

Use and Importance of Library Resources to Support Faculty Research and Productivity

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This article explores the relationships between faculty library use, their perceptions of the importance of library resources, and its impact on their research productivity at a public research university. The authors used a self-reported faculty survey and publication records from a faculty activity reporting system to answer this question. Findings showed that faculty's perceptions of the library resource for their research had no relationships with faculty research productivity, whereas a positive correlation was found between the frequency of use of online journals and databases, and faculty research productivity. Qualitative findings revealed that faculty viewed the library as providing and purchasing the needed library resources, and that they valued the librarians and library services as essential to their teaching and research.

Introduction

Research is an integral part of academic research institutions, and university libraries play a critical role in supporting faculty research. Maintaining key services and resources are imperative to supporting research, which can be challenging when libraries are faced with decreasing budgets and competing demands to fund databases, journal subscriptions, and other resources. Due to this environment, it is imperative for academic librarians both to identify faculty's needs and to demonstrate the library's value and impact on faculty research productivity.

The purpose of this study is to explore the relationship between faculty research productivity and faculty perceptions, and use, of the academic library in supporting their academic research. This paper also examines disciplinary differences between faculty perceptions and use of the academic library's resources and services. Faculty at a research-intensive doctoral granting institution were surveyed about their perceptions on the importance of library resources, their perceptions of the library's impact on their research, and their use of library resources. Faculty responses were examined along with faculty demographic information, including their publication productivity (books, book chapters, and conference proceedings, and journals) in recent years to explore possible relationships. By analyzing both quantitative and qualitative data this paper will provide deeper understanding of faculty's perceptions of the library, their library use, and the library's impact on their research productivity.

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Literature Review

Past studies have explored relationships between research productivity and academic libraries. As part the Association of Research Libraries (ARL) Research Library Impact Framework, a recent study—conducted at the same large public research university as the current study—explored the relationship between faculty productivity and their use of the library's collection in faculty publications.¹ In exploring the number of publications produced by individual faculty in relation to their use of references in their publications, it was observed that faculty who were less productive (defined as five or fewer publications in a 15 year period) tended to use the least number of references in the publications. Faculty who were very prolific (defined as 71 or more publication in a 15 year period) used many more references in their publications compared to less productive faculty; however, they used slightly fewer references in their publications compared to faculty who were productive (defined as six to 70 publications in a 15 year period). In other words, faculty that were highly productive but not very prolific were most likely to include the greatest number of references in their publications. As this study focused primarily on journal publications and citations in journal articles, it did not explore humanities publication patterns. However, there were disciplinary differences noted in the included disciplines when average publications, as well as average references in the publications, were examined from 2015 to 2019.² Faculty in Engineering were found to be the most productive, publishing on average 18.61 articles per faculty member over a five-year period (2015 to 2019). Faculty in the health sciences were the next most productive group, depending on the specific discipline: Applied Health Sciences, 20.93; Medicine, 14.57; Dentistry, 12.57; Nursing, 15.85; Pharmacy, 19.58; Public Health, 14.88 (average per faculty member/five years). Those in the other disciplines typically averaged fewer publications per faculty from 2015 to 2019: social sciences (e.g. psychology, sociology, etc.) 6.97; social work, 6.88; business administration, 4.30; and education, 5.30. Differences were also observed in the average number of references included in publications from 2015 to 2019. Those in the social sciences generally included more references per publication: social science, 57.49 average references per publication; social work, 48.23, business administration, 61.96; education 52.12. The use of references in health sciences was slightly lower on average than in the social sciences per publication, though this varied depending on the specific discipline: applied health sciences, 42.90 average references per publication; medicine, 41.59; dentistry, 41.36; nursing, 47.36; pharmacy, 46.01; public health, 39.90. Engineering, on average, included 43.38 references per article.

Michael Rawls utilized ARL library statistics expenditure variables and faculty publication data from a five-year period (2005–2009).³ Research productivity was positively correlated with library investment, particularly with electronic library resource expenditures. A 2020 study also utilized ARL library reported statistics (e.g. collection expenditures, full-text article requests, and database searches) in conjunction with faculty productivity, as measured by published research articles.⁴ A positive correlation was reported between number of publications and library expenditures, collection size, and full-text article requests.

Using surveys, several studies have examined the behavior of researchers to better understand how they seek, read, and use scholarly articles. A study conducted in 2002 captured an early view of the use, and satisfaction of, University of Idaho faculty's with technology to capture, process, store, and communicate information using electronic means.⁵ In this study, 71 percent of faculty reported using electronic journals and books for research purposes; however, only 65 percent reported being satisfied with the electronic resources offered by the

library. While faculty found that electronic resources saved them time to search and “sped up” the research process, there were also concerns. For example, some faculty were not aware of electronic resources, not everyone’s needs were met, and a poorly designed website made accesses complicated. As a result of a longitudinal survey, which collected data over a 30-year period, Carol Tenopir, Donald W. King, Sheri Edwards and Lei Wu concluded that faculty have increased their reading compared to the number of articles they had read in the past, and that faculty were relying more on the library to provide access to articles compared to the past where they had their own personal subscriptions to journals.⁶ They also found that faculty had diversified the ways in which they identified articles to read including internet searching, online journal table of contents browsing, abstracting and indexing (A&I) databases, and full-text database searching as a result of online journals. A study conducted by Carol Tenopir, Donald W. King, Lisa Christian, and Rachel Volentine found online journals were the primary source of articles read by faculty. The articles were primarily accessed through library or other institutional subscriptions.⁷

In another study, faculty members from five U.S., and two Australian, Universities were surveyed about their scholarly article reading habits.⁸ Faculty members whose positions were more focused on research reported reading more articles for research purposes (62 percent) compared to the teaching-oriented faculty (49 percent). The research-oriented faculty members also reported more of their reading materials were provided by the library (58 percent), in contrast to the more teaching-oriented faculty (38 percent). A positive relationship was also found between productivity, as measured by publications, and the average number of articles read per month. Faculty who read more articles also published more. This study also found that faculty members in the health science, engineering, and sciences read more scholarly journals articles on average than faculty in the social sciences and humanities.

A more recent study by Carol Tenopir, Lisa Christian, and Jordan Kaufman explored how researchers discovered, read, and used scholarly literature for their work.⁹ The study explored how many articles faculty researchers read, how they go about accessing and using the literature, how important other types of information resources are, and demographic differences. Articles from journals were rated the most important source for scholarly information, followed by books, and conference proceedings. Overall, researchers reported reading about 20 articles a month, the majority (70 percent) being read with care. More than half of the articles were read (59 percent) specifically for research, but were also read to support writing proposals, reports, and articles, which—when counted as research related activities—raised the percentage to 67 percent. Most articles were found from browsing (34 percent), or searching (29 percent); the next most common method being finding a source in the citations of another publication (18 percent). The authors conclude that, although many articles read are still in online journals from the library or other institutional subscriptions, researchers are finding other ways to discover and access articles.

Tenopir, Christian, and Kaufman also explored disciplinary differences between the researchers they examined.¹⁰ Almost all disciplines—life and physical sciences, math, computer science, engineering, social sciences, humanities—ranked scholarly journals as “absolutely essential,” or “very important” for their work. The exception was medical sciences, which ranked journals between “very important” and “important.” Only those in the sciences, social sciences, and humanities ranked scholarly books or book chapters as “absolutely essential” or “very important.” Tenopir et al. also explored the number of articles read each month by

discipline. They found that, on average, those in the sciences read 24.10 articles a month, medical sciences read 15.07 articles a month, computer science read 16.83 articles a month, engineering read 16.48 articles a month, social sciences read 26.45 a month, and humanities and fine arts read 25.63 articles a month.

