What Do Faculty Need? Academic Library Resources and Services That Increase Research Productivity[1]

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Abstract

This paper describes a theoretical model of the relationship between faculty research productivity and academic library resources and services and a proposed empirical study that will reveal which academic library resources and services contribute to increased faculty research productivity.

Introduction

According to the latest available figures from the National Center for Education Statistics (NCES) Academic Library Survey (ALS), during the fiscal year 1998 the 3,658 academic libraries in the United States spent a total of $4.6 billion dollars on operating expenditures, held a total of 878.9 million volumes in their collections, and had 175.4 million circulation transactions (U.S. Department of Education, 2001). What is the impact of these figures on faculty research productivity? Higher education institutions have to make decisions about the allocation of limited funds among a number of programs. Academic library administrators need to be able to make a case to institutional decision makers and education policy makers in order to determine appropriate levels of funding and be able to make more informed decisions about the distribution of the allocations among a variety of academic library departments.

According to the U.S. Department of Education, library operating expenditures, as a percent of total institutional expenditures for educational and general purposes, have steadily declined for twenty years (see table 1).

With the decreasing amount of allocations to academic libraries, it is now more important than ever that academic library administrators be able to demonstrate the academic library's usefulness to its institution. Lindauer (1998) suggested that assessment of academic libraries should be linked to institutional goals and academic library performance measures linked to those goals should be identified. She recommended that faculty research productivity be used as one of several outcomes to which academic libraries contribute. She defined faculty productivity indicators as the total number of grants secured, publica-

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Table 1. Library Operating Expenditures as Percent of Total Institutional Expenditures for Educational and General Purposes.

1974–75	1975–76	1976–77	1977–79	1981–82	1984–85	1987–89	1991–92	1994–95
3.9%	3.8%	3.8%	3.7%	3.5%	3.4%	3.2%	3.0%	2.9%

Data were obtained from the National Center for Education Statistics, *Library Statistics of Colleges and Universities* and the Integrated Postsecondary Education Data System, *Academic Library Survey*.

tions, presentations, creative works, etc. Her review of the library and information science literature revealed the scarcity of research demonstrating the impact of the academic library on institutional outcomes.

Similarly, Pritchard (1996) advocated linking measures of library quality with institutional outcomes and suggests using existing government data sources as academic library performance indicators. She stated, "The academic library is not a static free-standing unit. Ultimately, its quality must be judged by the quality of outcomes of the institution, however they are defined" (585). She also suggested using faculty research productivity (i.e., grants and publications) as an outcome measure.

Rosenblatt (1998) argued that traditional academic library measures like ARL statistics are inadequate for determining how well academic libraries are actually performing (i.e., library quality). She suggests that a new role for librarians might involve being judged on their contribution to faculty research productivity. She concludes her chapter by stating, "to maintain a significant role, its (the library) relations to the mission of the university must be more clearly articulated and strengthened and its contributions measured and assessed" (288–89).

Wolff (1995) stated that for accreditation purposes a new model of academic library quality should link the academic library with the mission of the institution by developing new data that he called a culture of evidence. He recommended that indicators of institutional quality include such things as the research productivity of faculty. He also stated that indicators of library quality linked to faculty research productivity includ: reference staff, budget, reference inquiries by faculty, number and type of indexing and abstracting tools, and offerings in bibliographic instruction.

I concur with both Rosenblatt (1998) and Wolff (1995) that these new models for measuring academic library quality constitute a paradigm shift (Kuhn, 1970). These new models require academic library administrators to think differently about the ways they measure and define academic library quality.

Literature Review

Several library and information science and higher education authors examined the relationship between academic library resources and faculty research productivity but not as explicitly and extensively as this study intends to. For example, Budd (1995) compared faculty publishing productivity with library measures derived from the Association of Research Libraries (ARL) statistics which limited his sample to research universities. He measured faculty productivity by examining citations in the Institute for Scientific Information (ISI). He found medium to high correlations between the number of publications and number of volumes, total expenditures, materials expenditures, and professional staff. Because he used ISI to measure faculty publishing productivity he acknowledges that this favors faculty in the sciences and social sciences disciplines because ISI primarily contains citations to journal articles. He suggests that future research includes a selection a larger population of institutions. Budd (1999) extends his prior study by using both ARL and the Association for College & Research Libraries (ACRL) data. Although he did find positive correlations between library resources and publishing activities, his study is again constrained by its reliance on ISI data to measure faculty publishing productivity.

