17.83	.177
14	New Mexico	17.32	.259
15	Illinois-Chicago	17.00	.233
15	Purdue	17.00	.395
17	SUNY-Buffalo	15.50	.170
18	Columbia	15.33	.102
19	LSU	15.00	.224
20	Georgia State	14.74	.409

$\mu = .380$

TABLE 4
SAMPLE INSTITUTIONS

Institution	Total Credit	Per Capita
Brooklyn College	2.33	.090
Carnegie-Mellon Univ.	12.32	.440
Georgia State	13.74	.382
Georgia Tech	7.66	.156
Indiana State Univ.	8.00	.267
New York Univ.	13.73	.130
Rancho Santiago College (formerly Santa Ana College)	2.00	.400
Sangamon State Univ.	2.00	.286
Smith College	2.33	.106
Univ. of Arizona	6.91	.072
Univ. of Missouri	3.00	.052
Univ. of Nevada-Reno	8.00	.320
Univ. of Southern Maine	1.00	.045
Univ. of Tennessee	5.00	.091
Univ. of Tennessee-Chattanooga	1.00	.067
Univ. of Wisconsin-Stout	2.00	.167
Univ. of Wyoming	9.16	.204

$\mu = .190$

TABLE 5
COMPARISON OF REQUIREMENTS, TOP TWENTY, AND SAMPLE GROUP

Category	% Top Twenty N = 18	% Sample Group N = 17
Faculty/Academic Status	88.8	82.4
Publication for Tenure*	82.3	60
Publication for Promotion*	88.2	64.3

*Publication is either required or strongly encouraged for both promotion and tenure.

match the top twenty in terms of faculty/academic status. It is possible that the sample is somewhat skewed. In any case, further investigation into the demographics of faculty/academic status may be called for. Secondly, table 5 does show a rather large difference between the two groups in terms of publication being required/encouraged for tenure and/or promotion.

"There seems to be a disparity between the rhetoric of the requirements and the performance exhibited by librarians at these institutions."

The publishing impetus is clearly present in the top twenty producers, considerably less so in the sample group. On the other hand, 60 percent of the sample group claims that publication is required/encouraged. There seems to be a disparity between the rhetoric of the requirements and the performance exhibited by librarians at these institutions.

CONCLUSION

The publishing requirement in academic libraries quite clearly is not as widespread as may be commonly believed. The 384 institutions identified in this study as

producing at least one contribution constitute only 18.3 percent of the 2,074 four-year institutions of higher learning in this country.¹⁸ This suggests that academic librarians have a wide range of employment possibilities that do not require publication for continued employment.

On the other hand, "publication" may have different interpretations at different institutions. The journals investigated here are at the national level and most are refereed. Also, only articles are counted as publications here. It may be that at some institutions anything in print—book reviews, reports of meetings, news notes, etc.—is seen as publication suitable for meeting promotion and tenure requirements. If this is true, it probably represents a departure from the requirements of the teaching faculty at these institutions. It is not the purpose of the present paper to advocate or condemn faculty status for librarians, but the results of this study may stimulate further discussion of the definition of faculty status. There is no doubt that well-conceived, well-executed contributions to the library literature are useful and welcome. It is also difficult to dispute the fact that there are many demands on librarians' time. What may be needed in the future is rhetoric that more closely resembles reality and policy based on reasonable expectations of achievement.

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APPENDIX A. JOURNALS EXAMINED

Behavioral and Social Sciences Librarian
Bulletin of the American Society for Information Science
Cataloging and Classification Quarterly
Collection Building
Collection Management
College & Research Libraries
Database
Government Information Quarterly
Government Publications Review
Information Processing and Management
Journal of Academic Librarianship
Journal of Library Administration
Journal of Library History (now Libraries and Culture)
Journal of the American Society for Information Science
Library Acquisitions: Practice and Theory
Library and Archival Security
Library and Information Science Research
Library Hi-Tech
Library Journal
Library Quarterly
Library Resources & Technical Services
Library Trends
Microform Review
Notes
Online
Online Review
RQ
RSR: Reference Services Review
The Reference Librarian
Research Strategies
Resource Sharing and Information Networks
Science and Technology Libraries
The Serials Librarian
Special Libraries Association, Geography and Map Bulletin
Technical Services Quarterly
Western Association of Map Librarians Information Bulletin