While the literature above confirmed that faculty's library use was associated with their research productivity, it is limited in its exploration of how faculty *perceived* the importance of the library resources and the library's impact on their research productivity. In addition, not only is there a scarcity of current research, but the earlier canonical literature exploring disciplinary differences in information seeking behavior related to the academic library may no longer be applicable, as databases and access to online journals have continued to evolve, which likely impacts user behavior. This paper aims to analyze both quantitative and qualitative data from an online faculty survey that was conducted earlier this year at a public research university to deepen an understanding of faculty's perceptions of the library, their library use, and its impact on their research productivity. It also explores disciplinary differences in faculty's perceptions and use of the academic library.

Methods

Institutional Setting

This study took place at the University of Illinois Chicago (UIC), a large urban research university with 16 colleges: medicine, nursing, applied health sciences, dentistry, pharmacy, public health, social work, liberal arts and sciences, engineering, education, architecture, design and the arts, urban planning and public affairs, business administration, graduate college, honors college, and law. The University is classified as an R1 research university by the Carnegie Classification of Institutions of Higher Education, with approximately 4,500 faculty serving more than 33,000 undergraduate and graduate students. As of Spring 2022, among 4,500 faculty, about 77 percent of them are assistant, associate and full professor, and the rest are instructors, lecturers, and postdocs. About half of the faculty are from College of Medicine in Chicago, Liberal arts and sciences, and pharmacy. On average, faculty have worked at UIC for about ten years.

Survey Instrument

The Assessment Advisory Committee developed an online survey to examine faculty perceptions of the importance of library resources, their use of library resources, and their perception of the library's impact on their research (Appendix A). Among a total of 12 questions, six questions were based on previous survey questions distributed to faculty in 2017 and 2019, and a set of six new questions addressed topics of current interest including frequency of library use (range of library resources), potential workshop topic to gauge faculty interest, and perceptions of the library's impact on their research and scholarship success. The survey questions were pilot tested by faculty in various departments to check the clarity of the questions and to ensure whether the goals of the survey match with the survey questions. Given this paper's aim of examining the relationships between faculty's perceptions on library resources, their library use, and its impact on their research productivity (measured by the number of publications in 2021 (one year) and 2017–2021 (five years), the following survey questions were selected for this paper.

- Importance of library resources for research or administrative responsibility with a nine-point Likert Scale (from one, "not at all" to nine, "extremely important," with zero as

“not applicable”) on the following list: Print books, eBooks, Online journals, Databases to find literature, Special Collections, Interlibrary Loan (ILL), Digital Images, Assistance from a subject specialist librarian, and Comprehensive literature search support.

- Frequency of library resource and service use for research with a four-point Likert Scale (0 = Never, 1 = Once a year, 2 = Once a month, 3 = Weekly or More often) on the following list: Print books, eBooks, Online Journals, Databases to find literature, Special Collections, Subject and Course guides, Interlibrary loan (ILL), Assistance from a subject specialist librarian, and Comprehensive literature support.
- Faculty’s perceptions of library impact on their teaching and research (Open-ended question).
- Faculty’s demographic information from the University’s Office of Institutional Research and their publication records from the institution’s faculty activity reporting tool were included in this paper as follows: Faculty demographics: Faculty status and their Full Time Equivalent (FTE) percentage of department.
- Faculty research productivity: This was measured by the numbers of publications including books, book chapters, conference proceedings, and journal articles published in 2021 (one year) and 2017–2021 (five years). Considering the nature of the publication, the authors carefully selected the publication time range that corresponds to the survey. While the survey was being performed in February 2022, faculty were invited to respond to questions on their library use and perceptions in the past year (as stated in the survey instruction). For these reasons, the research productivity used two time ranges: one year and five years.

Data Collection

Prior to distributing the survey, email addresses and demographic information was obtained from the institutions Office of Institutional Research (OIR). Faculty demographic information was uploaded as a “panel” in Qualtrics, along with their publication output. Publication output—when the information was available—was obtained from the institution’s faculty activity reporting tool,¹¹ a faculty scholarly and professional activity reporting system that automatically captures faculty scholarly productivity when indexed in database such as PubMed, Web of Science, Scopus, and Dimensions authored by each faculty in 2021, and from 2017 to 2021. According to the University’s faculty activity reporting tool, 87 percent of faculty had publication information. Faculty can assess research impact using citation metrics automatically captured by the reporting tool, and other scholarship and professional activities can be manually entered. In the past five years, the average publication per faculty member—including books, book chapters, conference proceeding, and journal articles entered in the system—was 11. The survey was distributed to about 4,500 university faculty and post-docs working at UIC February 21, 2022, closing March 25, 2022. Three reminder emails were sent to faculty who did not complete the survey in Qualtrics. A total of 557 faculty completed the survey (12 percent response rate).

Survey Incentives

All survey respondents were invited to enter a drawing to win one of six items valued at \$100-\$200, such as smart watch and wireless headphone. Contact information was destroyed after the incentives were distributed.

Data Analysis

Descriptive statistics and inferential statistics (correlations and a two-way between group analysis of variance (ANOVA) were run using SPSS 28. Correlations were employed to explore if there were any relationships between: 1. faculty's perceptions of the importance of library resources and support for their research and their research productivity; and 2. their frequency of library use and research productivity. A Pearson correlation was used to test faculty perceptions of the importance of library support for their research using a ratings scale from one (not at all) to nine (extremely important). This nine-point scale is treated as interval variable, also known as number rating scales, because it is commonly used by researchers in education field by treating responses as interval-level measures rather than just ordinal data and allows researchers to utilize statistical analysis such as Pearson correlations or ANOVA.¹² A Spearman correlation was employed to test the frequency library use, using a scale from zero (never) to three (Weekly or more often), which is considered an ordinal variable.

To examine the impact of disciplines and faculty's library use on their publications, a two-way ANOVA was conducted. Prior to conducting a two-way ANOVA, assumptions were tested including homogeneity of variances assumption using Levene's Test of Equality of Error Variances (to test whether the variance of dependent variable across the groups are equal). The results of homogeneity of variance assumption were violated (significant level is greater than .05). Therefore, the authors used more stringent significant level at the p value of less than $<.01$ rather than .05 when evaluating and reporting the results of the two-way ANOVA.¹³

Disciplines were grouped into five categories based on the department where the faculty member had their highest FTE: arts and humanities, social sciences, physical sciences, life sciences, and health sciences. To create groups for library use, faculty's frequency of library use (zero = never, to three = weekly or more often) were used to sum all nine library resources and services, from print book to comprehensive literature search support; the range of minimum and maximum for frequency of use were from one to 27. Using quartiles, the total number of library uses was used to group faculty members into three categories: less frequent (faculty who used library resources from one-ten), moderate (faculty who used library resources from 11–15), and high (faculty who used library resources from 16 or more).

Another goal of this paper is to explore how faculty perceived library impact for their teaching and research by examining their feedback. The open-ended responses were imported into Excel and analyzed by the Assessment Coordinator using thematic analysis, which is a popular qualitative analysis technique to analyze themes in a dataset and identify meaning. Initial codes and themes were reviewed by the Assessment Advisory Committee members and condensed after repeating this process until reaching agreement.

Below are the research questions for this study:

- What are the relationships between faculty's perceptions on the importance of library resource, frequency of library use, and their research productivity?
- Are there differences in faculty's library use and research productivity between disciplines?
- How do faculty perceive the importance of library resources and services as it relates to their teaching and research?