Baughman and Kieltyka (1999) examined and found a positive relationship between the numbers of publications produced by an institution in relation to its library holdings. However, like the studies by Budd (1995, 1999) they measured faculty productivity by using the ISI database.

The following studies about faculty research productivity are found in the higher education research literature. Since these studies are not primarily fo-

cused upon academic libraries, academic library measures play a secondary and limited role in these studies. Using data from the National Research Council (NRC) study, Dundar and Lewis (1998) developed and tested a more comprehensive model of faculty research productivity that included variables measuring individual, institutional and departmental attributes. A library expenditures measure was included in the model to represent one of the institutional attributes. The results of the study indicated that library expenditures were associated with increased research productivity for faculty in the biological sciences and physical sciences and mathematics.

Fairweather (1999) used data from the 1993 National Study of Postsecondary Faculty (NSOPF) to develop and test a model of faculty research productivity by various institutional types. He examined a variety of factors that could be related to faculty research productivity including background characteristics, early socialization, self-motivation, work allocation, climate/resources, rewards, etc. The one academic library measure in this study—perceived adequacy of university library facilities—was included in the climate/resources section. Although a positive relationship was found between this measure and faculty research productivity at research universities, academic library administrators would be hard pressed to make a case to institutional administrators to increase funding based upon this finding.

Theoretical Framework

The theoretical framework for this study is derived from an examination of other faculty productivity studies found in the field of higher education. In addition to the previously mentioned models (Dundar and Lewis, 1998; Fairweather, 1999), Blackburn and Lawrence (1995) also developed a model of faculty productivity using National Center for Research to Improve Postsecondary Teaching and Learning (NCRIPTAL) data. Their model contains many elements: socio-demographic characteristics, environmental conditions, social knowledge, environmental response, self-knowledge, career, behavior, and social contingencies. Although their model does not specifically address academic library resources and services it's important to consider it because the model identifies additional elements that are useful for understanding faculty research productivity.

Middaugh (2000) developed a list of measures of faculty research activities useful for studying faculty research productivity. These measures included: the number of refereed publications, number of textbooks, externally funded grants, professional conference papers, etc.

I will conduct a study of faculty research productivity during the spring 2003 semester. The following sections describe this study.

Research Question

This proposed research study is designed to provide a comprehensive and in-depth examination of how academic library resources and services contribute to increased faculty research productivity. This study will address the following research question: After controlling for faculty socio-demographic and career characteristics, what academic library resources and services are associated with increased faculty research productivity?

The unique contribution of this study is that it examines multiple measures of academic library resources and services and faculty research productivity. It includes a nationally representative sample of faculty representing all institutional types and a variety of academic disciplines.

Research Methods

Data Sources

This study uses the following two datasets to test a theoretical model describing the relationship between academic library resources and services and faculty research productivity. These datasets were collected by the United States Department of Education National Center for Education Statistics (NCES):

1. The National Study of Postsecondary Faculty (NSOPF:99) contains information about faculty members' socio-demographic characteristics, research activities, satisfaction with the library holdings of their institution, and information about their institution's characteristics.

2. The 1998 Integrated Postsecondary Education Data System (IPEDS) Academic Library Survey (ALS:98) contains information about institutional academic library resources and services.

Sample

The sample consists of 18,000 faculty members rep-

resenting 960 postsecondary institutions (88.4% response rate for faculty information). The institutional types include public research, private not-for-profit research, public doctoral, private not-for-profit doctoral, public comprehensive, private not-for profit comprehensive, private not-for-profit liberal arts, public 2-year and other. The faculty represent many academic fields including agriculture/home economics, business, education, engineering, fine arts, health sciences, humanities, natural sciences, and social sciences.

Independent Variables

There are three sets of independent variables in this study. The first set of variables, *Socio-Demographic Characteristics*, describe faculty members' age, race/ethnicity, and gender. The second set of variables, *Career Characteristics*, describe faculty members' field of teaching, whether or not they work full-time vs. part-time, their principal activity (i.e., research or teaching), their rank (assistant, associate, etc.), tenure status, highest college degree obtained, the amount of time they spend on their research, and rating of library holdings. The final set contains the variables of primary interest, *Library Characteristics*, which includes variables about the number of professional library staff, the number of monographs and journals in the collection, the amount of library expenditures, the amount of circulation transactions, etc.

