

Published Librarian Research, 2008 through 2012: Analyses and Perspectives

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Abstract

This research paper reviews published library science literature from 2008 through 2012 using a purposive sample of 13 Library and Information Science (LIS) journals. The texts of 1,778 LIS articles were analyzed and classified as research versus non-research. Of these articles, 769 (43.1%) determined as research were examined in order to collect data on numerous variables including authorship, topic, type of research, data collection, and data analysis techniques. The selected LIS journals draw a representative sample of practitioner research with 438 (57%) research articles solely written by practitioners, 110 (14.3%) research articles written collaboratively by at least one practitioner and one academic. The overall authorship pattern was widely multi-authored with 64.5% of the research articles written by two or more authors. It is hoped that the results of this investigation will provide insight for more extensive collaborative librarianship research in the future.

Keywords: Librarian research; Collaborative research; Bibliometrics

Introduction

Academic and research librarians, particularly those on tenure track, are required to demonstrate their ability to produce research and report their results in scholarly journals. More librarians are publishing to advance the profession and attain career advancement. Furthermore, research is needed for libraries to remain relevant and sustain their reputation for knowledge discovery and innovation. What percentage of scholarly articles is written by practicing librarians? What is the quality of their research? Systematic reviews of published librarianship research may provide evidence of the characteristics and recent trends in practitioner research. There have been a number of papers published regarding Library and Information Science (LIS) practitioner research (Kloda, et al.,¹ Koufogiannakis and Crumley,² Watson-Boone,³ Hildreth,⁴ Hildreth and Aytac,⁵ Slutsky and Aytac⁶). However, there have been no other studies done to cover recent years with the selected 13 journals.

This research will emphasize practitioner-academic collaborations and will investigate the question: How do practitioner research, academics' research and practitioner-academic collaborative research differ? Here we define collaborative research as a paper written by two or more authors with at least one author who is a librarian or information professional in an academic, public, school, or special library and one academic affiliated with an LIS program. There is a notable shift from individual to collaborative research projects.⁷ It is widely accepted that collaboration would increase the quality of research. According to Borgman and Furner,⁸ collaboration is one of the main communicative activities among scholars. This is accomplished by two or more researchers sharing expertise and knowledge while investigating unknown phenomena. Numerous studies have attempted to investigate collaborative research.^{9, 10, 11, 12} One of the first scientific collaboration theories was developed by Beaver and Rosen.^{13, 14} Fernandez has discussed the changing face of science from individual to the collective.¹⁵ Conse-

quently, this study will seek an answer to the following research questions:

- 1) What percentage of the selected LIS literature qualifies as research?
- 2) Of the titles that include research, what percentage of the papers in each journal are research articles?
- 3) What are the subject, authorship, and methodology distributions of the research articles?
- 4) How different is practitioner from academic's research and practitioner-academic collaboration, or non-LIS affiliated research?

Research is hereby defined as systematic investigation of an unknown phenomenon for the purpose of generating new concepts or creation of new knowledge. Based on this definition, a research article must begin with a clearly defined goal, employ a research method, and attempt to thoroughly analyze the findings. Thus, book reviews, opinion pieces, and editorial notes will be excluded as they are not considered "research articles."

This study examined and revised the core journal list of two recent studies: Hildreth and Aytac,¹⁶ and Kennedy and Brancolini.¹⁷ Furthermore, the final determination of 13 selected journals was based on the background of the researchers. The table below shows the bibliographic data gathered from the three popular scholarly publishing resources. These are namely: (1) Ulrichsweb, (2) Journal Citation Report (JCR), and (3) Cabell's Directories of Publishing (Cabell's). Journal's bibliographic information was gathered from Ulrichsweb, Impact Factors (IF) was taken from the JCR, and the acceptance rate of the journals obtained either from Cabell's or from the journal editors. IF is a ratio between citations and published citable items and it has been used for ranking and comparing journals by Thomson Reuters. Both Cabell's Directories and Thomson Reuters have their own criteria for selecting journals for inclusion. Since not all the selected 13 journals are included in the Thomson Reuters or in Cabell's Directories journal list, there are missing data points in Table 1.

Library Science is one of the academic disciplines that favors evidence-based decision making, which relies on rich and meaningful data. An increasing number of practitioners engage in the evaluation of their work for the purpose of advancing their professional services. This paper's first section describes the research design and data collection methods. The following section presents the findings according to each research question, and the final section presents the conclusions, limitations, and recommendations for future study.