Results

Publications by Faculty Status

Faculty publications for a one-year period (2021), and the average for a five-year period (2017–2021) respectively, were analyzed by the particular faculty's status: assistant, associate and full professor, and others—which included instructors, lecturers, postdoctoral and visiting faculty. As shown in table 1, regardless of the type of publications, full professors published the most, followed by associate professor and assistant professors in both a one-year period and an average of a five-year period. Regarding the types of the publications, journals recorded the highest type of publication ($M=1.93$, $SD=3.78$ in a one-year period, $M=1.73$, $SD=3.29$, an average of a five-year period).

TABLE 1 Mean and Standard Deviation for Faculty Publication: 2021 and Average of a Five-Year Period (2017–2021)					
	Book	Book Chapter	Conference Proceeding	Journal	Total
1Y (2021)	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Assistant Professor ($n=173$)	0.01 (0.11)	0.06 (0.29)	0.16 (0.75)	1.77 (3.20)	2.01 (3.51)
Associate Professor ($n=133$)	0.07 (0.28)	0.29 (0.80)	0.11 (0.42)	1.77 (2.50)	2.25 (2.74)
Professor ($n=125$)	0.09 (0.36)	0.42 (1.65)	0.18 (0.65)	3.94 (5.87)	4.63 (6.31)
Other ($n=115$)	0.00 (0.00)	0.02 (0.13)	0.01 (0.09)	0.17 (0.60)	0.20 (0.68)
Total ($n=546$)	0.04 (0.23)	0.19 (0.91)	0.12 (0.57)	1.93 (3.78)	2.29 (4.13)
Average_ 5Y (2017–2021)					
Assistant Professor ($n=173$)	0.01 (0.04)	0.08 (0.19)	0.17 (0.57)	1.37 (2.87)	1.63 (3.18)
Associate Professor ($n=133$)	0.04 (0.12)	0.29 (0.63)	0.33 (0.78)	1.69 (2.23)	2.35 (2.83)
Professor ($n=125$)	0.06 (0.15)	0.34 (0.56)	0.65 (1.57)	3.74 (4.90)	4.78 (5.96)
Other ($n=115$)	0.00 (0.04)	0.02 (0.07)	0.01 (0.06)	0.13 (0.44)	0.16 (0.49)
Total ($n=546$)	0.03 (0.10)	0.18 (0.44)	0.29 (0.93)	1.73 (3.29)	2.22 (3.97)

Relationships between Faculty's Perceptions on the Importance of Library Resource and Their Research Productivity

Faculty were asked to rate the importance of library resources on a scale from one to nine, with nine being “extremely important” and one being “not important at all.” The overall perception ratings based on 2022 survey results were as follows: online journals ($M= 8.73$); scholarly databases ($M= 8.44$); interlibrary loan ($M= 7.51$); eBooks ($M= 7.23$); subject special assistance from a librarian ($M= 6.15$); print books ($M= 5.65$); and special collections ($M= 4.47$).¹⁴ Faculty's perceptions of the importance of library resources for research was further analyzed to examine whether their perceptions of library resources were correlated with their research productivity—measured by number of publications including books, book chapters, conference proceeding, and journals articles—over one year (2021) and over five years (from 2017 to 2021). The results from Pearson correlations indicated that based on importance, only one library resource (eBooks ($r [419] = -.102$, $p < .05$) in 2021 was correlated with their research productivity, whereas Special Collections in 2017 and 2021 was correlated with their research productivity ($r [389] = -.110$, $p < .05$). However, the directions of the correlations were negative,

meaning that the higher faculty's research productivity, the less their perceptions of eBooks in 2021, the higher faculty's research productivity, the less their perceptions of Special Collections in 2017 and 2021 (see table 2).

TABLE 2
Relationships Between Faculty's Perceptions of Library Resources Importance and Their Research Productivity

Publication year(s)	Print books (n=409)	eBooks (n=419)	Online journals (n=431)	Databases (n=427)	Special collections (n=389)	ILL (n=419)	Digital images (n=390)	Assistance from a subject specialist librarian (n=406)	Comprehensive literature search support (n=410)
2021	-.090	-.102*	.090	.060	-.078	.039	-.048	-.018	.012
2017 to 2021	-.082	-.095	.087	.017	-.110*	-.005	-.020	-.018	.008
p < .05									

Relationships between Faculty's Library Use and Their Research Productivity

Faculty's library resource use was further analyzed to examine whether their frequency of library resource use correlated with their research productivity (measured by number of publications including books, book chapters, conference proceeding, and journals) in a one-year period (2021) and a 5-year period (2017 to 2021). A Spearman rank correlation was employed, and the results indicate that only certain library resource uses in 2021 were correlated with their research productivity: print books (r_s [407] = -.136, p < .01), online journal (r_s [418] = .194, p < .01), databases (r_s [419] = .124, p < .05), and subject and course guides (r_s [400] = -.099, p < .05); however, the directions of the correlations were different (see table 3). That is, print books, and subject and course guides use were negatively correlated with the faculty's research productivity, whereas journal and database use were positively correlated with their research productivity, indicating the more faculty used print books or course guides, the less productive they were. On the other hand, the more journal and database use, the higher number of publications in 2021.

When examining the relationships over a five-year period, the results were slightly different. Print books, journal, and subject and course guides uses in a five-year period remained similar in their relationship with faculty research productivity in 2021. That is, these library resources were associated with faculty research productivity in both 2021 and a five-year period. However, productivity in the five-year period appeared to be statistically associated with eBooks (r_s [413] = -.098, p < .05), whereas database use was not (r_s [419] = .088, p = .071). While it is important to demonstrate that faculty's library resource uses were correlated with their research productivity, one should be cautious to interpret the findings, as this relationship does not warrant causation. Also, faculty library resource use over a one-year period may not be accurately represented by their publication numbers for the same year because publications are typically released well after the year in which the initial research occurred. Further investigation would be needed to fully explore this chronological disconnect.

TABLE 3
Relationships Between Faculty's Library Resource Use and Their Research Productivity

Publication year(s)	Print books (n=407)	eBooks (n=413)	Online journals (n=418)	Databases (n=419)	Special collections (historical documents, archives, rare books) (n=403)	Subject and Course guides (n=400)	Interlibrary loan (n=413)	Assistance from a subject specialist librarian (n=408)	Comprehensive literature search support (n=410)
2021	-.136**	-.095	.194**	.124*	-.055	-.099*	.076	-.014	.063
2017 to 2021	-.162**	-.098*	.182**	.088	-.097	-.105*	.049	-.005	.031

Note. * $p < .05$, ** $p < .01$. Research productivity includes books, book chapters, conference proceeding, and journals.

Given that the amount of time it takes for books and book chapters to be published is longer than it is for conference proceeding and journals, a separate analysis of publications including only journals and conference proceedings for a five-year period (2017 to 2021) was examined to explore if there were any differences in the relationship between publications and library resource and service use (see table 4). The results remained the same as when all publication types (i.e. book, book chapters, conference proceeding and journals) were included, with the exception of special collections, which also showed a statistically significant negative relationship ($r_s [403] = -.113$, $p < .05$). This indicates that faculty's library use for print books, eBooks, special collections, and subject guides were statistically and negatively correlated with the number of journals and conference proceedings, but positively correlated with the frequency of online journal use.

