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Characteristics of Articles Coauthored by Researchers and Practitioners in Library and Information Science Journals

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ABSTRACT

This study combined bibliometric analysis and content analysis to investigate the characteristics of articles coauthored by researchers and practitioners in library and information science (LIS) journals on the basis of 2241 articles published in six LIS journals during 1995–2014. The findings indicate that articles authored by researchers and practitioners (RP articles) accounted for only 10% of the articles. However, a slight increasing trend was identified in the annual percentages of RP articles, evidencing that research–practice divides in LIS have narrowed. Notably, preference for research subjects differs between researchers and practitioners; 13 out of 15 research subjects were identified from the RP articles. "Users and user services" was the most prevalent research subject, followed by "technical services," "LIS staff and organizations," and "library management."

INTRODUCTION

Although academics commonly publish numerous research results, practitioners typically apply limited research results (Powell, Baker, & Mika, 2002). Keefer and Keefer and Stone (2009) claimed that researchers and practitioners hold varying views and values concerning research. Practitioners do not typically believe that practice has a high association with research (Anderson, Herriot, & Hodgkinson, 2001; Panda & Gupta, 2014; Wofford & Troilo, 2013). Furthermore, Haddow and Klobas (2004) identified 11 types of research–practice divides in library and information science (LIS), representing the differences in characteristics between LIS practitioners and researchers.

To reduce the negative impact of research–practice divides on long-term professional development, practitioners are encouraged to conduct research and publish research results (Haddow & Klobas, 2004; Horowitz & Martin, 2013; Kernaghan, 2009). Although these research–practice divides in LIS still exist, determining whether they have eased over time was appealing to us. Therefore, this study focused on the trends among research–practice divides: Diminishing research–practice divides can signal improved interactions between academics and practitioners. Notably, few studies have focused on research collaborations among practitioners and researchers in LIS from the perspective of research–practice divides. To expand our understanding of the trends among researcher–practitioner collaborations in LIS, the current study explored researcher–practitioner collaboration in LIS from the perspective of authorship, concerning LIS articles coauthored by academics and practitioners during a 20-year period (1995–2014). The trends among research–practice divides were also analyzed according to the annual changes in the proportion of articles coauthored by practitioners and researchers. Moreover, this study focused on the research subjects of the articles produced from researcher–practitioner collaborations. It is assumed that researchers tend to study theory-oriented subjects, whereas practitioners are concerned with practice-oriented subjects. Therefore, resolving the question as to which research subjects dominated LIS articles coauthored by practitioners and researchers over the aforementioned 20-year period is imperative.

Various types of research collaborations have become prevalent in numerous disciplines. However, few empirical studies have noted collaborations between researchers and practitioners. This shows that researcher–practitioner collaborations are rare and more challenging than other types of research collaboration. Librarians are the primary LIS practitioners and are expected to conduct and publish research. The trend of researcher–practitioner collaborations may affect librarians' attempts to build partnerships with researchers. This may also affect researchers' choices of research partners. Therefore, the findings of this study could fill the research gap regarding researcher–practitioner collaborations and may be referenced by authors who are interested in the topic of research collaborations.

Two main research questions were addressed in this study:

(a) Is the annual percentage of articles coauthored by academics and practitioners increasing?

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(b) What research subjects are featured in articles resulting from researcher–practitioner collaborations? Which research subject is the most prevalent?

LITERATURE REVIEW

Various aspects of research–practice divides have been studied in the field of LIS. Four groups of studies have been identified in the LIS literature on research–practice divides. The first group focused on possible causes of research–practice divides (Chu, 2007; Clapton, 2010; Haddow & Klobas, 2004; Ponti, 2008, 2012; Spring, Doherty, Boyes, & Wilshaw, 2014). Among the various research barriers for librarians, the main barrier is that librarians typically do not value research or rely on research results to solve practical problems (Eve & Schenk, 2006; Hall, 2010). Publishing research results is usually not a job requirement for librarians (Bradley, 2008; Kim & Lee, 2011), excepting for librarians with faculty status or who are pursuing tenure in certain countries (Ameen & Ullah, 2013; Best & Kneip, 2010; Fox, 2007; Henry & Neville, 2004; Jayasundara, 2011; Opoku, 2013; Salaam & Onifade, 2009). Academic librarians holding faculty status constitute most librarian authors (Galbraith, Smart, Smith, & Reed, 2014). The possible motivations for the few librarian researchers without faculty status to conduct research and publish their results include idea sharing, personal interest, and professional development (Clapton, 2010). In addition, numerous studies have mentioned other possible barriers to practitioner engagement in research including lack of time, financial resources, research skills, job relevance, and expectations and support from organizations (Clapton, 2010; Fox, 2007; Powell et al., 2002; Spring et al., 2014).