Research Design and Methodology

This study examines the published librarianship research for the years 2008 to 2012 in order to provide feedback to the LIS community. Judgment sampling was used to select thirteen LIS journals which turned out to be a good representation of practitioner research; 71.3% of research articles were contributed by practitioners. The authors used a one page rubric of multiple factors including, but not limited to, authorship, topic, type of research, data collection, data and analysis techniques.

In order to test the research article data collection rubric and examine the feasibility of research variables, a pilot study was conducted during the months of May and June, 2013, with two LIS journals, *Library Trends* and *Issues in Science and Technology Librarianship* for the year of 2012. The analysis of these two journals provided convincing evidence that the project has the potential to proceed further.

The data collected from each research paper included the number of authors, and the nature of the authorship such as practitioner, academic, or student author. If it was a collaborative paper, the nature of the collaboration was coded. The affiliation(s) of each research paper was also listed. The topic, research approach, research methods, and data analysis techniques of each study were recorded between the months of June 2013 and March 2014.

Content analysis is an analytical process used in the social sciences, which requires the use of a hierarchical coding scheme, which consists of categories, sub-categories and related categories

of specific variables. It is an empirical method, exploratory in process, and predictive or inferential in intent.¹⁸ Topics in this study are derived empirically from the articles during the qualitative coding. The main rationale for the coding procedure in this study was to be as specific as possible during the procedure, because categories can be collapsed at a later stage but not be easily expanded to reveal finer details if only coded at the broad level.^{19, 20} The coding process for the topics was repeated a second time. In order to assess inter-coder reliability, the assigned topics were also coded by the second author simultaneously.

The data were first recorded on a standard Excel file. Data were screened to check if they were entered correctly, and if there were out of range or missing values. A significant portion of the journals was coded by the two authors simultaneously in order to test inter-coder reliability. Coders worked together for the first two months of coding to reach 100% inter-coder reliability and continuously consulted with each other. SPSS software was used for final data entry and analysis.

Findings

To address Research Questions 1 and 2, the texts of 1,778 library and information science articles were first analyzed and classified as research versus non-research. Articles, such as news, commentary, book reviews, and opinion pieces were excluded from the analysis. As Table 2 shows, 769 (43.3%) articles were determined to be research articles and that percentage of the journal titles included were in the study.

Furthermore, the bibliometric data analysis showed that the scientific growth rate of the research articles in our sample for the years 2008-2012 is dramatic. In order to monitor the trend, Web of Science (WoS) indexes (Science Citation Index, Social Science Citation Index, and Art & Humanities Citation Index) were used as a general data pool and the WoS Information Science & Library Science (LIS) research area as a subject specific index chosen for benchmarking. The growth in research is conventionally measured by the percentage of increase in annual growth in all three competitors over the years 2008-2012.

Table 3 presents the yearly variations in research production for the selected three samples.

As it seen from Table 3, the annual proportional growth of practitioner research is widening in comparison to WoS LIS research and WoS General Research for the respective years. However, one should note that a large proportional increase is not a large increase in absolute value. Therefore, no conclusions should be made as to causality from the data presented in Figure 1, which should be seen as trend data. As Figure 1 shows, practitioner research has the highest proportional increase.

To address Research Question 3, we have analyzed authorship, and methodologies distribution, and the topic of each article. The purposive sample of selected journals proved to be a good representation of practitioner research with 438 (57%) research articles solely written by practitioners, 110 (14.3%) research articles written collaboratively by at least one practitioner and one academic, 205 (26.6%) research articles solely written by LIS Academics, and 16 (2.1%) of the articles written by others (Table 4). Among this "other" group we see authors either with no affiliation listed or an affiliation not related to any type of library or information center, or with a job title not related to the information professions.

Furthermore, the overall authorship pattern displayed a highly multi-authored sample in that 64.5% of the research articles were written by two or more authors (Table 5).