TABLE 4
Relationships Between Faculty's Library Resource Use And Their Research Productivity (Only Journals And Conference Proceedings)

Publication year(s)	Print books (n=407)	eBooks (n=413)	Online journals (n=418)	Databases (n=419)	Special collections (historical documents, archives, rare books) (n=403)	Subject and Course guides (n=400)	Interlibrary loan (n=413)	Assistance from a subject specialist librarian (n=408)	Comprehensive literature search support (n=410)
2017 to 2021	-.197**	-.121*	.171**	.085	-.113*	-.099*	.033	-.014	.037

Note. * $p < .05$, ** $p < .01$

Library Impact: Library Use, Discipline and Publications

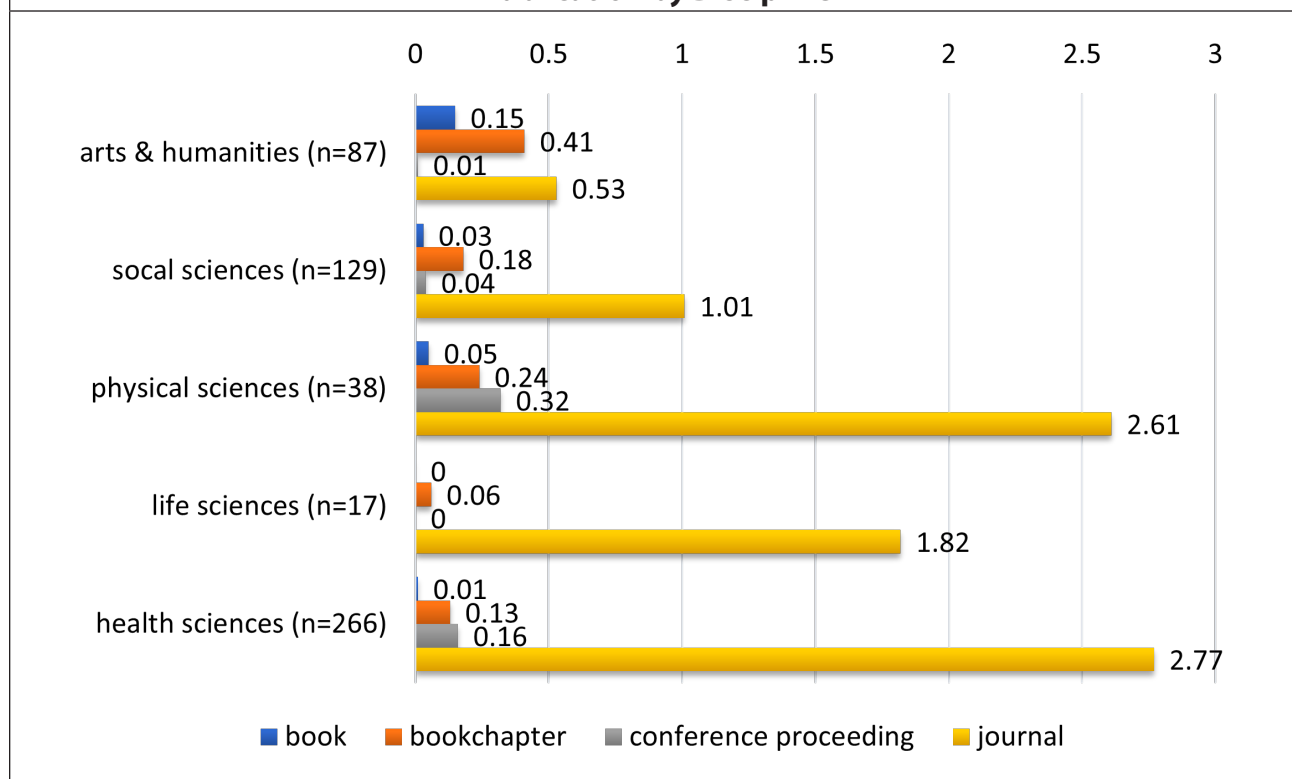
Table 5 demonstrates how well survey respondents from five discipline categories—arts and humanities, social sciences, physical sciences, life sciences, and health sciences—represent the university populations. Except for health sciences, all of the disciplines accurately represented the University population; around 10% of faculty from health sciences were less representative of those from the university health science population.

TABLE 5
Frequency of Disciplines on Survey in Comparison to the University Population

	Survey		Population	
	Frequency	Percent	Frequency	Percent
Arts & humanities	89	16.2%	455	10.1%
Social sciences	132	24.1%	648	14.4%
Physical sciences	38	6.9%	484	10.8%
Life sciences	17	3.1%	214	4.8%
Health sciences	272	49.6%	2,689	59.9%
Total	548		4,490	

Prior to examining the impact of disciplines and library use on the research productivity, descriptive statistics were run to seek patterns between disciplines and each type of publications. As shown in figure 1, each type of publication differs by disciplines. The faculty from the arts and humanities published the highest number of books ($M=0.15$) and book chapters ($M=0.41$), followed by those in the physical sciences (books $M=0.05$; book chapters $M=0.24$). There were no book publications ($M=0.00$) and few book chapters ($M=0.06$) published by faculty from the life sciences. For the journal articles and conference proceeding publications, the patterns were different—faculty from the health sciences published the highest number of journal articles ($M=2.77$), followed by faculty from physical sciences ($M=2.61$). However, faculty from the life sciences did not produce conference proceedings—journal articles were their primary form of publication ($M=1.82$).

FIGURE 1
Publication by Discipline



Faculty's ranking for level of importance (table 6) and frequency of library use also differs among the disciplines (table 7). Compared to the other disciplines, arts and humanities ranked books (print and electronic) the highest in terms of importance. Arts and humanities also ranked special collections, interlibrary loan, and digital images as more important compared to other disciplines. All disciplines (from life sciences, $M=9.00$, to physical sciences, $M=8.26$) ranked journal articles as the most important resource for their research. Within the rankings of databases, life sciences faculty ranked the importance of database the highest.

TABLE 6
Means, Standard Deviation in Faculty's Perceptions of Importance with Library Resources for Supporting Research by Disciplines

	Arts & humanities	Social sciences	Physical sciences	Life sciences	Health sciences
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Print books	8.01 (1.89)	6.34 (2.60)	5.58 (2.63)	4.71 (2.76)	4.50 (2.66)
eBooks	7.78 (1.86)	7.21 (2.33)	7.67 (2.23)	7.00 (2.42)	6.96 (2.49)
Online journals	8.69 (1.23)	8.56 (1.04)	8.26 (2.05)	9.00 (0.00)	8.87 (0.54)
Databases	8.34 (1.68)	8.08 (1.61)	8.55 (1.52)	8.73 (0.70)	8.60 (1.12)
Special Collections	6.16 (2.69)	4.61 (2.95)	3.60 (2.71)	3.25 (2.70)	4.01 (2.83)
Interlibrary loan	8.33 (1.59)	7.57 (2.15)	7.13 (2.31)	6.57 (2.74)	7.32 (2.38)
Digital images	6.40 (2.50)	4.64 (2.81)	4.85 (3.43)	5.08 (3.50)	5.48 (3.00)
Assistance from librarian	6.10 (2.53)	6.69 (2.54)	4.97 (2.64)	5.07 (2.79)	6.19 (2.62)
Literature search support	6.13 (2.40)	5.65 (2.99)	6.03 (2.89)	5.80 (2.65)	6.48 (2.64)
Note: Scales for faculty's perceptions of importance with library resources for supporting research was coded from one (not important at all) to nine (very important). Not available response was excluded from calculating the mean scores.					

Similar to faculty's perceptions of the importance of library resources for their research, more faculty from art and humanities reported using books (print and online), special collections, and digital images more frequently than other disciplines, at once a month or more often (table 7). However, frequency of using Interlibrary loan was somewhat different; faculty from physical sciences, social sciences and arts and humanities more frequently used Interlibrary loan compared to other disciplines. Most faculty in all disciplines reported using online journals at least weekly, except for those in the physical sciences, where only a little over half reported weekly use. Additionally, physical sciences faculty reported using online journals once a month. With respect to database use, faculty in the physical sciences were most likely to report at least weekly (83.9 percent) database use, compared to those in the life sciences who were the least likely to report weekly use (50 percent). While faculty from the life sciences reported the most frequent use of online journals, these faculty also report highest percentage of resources and services never used including: comprehensive literature search support (71.4 percent), Interlibrary loan (61.5 percent), assistance from a subject librarian (57.1 percent), print books (30.8 percent), and eBooks (30.8 percent).