Dependent Variables

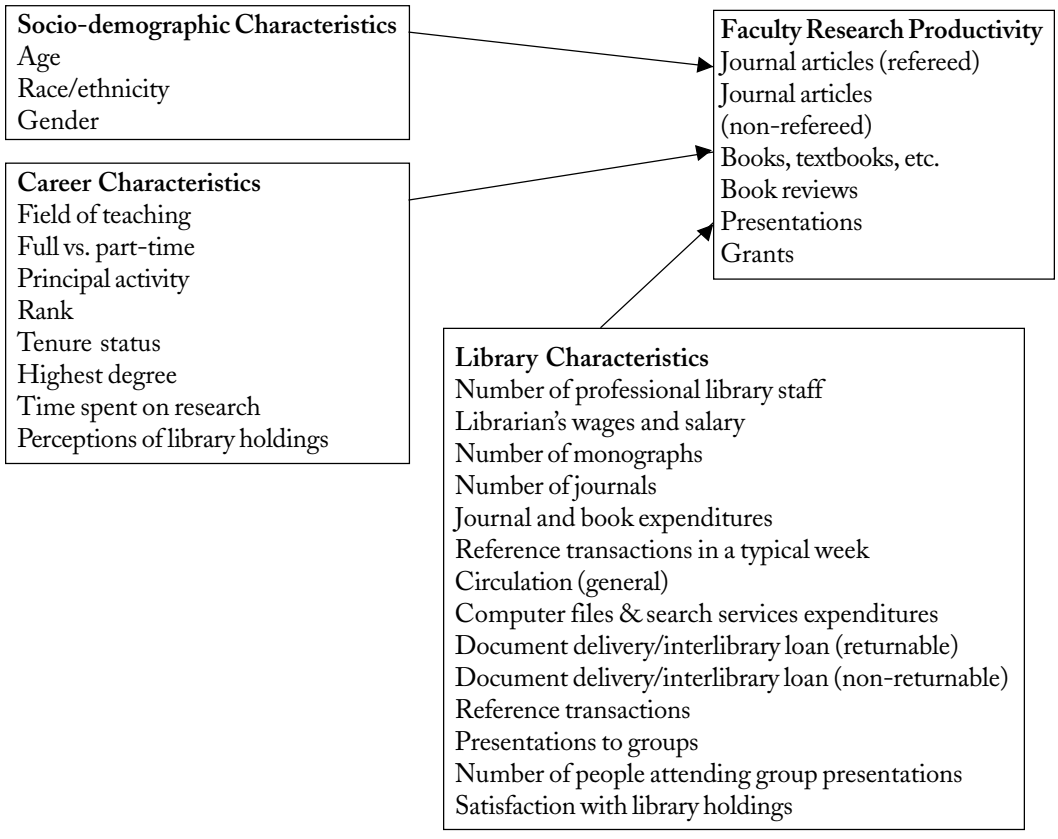
The dependent variable is *Faculty Research Productivity* defined as the number of journal articles published in refereed and non-refereed journals, the number of books published, the number of book reviews, the number conference presentations, and the number of grants obtained during the last two years.

These four sets of variables comprise the theoretical model tested in this study. See Figure 1 for a graphical representation of the theoretical model.

Data Analyses

I will run a series of eight multiple regressions using

Figure 1. Theoretical Model



SPSS software. Each regression represents each institutional type (i.e., public doctoral, public 2-year, etc.) and examines the contributions of faculty members' socio-demographic characteristics, career characteristics and academic library services and resources on faculty research productivity. Analyses by institutional type are important because the purpose of the academic library varies by institutional mission.

Conclusions

The findings from this study will reveal if the amount of academic library resources and services impacts the research productivity of faculty in different academic disciplines employed in different institutional types. These results will be useful to academic library administrators as they make decisions about how to allocate limited funds to support various academic library collections, resources, and services.

Note

1. This project was awarded the 2002 Carroll Preston Baber Grant from the American Library Association.

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