Each research paper in our sample has been coded as having "Quantitative," "Qualitative," or "Mixed" methodologies. As Figure 3 shows, the majority of the research studies in our sample used only quantitative data analysis techniques at 69.4% (534). Qualitative-only studies make up 12.5% (96) of the studies examined. Finally, 139 studies (18.1%) used both quantitative and qualitative methods with regard to the type of data analysis also known as "triangulation" or "methodological pluralism."²¹

Moreover, each study in our review was coded to reflect its research approach as descriptive, explanatory, exploratory, evaluative, and multi-

ple or combined. Figure 4 shows the number of studies in each category. Most of the studies are “descriptive” at 73.9% (568). Descriptive research aims to describe the observed phenomenon accurately. This is followed by popular research approach “exploratory” at 15.5% (119). Exploratory research enables the exploration of new phenomena. Some studies are “evaluative” at 9% (69); evaluative research aims to test a certain service or program. Quality control or performance analysis is a good example of evaluative research. The least popular “explanatory” only at 0.7% (5), explanatory research seeks an explanation to the question “Why?”²² In this sample we also found a few Multiple/Combined research studies that correspond only at 1.0% (8).

Content analysis identified that “Survey” and “Content analysis” were the most popular research methods in our sample followed by “Interviews” and “Bibliometric Analysis.” We found 108 (14.04%) studies use at least two research methodologies. Table 5 shows the list of methodologies employed, their frequency, and their percentage.

We also coded each research article for the statistical analysis employed. Not surprisingly, “descriptive” statistical analysis was the most frequently used technique among the articles with 74.0% (560). The second most frequently used statistical analysis technique was correlational analysis, which was employed by 41 studies with the ratio of 5.3%, followed by inferential statistical analysis with 4.2% (32), and multiple analysis with 2.6% (20) as seen from the Figure 5.

The topics of research papers varied from libraries and librarianship to publishing as is seen from Table 6. Not surprisingly, libraries and librarianship was the most popular at 146 (18.99%), followed by library users/information seeking at 101 (13.13%), medical information/research at 98 (12.75%), reference services at 90 (11.71%), library resources at 75 (9.75%), information literacy at 59 (7.67%), technical services at 65 (7.02%), information and communication technologies at 37 (4.81%), social media tools at 24 (3.12%), research and science at 23 (2.99%), bibliometric and citation analysis at

20 (2.60%), science information resources at 18 (2.34%), and publishing at 10 (1.30%).

In order to answer Research Question 4, “How different is practitioner from academic’s research and practitioner-academic collaboration, or non-LIS affiliated research?”, five separate chi squares were performed. In this analysis, each chi square compared four groups: practitioners ($f=438$) academics ($f=205$) collaborators ($f=110$) and others ($f=16$).

We coded each research paper according to the location of the study, more specifically as to whether the study was site specific or site independent. The first chi square examined the location of the study. A significant difference was found among the group members ($\chi^2(3, N=769)=18.619, p=.000$). While practitioners ($n=228, 52.3\%$) and collaborators ($n=62, 53.1\%$) conducted more site specific or “in house” research, academics ($n=131, 63.9\%$) and non-LIS affiliated others ($n=10, 62.5\%$) investigated site independent phenomena in their research papers.

The studies have also been examined to determine if the context of their research was academic library, public library, special library, or miscellaneous. The second chi square examined the context of their research. A significant difference was found among the group members regarding the context of the research ($\chi^2(9, N=769)=102.398, p=.000$). The majority of practitioner research focused on academic libraries ($n=359, 82.0\%$) and special libraries ($n=23, 5.3\%$). Academics conducted most of the public library research ($n=22, 10.7\%$).

Furthermore, the research approach for each paper was coded as descriptive, explanatory, exploratory, or evaluative. The third chi square examined their research approach. Significant differences among the four types of authorships were noted with respect to the selection of research approach ($\chi^2(12, N=769)=43.116, p=.000$). Practitioners primarily employed descriptive research approach ($n=350, 79.9\%$) as did the collaborators ($n=80, 81.2\%$). Academics used descriptive research as well ($n=123, 60\%$) but also conducted exploratory ($n=53, 25.9\%$) and evaluative ($n=24, 11.7\%$) studies. Not sur-

prisingly, collaborators conducted the most evaluative research (n=15, 13.6%).

In a similar vein, the fourth chi square revealed significant differences among the groups in terms of employing quantitative versus qualitative, or combined, data analysis ($\chi^2(6, N=769)=27,045, p=.000$). While practitioners (n=319, 72.8%) and collaborators (n=81, 73.6%) mainly chose quantitative data analysis techniques, academics used both quantitative (n=120, 58.5%) and qualitative (n=44, 21.5%) as well as both analyses in one single study (n=41, 20%).