To further examine the impact of disciplines and library use on the research productivity (table 8), as measured by the total number of publications in 2021 and the overall reported

TABLE 7
Faculty's Frequency of Library Resource Use for Research by Disciplines

Resources	Discipline	Never	Once a year	Once a month	Weekly or more often	M
Print books	arts & humanities (n=69)	2.9%	10.1%	26.1%	60.9%	2.45
	social sciences (n=98)	10.2%	23.5%	35.7%	30.6%	1.87
	physical sciences (n=31)	6.5%	41.9%	32.3%	19.4%	1.65
	life sciences (n=13)	30.8%	30.8%	30.8%	7.7%	1.15
	health sciences (n=197)	29.4%	38.1%	23.4%	9.1%	1.12
eBooks	arts & humanities (n=69)	2.9%	13%	29%	55.1%	2.36
	social sciences (n=99)	10.1%	16.2%	39.4%	34.3%	1.98
	physical sciences (n=30)	3.3%	13.3%	26.7%	56.7%	2.37
	life sciences (n=14)	30.8%	30.8%	30.8%	7.7%	1.64
	health sciences (n=202)	29.4%	38.1%	23.4%	9.1%	1.84
Online journals	arts & humanities (n=69)	1.4%	1.4%	13%	84.1%	2.8
	social sciences (n=98)	2%	3.1%	10.2%	84.7%	2.78
	physical sciences (n=31)	3.3%	13.3%	26.7%	56.7%	2.77
	life sciences (n=14)	0%	0%	7.1%	92.9%	2.93
	health sciences (n=207)	0.5%	0%	6.3%	93.2%	2.92
Databases	arts & humanities (n=70)	2.9%	7.1%	22.9%	67.1%	2.54
	social sciences (n=98)	4.1%	9.2%	20.4%	66.3%	2.49
	physical sciences (n=31)	0%	9.7%	6.5%	83.9%	2.74
	life sciences (n=14)	0%	0%	50%	50%	2.50
	health sciences (n=207)	2.9%	3.4%	19.8%	73.9%	2.65
Special Collections	arts & humanities (n=69)	27.5%	42%	20.3%	10.1%	1.13
	social sciences (n=96)	56.3%	29.2%	9.4%	5.2%	0.64
	physical sciences (n=28)	60.7%	35.7%	0%	3.6%	0.46
	life sciences (n=14)	78.6%	14.3%	7.1%	0%	0.29
	health sciences (n=198)	60.1%	33.3%	4.5%	2%	0.48
Interlibrary loan	arts & humanities (n=64)	40.6%	29.7%	18.8%	10.9%	1.00
	social sciences (n=97)	46.4%	22.7%	20.6%	10.3%	0.95
	physical sciences (n=29)	37.9%	27.6%	20.7%	13.8%	1.10
	life sciences (n=13)	61.5%	23.1%	7.7%	7.7%	0.62
	health sciences (n=199)	48.2%	28.6%	13.6%	9.5%	0.84
Digital images	arts & humanities (n=69)	4.3%	23.2%	50.7%	21.7%	1.90
	social sciences (n=97)	11.3%	30.9%	41.2%	16.5%	1.63
	physical sciences (n=30)	16.7%	50%	20%	13.3%	1.30
	life sciences (n=14)	21.4%	64.3%	14.3%	0%	0.93
	health sciences (n=204)	17.6%	34.8%	38.2%	9.3%	1.39
Assistance from a subject specialist librarian	arts & humanities (n=67)	31.3%	41.8%	23.9%	3%	0.99
	social sciences (n=96)	27.1%	34.4%	34.4%	4.2%	1.16
	physical sciences (n=30)	43.3%	40%	10%	6.7%	0.80
	life sciences (n=14)	57.1%	35.7%	7.1%	0%	0.50
	health sciences (n=202)	34.7%	41.1%	20.3%	4%	0.94

TABLE 7
Faculty's Frequency of Library Resource Use for Research by Disciplines

Resources	Discipline	Never	Once a year	Once a month	Weekly or more often	M
Comprehensive literature search support	arts & humanities (n=66)	47%	33.3%	13.6%	6.1%	0.79
	social sciences (n=96)	59.4%	26%	11.5%	3.1%	0.58
	physical sciences (n=30)	50%	20%	13.3%	16.7%	0.97
	life sciences (n=14)	71.4%	21.4%	7.1%	0%	0.36
	health sciences (n=205)	42%	36.6%	14.6%	6.8%	0.86

Note: Given that frequency of faculty library resource use was considered as ordinal from zero. Never to three. Weekly or more often, both frequency and mean were used to demonstrate the distribution of the data.

frequency of library use, a two-way ANOVA was conducted (table 9). The interaction effect between disciplines and library use groups ($F(7, 355) = 0.218, p = .981$) was not statistically significant, meaning that there was no significant difference in the effect of disciplines on publications for level of library use (less frequent, moderate, and high). There was a statistically significant main effect for disciplines ($F(4, 355) = 5.909, p < .001$). This finding indicates that there is a difference in the number of publications for disciplines (arts and humanities, social sciences, physical sciences, health sciences and life sciences). The magnitude of difference for disciplines was moderate (partial eta squared=.062), using Cohen's criterion.¹⁵ To further systematically compare each discipline, and to test whether there is a significant difference in the means of each of discipline, post-hoc comparisons using the Tukey HSD test was used. As shown in Tables 8 and 10, the results indicated that the mean publication for the health sciences ($M = 3.98, SD = 5.90$) was significantly higher than arts and humanities ($M = 1.46, SD = 2.44$) and social sciences ($M = 1.41, SD = 2.28$) at the $p < .01$ level. The physical sciences ($M = 3.78, SD = 3.77$) and life sciences ($M = 2.42, SD = 2.43$) did not differ significantly from either of the other groups. The main effect for library use ($F(2, 355) = 0.078, p = .925$) did not reach statistical significance, indicating that degree of library use (less frequent, moderate, and high) does not differ in terms of their publications.

TABLE 8
Means, Standard Deviations in Disciplines and Library Use Groups and Publications

Disciplines	Library use groups	Mean	SD	N
Arts & humanities	Less frequent ^a	0.00	0.00	4
	Moderate ^b	1.92	3.05	24
	High ^c	1.28	1.94	29
	Total	1.46	2.44	57
Social sciences	Less frequent	1.59	3.43	17
	Moderate	1.30	2.10	46
	High	1.48	1.72	27
	Total	1.41	2.28	90

TABLE 8
Means, Standard Deviations in Disciplines and Library Use Groups and Publications

Disciplines	Library use groups	Mean	SD	N
Physical sciences	Less frequent	4.75	6.40	4
	Moderate	3.87	3.78	16
	High	3.00	2.00	7
	Total	3.78	3.77	27
Life sciences	Less frequent	2.83	2.23	6
	Moderate	2.00	2.76	6
	High	0.00	0.00	0
	Total	2.42	2.43	12
Health sciences	Less frequent	4.54	7.36	48
	Moderate	3.70	4.78	82
	High	3.92	6.08	53
	Total	3.98	5.90	183

^aLess frequent: faculty who used library resources 10 or less, ^bModerate: faculty who used library resources 11–15; ^cHigh: faculty who used library resources 16 or more.