The second group of studies highlighted the means of easing research–practice divides. Eve and Schenk (2006) interviewed library and archive practitioners and lecturers and discussed examples of researcher–practitioner collaboration. In addition to publishing, conferences and research projects have been regarded as a means to assemble researchers and practitioners to further collaborate (Eve & Schenk, 2006; Ponti, 2012). Some organizations have been established to promote the application of research outcomes, LIS practitioner research, and research collaboration between practitioners and researchers (Haddow & Klobas, 2004; Hall, 2010; McBain, Culshaw, & Hall, 2013). Other researchers were concerned about quality improvement in library practice, teaching, and learning through faculty–librarian collaboration (Hrycaj & Russo, 2007; Lindstrom & Shonrock, 2006; Yousef, 2010).

The third group of studies observed how practitioners conducted research. Inconsistent findings have been presented. Powell et al. (2002) reported that a substantial proportion of practitioners (42% of 615 LIS practitioners) occasionally or frequently conducted research, and most of the practitioners who conducted research did not publish their results. Kennedy and Branclini (2012) surveyed the research activities of 918 academic librarians, observing that most librarians read research literature (88%) and conducted research (62%). Sugimoto et al. (2014) surveyed academic librarians and archivists at American research institutions in 2012, reporting that they obtained prior research papers and disseminated their own professional literature through various publication formats. Academic librarians and archivists mostly relied on peer-reviewed journals to explore current professional research; furthermore, they mostly preferred to disseminate research results in conference papers and presentations, followed by journal articles.

The fourth group analyzed the characteristics of LIS articles. Several of the studies have explored articles by librarian authors (Apolinario, Eclevia, Eclevia, & Lagrama, 2014; Krausse & Sieburth, 1985; Ocholla, Ocholla, & Onyancha, 2012; Watson, 1985; Weller, Hurd, & Wiberley, 1999; Wiberley, Hurd, & Weller, 2006; Xia, Wilhoite, & Myers, 2011). Few studies have investigated articles produced from librarian–academics collaborations. Apolinario et al. (2014) reported that single-authored articles were dominant according to the research output of Filipino librarians, for which most research collaborations were conducted between librarians in the same institutions. Chang (2015) investigated the characteristics of authors of LIS open access journals; coauthored articles written by librarians and researchers constituted the second most prevalent type of collaboration and confirmed that librarians engage in increasingly frequent interactions with researchers. Walters and Wilder (2015) identified the top 50 authors of 31 LIS journals for 2007–2012, in which librarians were evidenced as productive LIS contributors. In the study, authors were further divided into nine categories, which indicated that librarians contributed 23% of the articles; notably, except for the librarian category, authors in higher education and government/nonprofit research were classified on the basis of their departmental affiliations. However, the differences in research output between research-based and practice-based authors were not the focus of the study.

Schlögl and Stock (2008) identified the differences between the main audiences of practitioner and academic LIS journals. Regarding LIS journal preferences, practitioner and academic submissions have different criteria. In addition, some researchers have investigated the research methods used by practitioners. Hildreth and Aytac (2007) mentioned that differences in research subjects and methods existed between LIS practitioners and researchers, on the basis of an investigation of 206 articles published between 2003 and 2005. Practitioners preferred to conduct library-specific studies and employed more questionnaires and observations in conducting their research than did academics; academic researchers conducted more user studies and more frequently applied bibliometric analysis, content analysis, and interviews than did practitioners.

METHODOLOGY

DATA COLLECTION

To identify LIS articles coauthored by academics and practitioners, two methods of bibliometric and content analyses were used for this study. The LIS journal candidates were selected from those classified in the subject category of Information Science and Library Science in the 2013 edition of *Journal Citation Reports*. The chosen journals had to meet three requirements. First, the journals had to publish research articles in English; only research articles published in English were identified as samples. Second, journals had to have been in print between 1995 and 2014. Third, articles had to list author affiliations, namely author names, institutions, and occupations, for determination of author type; two author types, namely academics and practitioners, were the main focus. Most LIS journals were excluded because they did not provide author occupation information or provided them only in limited issues. The common information listed in author affiliations consists of author names, institutions, department or equivalent unit, and institutions' countries. Finally, six library science-oriented journals published in the United States were selected (Table 1). Because only six journals met the requirements, a balanced number of researcher and practitioner journals were not considered as a fourth requirement. To reduce the limitations of journal samples, all research articles from the journals published during the 20-year period of 1995–2014 were analyzed.