In line with the earlier findings, the fifth chi square test revealed significant differences among the four authorships for the selection of statistical analysis technique ($\chi^2(12, N=769)=57.328, p=.000$). Practitioners (n=360, 82.2%) and collaborators (n=81, 73.6%) primarily used descriptive statistical analysis. Academics on the other hand, also employed correlational (n=19, 9.3%), and inferential statistics (n=16, 7.8%).

Discussion

In this article, we call attention to increasing and more collaborative LIS practitioner research. In order to answer RQ1 and RQ2, the texts of 1,778 library and information science articles were analyzed and classified as research versus non-research. There were 769 (43.1%) journal articles to be research articles. Of the LIS journals that include research, *Journal of the Medical Library Association* contained the highest number of research papers followed by *College & Research Libraries*, *Reference Services Review*, and *Health Information & Libraries Journal*.

Our findings suggest that the annual proportional growth of practitioner research is widening in comparison to WoS LIS research and WoS General Research for the respective years. The scientific growth rate of the research in our sample for the years 2008-2012 is dramatic. In order to monitor the trend, Web of Science (WoS) indexes (Science Citation Index, Social Science Citation Index, and Art & Humanities Citation Index) were used as a general data pool and WoS Information Science & Library Science

(LIS) research area as a subject specific index chosen for benchmarking. The growth in research is conventionally measured with the percentage of increase in annual growth in all three competitors over the years 2008-2012. The findings suggest that the annual growth of practitioner research is widening and we predict that this trend will continue. Because of this accelerated pace, we conclude that the amount of research articles one must read to conduct a reasonable review of an LIS topic keeps growing. What implications will this have for librarians, particularly on the tenure track? The expectation of productivity raises the demand on younger library practitioners. Since the majority of academic librarians have become publish-or-perish entrepreneurs they need more publications to compete for tenure and promotion. Research is a required component of many academic or research library jobs.

To address Research Question 3, we have analyzed authorship, methodologies distribution, and the topic of each article. The purposive sample of the selected journals proved to be a good representation of practitioner research with 438 (57%) research articles solely written by practitioners, and 110 (14.3%) research articles written collaboratively by at least one practitioner and one academician. The overall authorship pattern displayed a highly collaborative sample and found that 64.5% of the research articles were written by two or more authors. Collaboration can facilitate these efforts. Librarians wanting to publish should seek out colleagues with different expertise to hopefully form a synergistic relationship. Furthermore, LIS academics can take advantage of librarians' expertise by forming faculty-practitioner collaborations. A future study should explore why and how practitioners and academics collaborate and what skills are required for successful research partnerships. Librarian-LIS faculty research funds may foster research collaboration and facilitate the trend toward more collaborative research.

At the same time, the analysis indicates that practitioners employ both quantitative and qualitative research methods, but prominently quantitative and descriptive statistical analysis. The most common sources of data collection in qual-



itative research are interviews, observations, focus groups, and content analysis. In addition, content analysis identified that "Survey" and "Content analysis" were the most popular research methods in our sample followed by "Interviews" and "Bibliometric Analysis." Many academic librarians may hesitate to engage in qualitative research involving human subjects because they are reluctant to go through the Institutional Review Board process. Understanding how human subject research fits into LIS research and subsequently into the everyday life of a librarian can help frame our own perceptions of what we do. We need to re-evaluate our understanding of Institutional Review Board and human subject research in our role as librarians and researchers. Our findings on the use of statistical methods are in line with findings of Hildreth and Aytac.²³ Since practitioners and collaborators primarily use descriptive statistical analysis, they should seek out training in more advanced statistical methods. Perhaps the LIS curriculum should be revisited for advanced statistical training courses. Continuous education programs should be designed that can make statistics fun, easy, and simple for librarians. Otherwise, consultation of a statistician or making a statistician part of the research project is necessary.