TABLE 9
Two-Way ANOVA Statistics for Disciplines and Library Use Groups and Publications

	Sum of Squares	df	F	p	Partial Eta Squared
Intercept	943.577	1	44.541	<.001	0.111
Disciplines	500.698	4	5.909	<.001	0.062
Library use groups	3.325	2	0.078	.925	0
Disciplines * Library use groups	32.369	7	0.218	.981	0.004
Error	7520.55	355			
Total	11228	369			

TABLE 10
Tukey HSD: Mean differences for Disciplines and Publications

(I) Disciplines	Disciplines	Mean Difference	SE	p	95% CI	
					LB	UB
Arts & humanities	Social sciences	0.05	0.779	1	–2.09	2.18
	Physical sciences	–2.32	1.075	.198	–5.27	0.63
	Life sciences	–0.96	1.462	.965	–4.97	3.05
	Health sciences	–2.53**	0.698	.003	–4.44	–0.61
Social sciences	Arts & humanities	–0.05	0.779	1	–2.18	2.09
	Physical sciences	–2.37	1.01	.134	–5.14	0.40
	Life sciences	–1.01	1.414	.954	–4.88	2.87
	Health sciences	–2.57***	0.593	<.001	–4.20	–0.95

TABLE 10
Tukey HSD: Mean differences for Disciplines and Publications

(I) Disciplines	Disciplines	Mean Difference	SE	p	95% CI	
					LB	UB
Physical sciences	Arts & humanities	2.32	1.075	.198	−0.63	5.27
	Social sciences	2.37	1.01	.134	−0.40	5.14
	Life sciences	1.36	1.597	.914	−3.02	5.74
	Health sciences	−0.21	0.949	1	−2.81	2.40
Life sciences	Arts & humanities	0.96	1.462	.965	−3.05	4.97
	Social sciences	1.01	1.414	.954	−2.87	4.88
	Physical sciences	−1.36	1.597	.914	−5.74	3.02
	Health sciences	−1.57	1.372	.784	−5.33	2.19
Health sciences	Arts & humanities	2.53**	0.698	.003	0.61	4.44
	Social sciences	2.57***	0.593	<.001	0.95	4.2
	Physical sciences	0.21	0.949	1	−2.40	2.81
	Life sciences	1.57	1.372	.784	−2.19	5.33

** $p < .01$, *** $p < .001$

Library Impact on Faculty's Teaching, Research, or Administrative Work

Faculty were asked to answer the open-ended question: "Thinking about your overall UIC library experience, please describe how the library has impacted your teaching, clinical practice, research, or administrative work." A total of 267 respondents provided feedback on this question. Three themes were generated from this open-ended question using content analysis. When reporting faculty's comments, faculty's college was included to provide context for their feedback.

Theme 1: Invaluable Library Resources (n=181)

Many faculty perceived that accessing library resources was valuable for their teaching and research. The list of resources that impacted their teaching and research includes journals, databases, books, textbooks, and eBooks. Examples of faculty feedback on this theme follow:

- "The UIC library has always helped me to pursue my intellectual curiosity, beyond the articles/journals books that I need to pursue my research and teaching. To me, this is invaluable" (Pharmacy).
- "The UIC Library provides robust literature search engines and strong capture of this articles typically through available subscriptions but also through interlibrary loans. This is critical for poster/oral presentations, manuscript, and grant submissions. For students, this allows them to find relevant research articles to bolster their position in writing essays" (College of Medicine).
- "The library has been fantastic in purchasing electronic versions of the textbooks that I use for my course so that students don't have to buy them" (School of Public Health).
- "The quick availability of journals is paramount in the development of new projects and in many other aspects of research productivity" (Liberal Arts and Sciences).
- "I use open educational resources in all of my classes and the library is essential to find

and collect the information. Access to medical literature through PubMed and other databases is essential for my research” (Applied Health Sciences).

While most faculty valued accessing the library resources and perceived that library resources had a great impact on their teaching and research, some faculty expressed concerns of possible discontinuation of certain resources due to the limited budgets, such as in the following comments:

- “The library is a crucial asset for both teaching and research. Please do not continue to cut resources to the library in ways that result in less access to materials. The move to acquire an increase digital library during the pandemic was crucial to our collective ability to teach and research. Please keep this up for access purposes, but do not limit purchases to only digital copies” (Applied Health Sciences).
- “UIC Library resources are fine, but I know I’ll run into an access wall eventually and would love it if the library sets aside a fund to purchase access or something for people who need material in days, not a week or two” (Urban Planning & Public Affairs).
- “I mostly use art publications. Very often these books are too expensive and / or published internationally. I hope that the library continues to acquire these important resources because the internet cannot supplant them” (Architecture, Design and Arts).

Theme 2: Resourceful and Professional Librarians (n=53)

Another resource that respondents acknowledged had an impact on their teaching and research was the library staff and librarians. Sixteen librarians’ names were mentioned in the survey with appreciation (n=28). Below are examples of faculty’s feedback on this theme:

- “The responsiveness of library support has been great and I feel that the librarians go above and beyond to answer my questions and provide assistance. This has helped to facilitate my research by reducing the time it would typically take for me to find resources and determine what is available and what is not” (Liberal Arts and Sciences).
- “The library and librarians have simplified the work of bringing my students up-to-date with their background searches for their research. I cannot say enough about the help my students and I get from the library and the librarians” (Pharmacy).
- “Qualified Librarians and Experts are critical to our academic and clinical work at UIC. Assistance has always been generous” (College of Medicine).
- “The library makes my research easier and better. My liaison has made sure my students can access assigned reading by speedily acquiring e-books” (Architecture, Design and Arts).

Theme 3: Quick and Immediate Services (n=51)

The last theme is quick and immediate services impacting faculty’s teaching and research. Services mentioned by respondents include chat, ILL/I-Share, reference, and Open Access Publication Funding. Below are some examples of faculty feedback on this theme:

- “I recently did two literature review papers and used the library heavily for interlibrary loans / electronic copy of papers and book chapters—the library services met my needs. I recently requested that the library consider acquiring a couple of books in my specialty field of sickle cell disease and these were purchased” (College of Medicine- Chicago).
- “The librarians on the chat have been very helpful” (College of Medicine, Peoria).
- “I also received support from the UIC library to publish in Open Access to research papers

and disseminate my work via Indigo, which is much appreciate, at the early independent career stage I am at" (Business Administration).

- "ILL is amazingly fast. I love being able to get books easily delivered or being able to pick them up" (Architecture, Design and Arts).
- "Thank you for the outstanding service that you provide! The service you provide always exceeds my expectations. RefWorks is a handy feature for sharing literature searches" (Nursing).

As described above, a vast majority of the faculty acknowledged that library resources, services and librarians have a significant impact on their teaching and research; however, some faculty (n=22) stated lack of journals they need, discontinuing journal subscriptions, challenges in accessing the most recent articles or older articles, better access to films and videos (e.g., non-digitized material including projectors), difficulty in searching on library website.

Discussion

The current study used quantitative and qualitative data from an online faculty survey, as well as publication records from a faculty activity reporting system to examine faculty perceptions of the importance of library resources, frequency of library use by discipline, as well as the impact of library resources and services on their teaching and research.

There were disciplinary differences in how faculty ranked the importance of and frequency of use of library resources. Arts and humanities faculty ranked books (both print and electronic), special collections, and interlibrary loan (most likely monograph requests) as more important to their research compared to other disciplines. All disciplines except for the physical sciences ranked journal articles as the most important resource for their research. Physical sciences ranked the databases as the most important. While Carol Tenopir, Lisa Christian, and Jordan Kaufman also noted the majority of faculty rated articles from journals as the most important source for scholarly information,¹⁶ this study further demonstrated the disciplinary differences in faculty members' perceptions of the value of the library resources.