Bibliographic records of research articles published in the six journals between 1995 and 2014 were obtained from Scopus, a large interdisciplinary citation index database covering 5000 journals across disciplines. The basic bibliographic data for each article included title,

Table 1
List of journals.

No.	Journal titles
1	*College & Research Libraries*
2	*Information Technology and Libraries*
3	*Library and Information Science Research*
4	*Library Quarterly*
5	*Library Resources and Technical Services*
6	*Library Trends*

author name, journal title, publication year, volume number, and number of pages.

Data processing and analysis.

Because author occupation information was not contained in the bibliographic data of the articles, it was added by examining the full article text. Each author was classified into one of three author types, namely researchers, practitioners, and students, according to occupation information. Vogel (2010) and Morgan and Lightner-Laws (2013) have defined researchers as people who were affiliated with institutions of higher education. This increased the number of author coding errors because not all authors who were affiliated with institutions of higher education were researchers. For example, students at higher education institutions are not considered researchers. Therefore, researchers were defined in this study as people whose primary task was to conduct research, and who could be identified according to institution name and occupation information. Fifty-one articles were excluded because some authors did not provide detailed author affiliations; therefore, the type of collaboration for coauthored articles could not be determined. A code for the type of collaboration was applied for each coauthored article based on the combination of author types.

Regarding article research subjects, this study employed the single classification name and numerous article subjects contained in the bibliographic record for each article from the Library and Information Science Abstracts database and incorporated them into broad research subjects. Relevant subjects were incorporated into broad research subjects. From 58 relevant subjects, 15 broad research subjects were formed. For example, "library cooperation," "finance," and "library management" were incorporated into a broad subject category called "library management." Each article was classified into a specific broad research subject. One hundred and twenty seven articles without classification names and subjects were excluded. Finally, 2241 articles with specific research subjects and detailed author information were analyzed in this study.

RESULTS

TRENDS AMONG COAUTHORED ARTICLES

Approximately 51.7% (1157 articles) of 2241 articles from 6 LIS journals published between 1995 and 2014 were single-authored articles. A marginal difference in proportion existed between single-authored and coauthored articles. However, a decreasing trend was identified for single-authored articles. As shown in Figure 1, neither single-authored nor coauthored articles constantly remained dominant throughout the 20-year period. During the 20-year period, the annual proportion of single-authored articles was greater than that of coauthored articles in 12 individual years. The differences in annual proportion between the two groups of articles ranged between 0% (in 2014) and 37.5% (in 1995).

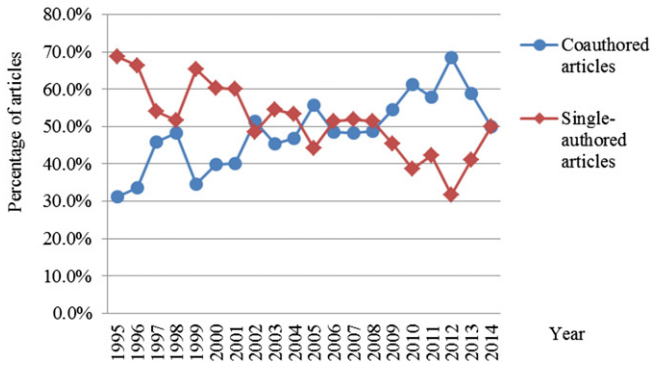

Fig. 1. Changes in annual percentages of single-authored and coauthored articles.

Table 2
Distribution of articles by number of and type of author

Type of article	No. of articles	Percentage
Single-authored articles by practitioners	575	25.7%
Single-authored articles by researchers	539	24.1%
Single-authored articles by students	43	1.9%
Coauthored articles by practitioners	382	17.0%
Coauthored articles by researchers	353	15.8%
Coauthored articles by practitioners and researchers	225	10.0%
Coauthored articles by researchers and students	112	5.0%
Coauthored articles by practitioners and students	9	0.4%
Coauthored articles by students	3	0.1%
Total	2241	100.0%

The percentages of coauthored articles in the six selected journals were between 32.3% and 59.5%. Over half of the articles in three journals, namely *College & Research Libraries* (59.5%), *Library and Information Science Research* (57.2%), and *Information Technology and Libraries* (54.5%), were coauthored articles. Moreover, increasing trends in annual percentages of coauthored articles were observed for the six journals. This indicates that research collaboration has become prevalent in LIS.