In order to answer Research Question 4, five separate chi squares were performed to evaluate whether practitioner research, academic's research, practitioner-academic collaborative research, and the group identified as others differ. For instance, we wanted to see whether research approach or data analysis technique differed depending on which of the four groups of people conducted research. Our results suggested that there is a significant difference among these four different groups on five different variables such as (1) location of the study, (2) context of research, (3) research approach, (4) data analysis and (5) statistical analysis. While practitioners and collaborators conducted more site specific or "in house" research, academics and non-LIS affiliated others investigated site independent phenomena in their research papers. The majority of practitioner research focused on academic libraries and special libraries. However, academics conducted most of the public library research. Practitioners primarily employed de-

scriptive research approach as did the collaborators. Academics used descriptive research as well but also conducted exploratory and evaluative studies. Not surprisingly, collaborators conducted the most evaluative research. While practitioners and collaborators mainly chose quantitative data analysis techniques, academics used both quantitative and qualitative as well as both analyses in one single study. Hopefully these findings will underscore the importance of practitioner research and attract attention to the impact of LIS practitioner research on the everyday life of information seeking and libraries.

Conclusions

In conclusion, based on the findings of this study, monitoring practitioner research should be a continuous process. This article provides a reference point for future research, which should continue exploring practitioner-academic collaborative research, and should create a sample of only this type of collaboration. A new research fund that aims to support librarian-LIS academic collaborative research should be created in order to enable these types of research initiatives. One of the limitations of the study is the purposive selection of the sample of 13 periodicals both with solicited and unsolicited LIS journals. Moreover, this study should be repeated including more international and non-English content library science journals in the next stage of the project. A future study should explore why and how practitioners and academics collaborate and the skills required for a successful research partnership.

Given the analysis of research conducted by librarians from 2008 to 2012, a further question arises of how to increase high-quality library practitioner work. University and other research libraries should form mentoring projects for young librarians, which would assist librarians in pursuing high quality research more quickly and aggressively in their very first probationary years. Some colleges are already beginning to do so, but a nationally coordinated effort is needed to increase the quality of library practitioner research. This would have far-reaching and enormously beneficial effects on the future of LIS research.



Journal Name	Frequency	JCR	Impact Factor	Acceptance Rate
Canadian Journal of Information & Library Science	Quarterly	Y	0.171	26.70%
Cataloging & Classification Quarterly	8 times	N	N/A	60%
College & Research Libraries	Bi-monthly	Y	1.016	N/A
Health Information & Libraries Journal	Quarterly	Y	0.662	32%
Issues in Science & Technology Librarianship	Quarterly	N	N/A	69%
Journal of the Medical Library Association	Quarterly	N	N/A	43%
Library Trends	Quarterly	Y	0.273	N/A
Public Library Quarterly	Quarterly	N	N/A	50%
Reference & User Services Quarterly	Quarterly	N	N/A	27%
The Reference Librarian	Quarterly	N	N/A	50%
Reference Services Review	Quarterly	N	N/A	31%
Science & Technology Libraries	Quarterly	N	N/A	60%
Technical Services Quarterly	Quarterly	N	N/A	50%
Source: 2012 JCR Social Science; Cabell's Directories of Publishing; Ulrichsweb.com™				

Table 1. LIS Journals selected for the study.

Journal Name	Research	Total Articles	Percentage Analyzed
Canadian Journal of Information & Library Science	30	62	48.40%
Cataloging & Classification Quarterly	49	157	32.10%
College & Research Libraries	123	152	80.90%
Health Information & Libraries Journal	77	121	63.60%
Issues in Science & Technology Librarianship	45	117	38.40%
Journal of the Medical Library Association	137	227	60.30%
Library Trends	44	210	20.90%
Public Libraries Quarterly	29	79	36.70%
Reference & User Services Quarterly	59	125	47.20%
The Reference Librarian	24	174	13.80%
Reference Services Review	78	195	40%
Science & Technology Libraries	50	109	45.80%
Technical Services Quarterly	21	50	42%

Table 2. Frequency of research articles in each title.