It was also discovered that faculty's perceptions of the importance of library resources (i.e. books, online journals, databases, Interlibrary loan) had no statistical relationship with their research productivity. This result implies that faculty members' opinions of how much they value these library resources are not related to how productive they are with their research. However, there were negative correlations found between productivity and the importance of eBooks and special collections. This suggests there are resources not utilized by the majority of faculty for their research. Those who rank them higher, such as those in the arts and humanities, tend to have lower publication counts than those in other disciplines. Faculty in the arts and humanities ranked books and special collections as important, and they were also the discipline that reported the highest use of books and special collections. They likely have a smaller scholarly output, in part because their primary output is monographs (books) which are produced less frequently than journal articles. As noted in a study exploring the use of the monograph and citation patterns in the humanities, humanities scholars mainly rely on the monographs for primary and secondary sources.¹⁷ While articles are important to humanities research, they do not serve as a replacement for monographs.

Was faculty research productivity correlated with how frequently they used library resources? With respect to the frequency of use of library resources overall by faculty, reported uses of online journals and databases were positively correlated with faculty productivity

according to 2021 publication data. When publication data from 2017 to 2021 was examined, only online journal use positively correlated with productivity, while the database use correlation was not significant. These findings are similar as those of De Groote and colleagues who found a positive correlation between faculty productivity and ARL reported statistics for full-text article requests and database searches.¹⁸ Similarly, Tenopir and colleagues also found a positive relationship between the average number of articles read monthly and the number of publications produced.¹⁹ On the other hand, use of print books, eBooks, and subject guides were negatively correlated with productivity between 2017 and 2021. This indicates that the more productive they were, the less likely they were to use books, or, alternatively, the more they use books to complete their research, they were less likely to have a high publication count. Given that faculty in the arts and humanities ranked print books and eBooks as important to their research compared to the other disciplines, and that they are the most likely to produce print books, this relationship makes sense given that book publication productivity is much lower in comparison to article publication productivity. There were no disciplinary differences found between frequency of use of the library and faculty research productivity, although the differences in productivity between the disciplines is significantly different.

While there were no statistically significant differences in the effect of disciplines on publications for level of library use (less frequent, moderate, and high) as well as no significant differences in publications between the level of library use, it is important to note that patterns of the average numbers of publication vary by discipline; the less frequent library use group had the highest mean scores of publications across all disciplines, except art and humanities. This may indicate that faculty with high productivity are likely searching and accessing the literature to support multiple research papers at one time. This result may also be explained by the fact that library use groups were created based on the total number of library resources use rather than specific resource use (print books, eBooks, journals etc.). As stated earlier, this study found that frequency of print books and subject course guides were negatively correlated with the faculty research productivity, whereas journals and database were positively associated with the research productivity. Additionally, it is important to know which library resources were frequently used by what discipline. For faculty from arts and humanities, the less frequent library use group did not publish any materials ($M=0.00$), whereas the moderate library use group scored the highest publication average ($M=1.92$).

As the quantitative findings showed that faculty's certain library use was associated with faculty productivity, qualitative findings also corroborated that many faculty perceived library resources (journals, databases, and books), services and librarians as a significant impact on their teaching and research. The faculty's comments revealed that faculty viewed the library as providing and purchasing the library resources, and valued the librarians and services as an essential of their teaching and research. While the research productivity was one outcome on whether faculty published books or journals, the qualitative finding further uncovered faculty's perceptions of library impact for their teaching and research. Faculty considered the library impact when they were involved in the process of the research project such as grant submissions, development of new projects, and manuscript. By employing several datasets (i.e. survey containing multiple choices and open-ended questions, faculty's demographic information, and their publication records), this study attempted to provide faculty's perceptions of their library resources and its impact on their teaching and research.

Limitations

The number of publications was obtained using the faculty profile tool, which automatically gathers journal and conference proceedings through API feeds from Web of Science, Scopus, Dimensions, PubMed, and Crossref. A limited number of books and book chapters are also captured by these systems and brought in automatically. For those that are not, a faculty member or their designate would need to enter the publication information. The majority of colleges, though not all, were using the reporting tool at the time of the research. Therefore, some publications—primarily books and book chapters—would not have been recorded for those faculty that were not manually adding missing publications. For these reasons, book and book chapters data may be underrepresented. Some productivity comparisons looked at publication numbers in aggregate when examining the relationships with library use. These generalized findings may not apply to all disciplines. Also, it should be noted that the findings of this research may not be representative of other research universities.

Implications and Conclusion

Faculty use of the library collection and the importance of the library collection for research is highlighted through the findings of this study. Our findings demonstrate that faculty publication patterns differ across the disciplines. Print books, as well as subject and course guides, were found to be negatively correlated with faculty research productivity, whereas journal and database use was found to be positively correlated. These findings indicate that the more productive faculty used print books or course guides less; the more productive faculty used journal and database more. It should be noted that interpreting this correlation should be done with caution because these are not cause and effect relationships. Journal articles, as accessed through online journals, remain important to faculty in conducting their research across all disciplines. By adding faculty publication records to the self-reported faculty input, this study demonstrated the value of library resources.

This study also revealed how faculty members felt about the library's resources and how it affected their scholarly work. The academic librarians who work with faculty may already be aware of some of the results, but this study's empirical findings show that faculty members' use of the library is linked to their research output. As the academic environment changes, the library's efforts to understand the needs of the faculty are crucial to ensuring their academic success. At the same time, this study raised an important question, how can libraries capture the library's impact on faculty's research productivity beyond the publications? As academic libraries are pressured to demonstrate the library's impact and value for our users, it is possible to look at other outcomes such as grant submissions (accepted vs. not funded), number of research projects in progress, the number of reports and white papers deposited in the institutional repository, and so on.

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Notes

1. Sandra L. De Groote, et al., "Faculty Publication Patterns Over 25 Years at a Large Public University: Correlations with Literature Review," *College & Research Libraries*, 85, no. 4 (2024): 442–459, <https://doi.org/10.5860/crl.85.3.442>.

2. De Groote, et al., "Faculty Publication Patterns."
3. Michael M. Rawls, "Looking for Links: How Faculty Research Productivity Correlates with Library Investment and Why Electronic Library Materials Matter Most," *Evidence Based Library and Information Practice* 10, no. 2 (2015): 34–44. <https://doi.org/10.18438/B89C70>.
4. Sandra L. De Groote, et al., "Research Productivity and Its Relationship to Library Collections," *Evidence Based Library and Information Practice* 15, no. 4 (2020): 16–32. <https://doi.org/10.18438/ebliip29736>.
5. Maria Anna Jankowska, "Identifying University Professors' Information Needs in the Challenging Environment of Information and Communication Technologies," *The Journal of Academic Librarianship* 30, no. 1 (2004): 51–66. <https://doi.org/10.1016/j.jal.2003.11.007>.
6. Carol Tenopir, et al., "Electronic Journals and Changes in Scholarly Article Seeking and Reading Patterns," *Aslib Proceedings: New Information Perspectives*, 61, no.1 (2009): 5–32. <https://doi.org/10.1108/00012530910932267>
7. Carol Tenopir, et al., "Scholarly Article Seeking, Reading, and Use: A Continuing Evolution from Print to Electronic in the Sciences and Social Sciences," *Learned Publishing* 28, no. 2 (2015): 93–105, <https://dx.doi.org/10.1087/20150203>.
8. Carol Tenopir, et al., "Variations in Article Seeking and Reading Patterns of Academics: What Makes a Difference?" *Library & Information Science Research* 31, no. 3 (2009): 139–148. <https://doi.org/10.1016/j.lisr.2009.02.002>.
9. Carol Tenopir, Lisa Christian, and Jordan Kaufman, "Seeking, Reading, and Use of Scholarly Articles: An International Study of Perceptions and Behavior of Researchers," *Publications* 7 no. 1 (2019): 18 <https://doi.org/10.3390/publications7010018>.
10. Carol Tenopir, Lisa Christian, and Jordan Kaufman, "Seeking, Reading, and Use of Scholarly Articles: An International Study of Perceptions and Behavior of Researchers," *Publications* 7, no. 1 (2019): 18, <https://doi.org/10.3390/publications7010018>.
11. University of Illinois Chicago, My Activities, <https://myactivities.uic.edu/homepage.html?em=false>.
12. Spencer E. Harpe, "How to Analyze Likert and Other Rating Scale Data," *Currents in Pharmacy Teaching and Learning* 7, no. 6 (2015): 836–850, <https://doi.org/10.1016/j.cptl.2015.08.001>; Jung Mi Scoulas and Sandra L. De Groote, "Faculty Perceptions, Use, and Needs of Library Resource and Services in a Public Research University," *Journal of Academic Librarianship* 49, no. 1 (2023): 102630. <https://doi.org/10.1016/j.acalib.2022.102630>.
13. Julie Pallant, *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using the SPSS Program* (Allen & Unwin, 4th ed. 2011).
14. Jung Mi Scoulas and Sandra L. De Groote, "Faculty Perceptions, Use, and Needs of Library Resource and Services in a Public Research University," *Journal of Academic Librarianship* 49, no. 1 (2023): 102630, <https://doi.org/10.1016/j.acalib.2022.102630>.
15. Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences*, (New Jersey: Routledge, 2nd ed., 1988).
16. Carol Tenopir, Lisa Christian, and Jordan Kaufman, "Seeking, Reading, and Use of Scholarly Articles: An International Study of Perceptions and Behavior of Researchers," *Publications* 7, no. 1 (2019): 18, <https://doi.org/10.3390/publications7010018>.
17. J. Wolfe Thompson, "The Death of the Scholarly Monograph in the Humanities? Citation Patterns in Literary Scholarship," *Libri* 52, no. 3 (2002): 121–136, <https://doi.org/10.1515/LIBR.2002.121>.
18. Sandra L. De Groote, et al., "Research Productivity and Its Relationship to Library Collections," *Evidence Based Library and Information Practice* 15, no. 4 (2020): 16–32, <https://doi.org/10.18438/ebliip29736>.
19. Tenopir, et al., "Variations in Article Seeking," 139–148. <https://doi.org/10.1016/j.lisr.2009.02.002>.

Appendix A. 2022 Faculty Survey

The UIC Library is seeking to understand how library services and resources impact your teaching, research and scholarship. Your participation will help us develop meaningful programs and collections. Please respond to this survey in the context of the primary UIC library that you use (e.g., Daley Library, Library of Health Sciences-Chicago, Peoria, Rockford or Law Library). We will use your responses to guide our priorities.

Q1 During the past year, have you done any of the following at UIC? Select all that apply.

- ☐ Taught an undergraduate level course
- ☐ Taught a graduate level course
- ☐ Taught a course for professional students
- ☐ Taught/served in a clinical setting
- ☐ Engaged in research or scholarship
- ☐ Published a book, article or other scholarly product
- ☐ Served in an administrative capacity

Q2 Please rate the following in terms of importance for your teaching (9= Extremely, 1= Not at all, and 0=N/A).

[illegible]

Q3 Please rate the following in terms of importance for your research or administrative responsibility (9=Extremely, 1=Not at all, and 0=N/A).

	9 (Extremely important)	8	7	6	5	4	3	2	1 (Not at all)	0 (N/A)
Print books	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
eBooks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Online journals	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Databases to find literature	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Special collections (historical documents, archives, rare books)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interlibrary loan (ILLiad/I-Share/document delivery)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Digital images	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Assistance from a subject specialist librarian	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Comprehensive literature search support	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other resources (please specify):	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q4 How often did you use the following for your research?

	Weekly or more often	Once a month	Once a year	Never
Print books	☐	☐	☐	☐
eBooks	☐	☐	☐	☐
Online journals	☐	☐	☐	☐
Databases to find literature	☐	☐	☐	☐
Special collections (historical documents, archives, rare books)	☐	☐	☐	☐
Subject and Course guides	☐	☐	☐	☐
Interlibrary loan (ILLiad/I-Share/document delivery)	☐	☐	☐	☐
Assistance from a subject specialist librarian	☐	☐	☐	☐
Comprehensive literature search support	☐	☐	☐	☐
Other resources (please specify):	☐	☐	☐	☐

Page Break

Q5 How easy is it to use the university library website to access the following? (9=Extremely easy, 1=Not at all, and 0=I've never used this tool).

	9 (Extremely easy)	8	7	6	5	4	3	2	1 (Not at all)	0 (I've never used this tool)
Books and Media (Catalog)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Journals (e.g., Nature, Science)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Databases (e.g., PubMed, JSTOR)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Subject & Course Guides	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Chat with a Librarian	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interlibrary loan (ILLiad/I-Share/ document delivery)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I-Share (Books from UIC partners)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Library News	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Library Search	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q6 Think about the last time you needed a journal article not available through the UIC Library's physical or digital collections. What method(s) did you use to obtain a copy? Select all that apply.

- ☐ Searched for a freely available version online
- ☐ Used interlibrary loan (ILLiad) or document delivery services provided by the UIC Library
- ☐ Gave up and looked for a different article that I can access
- ☐ Purchased it myself from the publisher or vendor
- ☐ Requested it from a colleague at another institution
- ☐ Contacted the author
- ☐ Requested a copy using social media (#canhazpdf on Twitter, etc.) or through Scihub
- ☐ Asked a librarian
- ☐ Obtained it from Google Scholar, [Academia.edu](https://www.academia.edu/) or ResearchGate
- ☐ Articles I needed were readily available through the UIC Library.
- ☐ I do not usually use journal articles for my teaching or research.
- ☐ I do not recall
- ☐ Other _____

Q7 What topics would you like to learn more about? Select all that apply.

- ☐ Bibliographic Management Software(e.g., RefWorks, EndNote)
- ☐ Digital scholarship tools & techniques (data visualization, text mining and analysis,

The University Library helps me increase the productivity of my research and scholarship.	☐	☐	☐	☐	☐	☐	☐	☐	☐
The University Library helps my students find materials and develop research and information literacy skills.	☐	☐	☐	☐	☐	☐	☐	☐	☐
The University Library helps me preserve my data and research.	☐	☐	☐	☐	☐	☐	☐	☐	☐
When I need assistance finding materials, articles, or information, I am likely to contact the University Library.	☐	☐	☐	☐	☐	☐	☐	☐	☐
In general, I am satisfied with the overall quality of the services provided by the University Library.	☐	☐	☐	☐	☐	☐	☐	☐	☐
In general, I am satisfied with the overall quality of the resources provided by the University Library.	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q11 Thinking about your overall UIC library experience, please describe how the library has impacted your teaching, clinical practice, research or administrative work.

Q12 Please provide any other comments about the UIC Library, its collections, services or website.

Thank you for completing the UIC Library Faculty Survey 2022. Your responses will help us improve Library services and resources.

Did you know ... ? Your liaison librarian can provide specific resources and tips for students to complete research assignments.

If you can't get a book at the library, we can usually obtain a copy for you through interlibrary loan or purchase it for the collection.

If you can't get a journal article through the library's collection, we can usually obtain a copy for you through interlibrary loan in an average of four days (often much faster).

If you need assistance with selecting appropriate platforms to make OERs (Open Educational Resources) materials available to students, please contact Chat with a Librarian (library.uic.edu).

You can link to the library through your Blackboard course site. You will not be able to return to the survey. Once you click **Next**, you will be taken to a separate survey where you can enter a drawing to win one of six items valued at \$100-\$200.