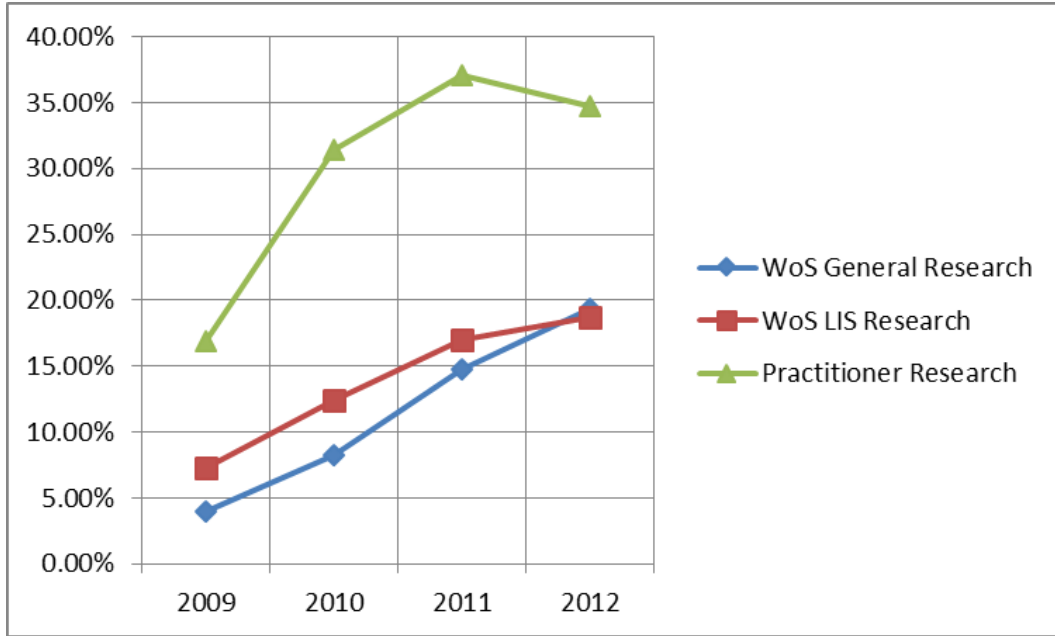


Figure 1. Trend data of WoS research growth versus our sample.

Publication Year	Our Sample	Proportional Growth	WoS LIS Res.	Proportional Growth	WoS Gen Res.	Proportional Growth
2008	124		2869		1094675	
2009	145	16.94%	3079	7.32%	1137740	3.93%
2010	163	31.45%	3225	12.41%	1184616	8.22%
2011	170	37.10%	3358	17.04%	1256251	14.76%
2012	167	34.68%	3407	18.75%	1306692	19.37%

Table 3. The yearly variations in research productivity in 3 samples for the respected years

	Frequency	Percent
Practitioner	438	57
Academic	205	26.6
Collaboration(P&A)	110	14.3
Other	16	2.1
Total	769	100

Table 4. Frequency of authorship

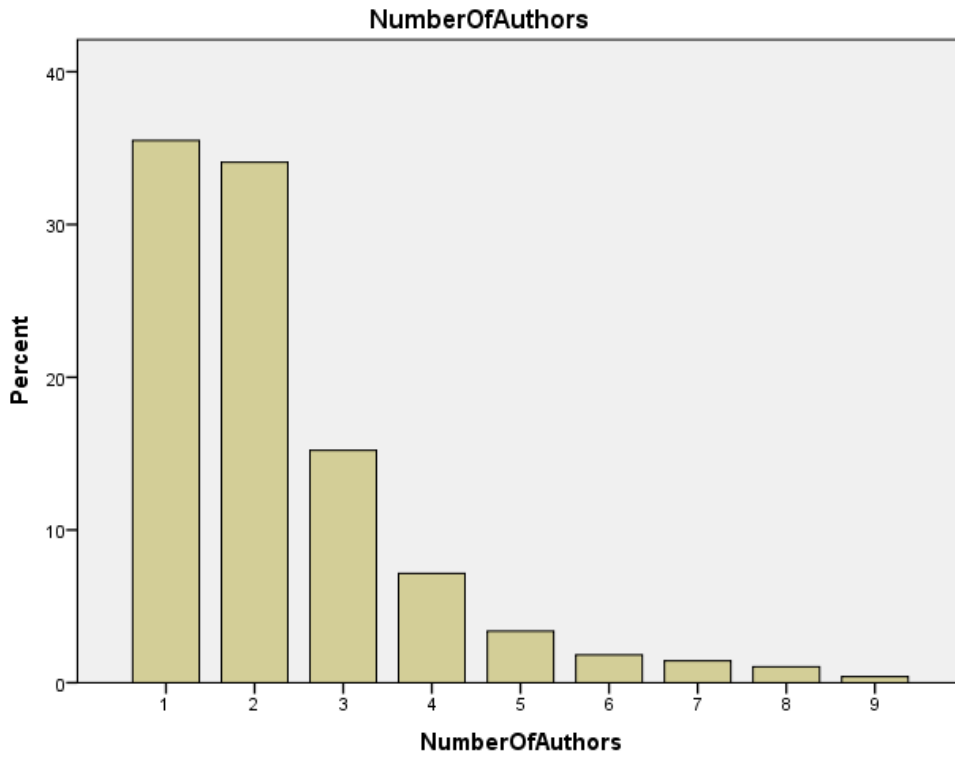


Figure 2. Number of authors per research

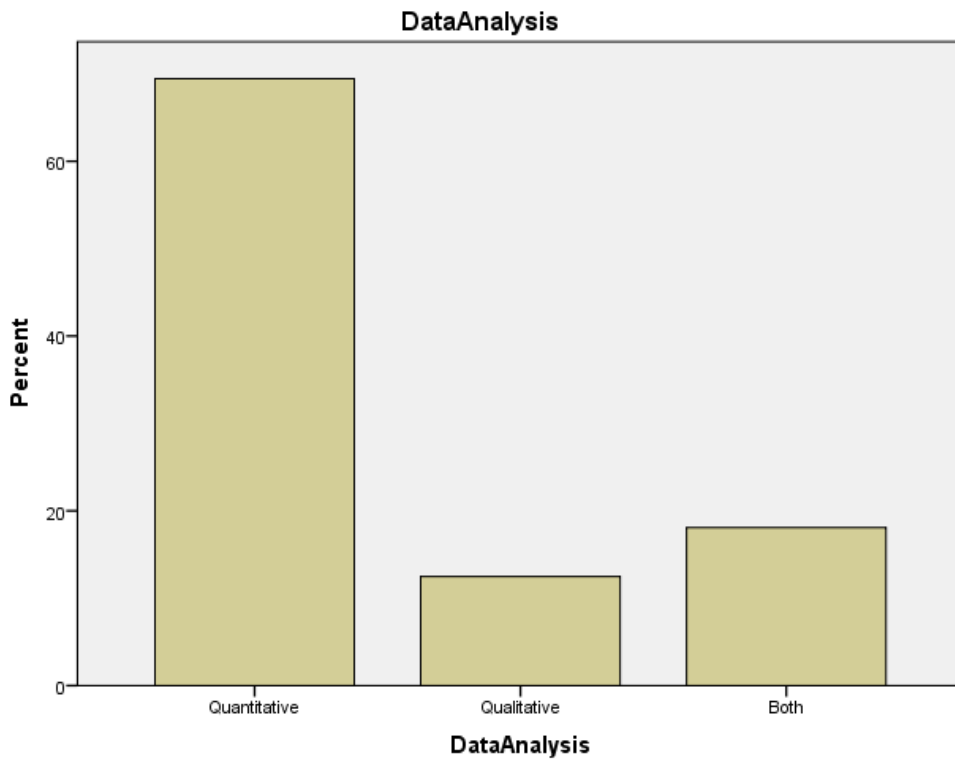


Figure 3. Data analysis type employed by the population

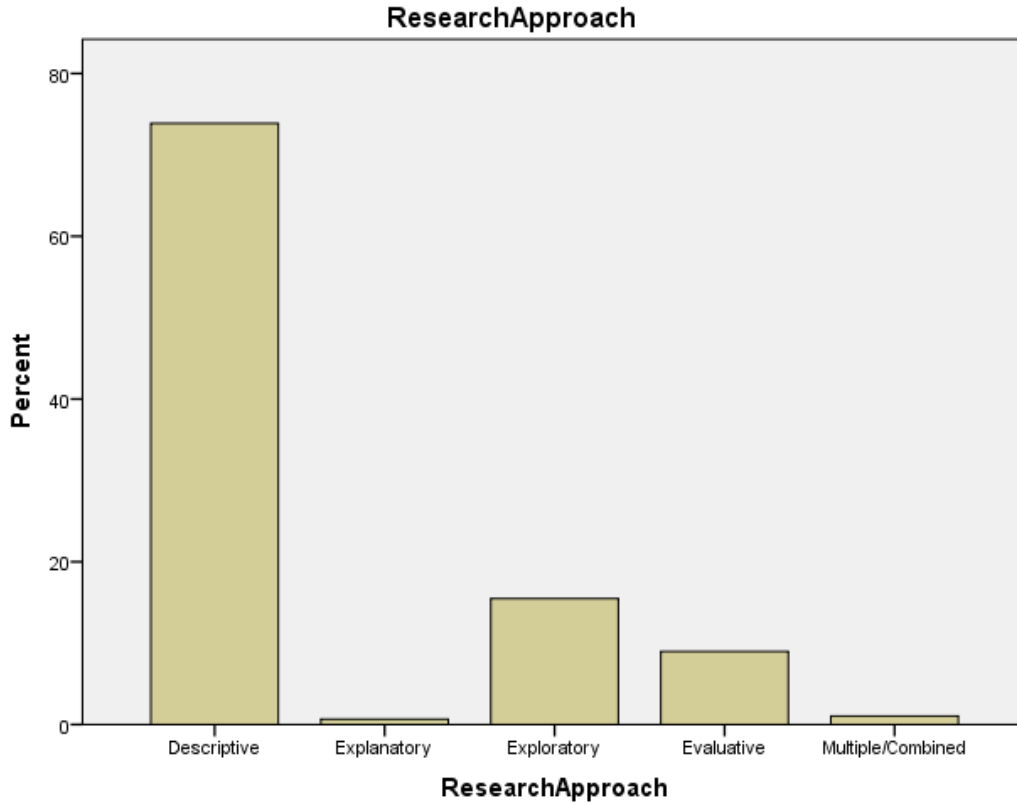


Figure 4. Research Approach

Research Method	f	Percentag
Survey	361	40.43%
Content Analysis	311	34.83%
Interviews	88	9.85%
Bibliometric Analysis	41	4.59%
Focus Group	35	3.92%
Case Study	29	3.25%
Observation	10	1.12%
Usability Study	8	0.90%
Ethnographic Study	6	0.67%
Delphi Study	2	0.22%
Card Sorting	1	0.11%
Phenomenography	1	0.11%
Total	893	

Table 5. Research methods employed by the Research Articles

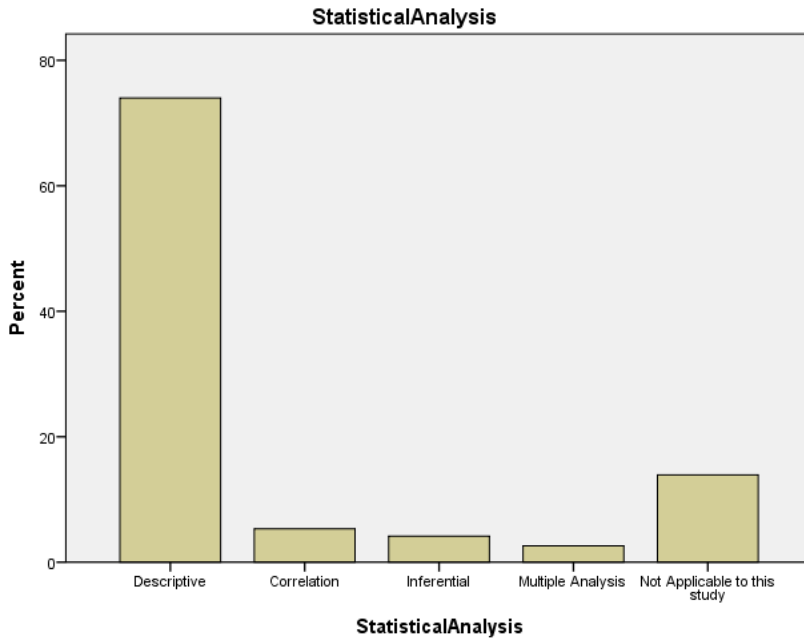


Figure 5. Statistical analysis

Topic	Frequency	Percentage
Libraries and Librarianship (Academic, Public, School)	146	18.99%
Library Users/information seeking	101	13.13%
Medical Information/research	98	12.75%
Reference Services	90	11.71%
Library Resources (including E-resources)	75	9.75%
Information Literacy	59	7.67%
Technical Services (including Cataloging and Classification)	54	7.02%
Information and Communication Technologies	37	4.81%
Social Media Tools	24	3.12%
Research and Science	23	2.99%
Bibliometrics and Citation Analysis	20	2.60%
Science Information Resources	18	2.34%
Others	14	1.82%
Publishing	10	1.30%
Total	769	100.00%

Table 6. Topics of the Research Articles

Endnotes

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