ARTICLE DISTRIBUTION BY AUTHOR OCCUPATION

Table 2 lists nine types of articles by author occupation. Single-authored articles constituted three types of articles, whereas coauthored articles constituted six types of articles. Single-authored articles were dominated by practitioners (25.7%), closely followed by researchers (24.1%), whereas coauthored articles were dominated by practitioners (17.0%), followed by researchers (15.8%) and researchers and practitioners (10.0%). This indicates that researchers collaborated with practitioners least frequently. Researchers frequently collaborated with researchers and practitioners preferred to collaborate with practitioners. In addition, 53.1% of the articles (1191 articles) were written by at least one practitioner, 54.8% (1229 articles) by at least one researcher, and 7.5% (167 articles) by at least one student. Clearly, researchers and practitioners were the two main author types in LIS, considering the marginal differences in the percentages of articles published by these types of authors.

TRENDS AMONG VARIOUS TYPES OF ARTICLES

Fig. 2 shows the changes in the annual percentages of five article types. Two types of coauthored articles were excluded because no trend could be identified among the low number of articles. A considerable decreasing trend was observed in single-authored articles, whereas

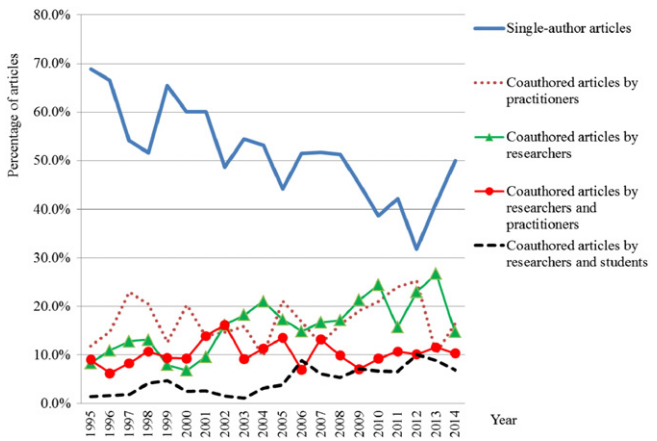

Fig. 2. Changes in annual percentages of five article types.

growing trends appeared among other types of articles. The greatest upward trend was observed for coauthored articles by researchers, followed by coauthored articles by researchers and students, coauthored articles by practitioners, and coauthored articles by researchers and practitioners. Although coauthored articles by researchers and practitioners revealed only a slight increasing trend, this indicated that research–practice divides in LIS have narrowed.

RESEARCH SUBJECT DISTRIBUTION

Table 3 lists the distribution of articles by research subject. Among the 15 research subjects, more than half of the articles (54.3%) were concentrated in four research subjects. Articles related to "technical services" (19.5%) accounted for the largest proportion, followed by "users and user services" (16.3%), "information retrieval" (10.1%), and "LIS staff and organizations" (8.4%). Most research subjects were library science oriented, with the exception of five information-science-oriented subjects, namely "information retrieval," "information technology," "bibliometrics," "information communication," and "information management." The domination of the library-science-oriented research subjects could be anticipated because of the nature of six journals selected.

Regarding the subject distribution of articles coauthored by researchers and practitioners (RP articles), articles related to "users and user services" were the most prevalent (23.6%), followed by those related to "technical services" (16.4%), "LIS staff and organizations" (9.3%), and "library management" (9.3%). Thirteen research subjects were identified. No articles on the two subjects of "library building" and "information management" were published. Examining the two most prevalent types of coauthored articles, namely those produced through practitioner–practitioner (PP articles) and researcher–researcher collaborations (RR articles), revealed that their dominant research subjects differed from those of RP articles. Articles related to "technical services" were the most prevalent, comprising 26.2% of PP articles, followed by "users and user services" (16.2%). Regarding RR articles, "users and user services" accounted for the largest proportion of article topics (17.3%), followed by "technical services" (12.7%) and "information retrieval" (12.7%).

Table 4 shows the percentages of articles by at least one practitioner (practitioner articles) and by at least one researcher (academic articles) for each research subject. The numbers of both practitioner and academic articles comprise the number of articles by both researchers and practitioners; therefore, the sum of the percentages of practitioner and academic articles could possibly be higher than 100%. According to this table, 5 out of the 15 article research subjects had higher percentages of practitioner articles than those of academic articles: technical services, library management, information technology, publishing, and library building. Furthermore, the differences in percentage between practitioner articles and academic articles ranged from 0.5% to 61.6%. The greatest difference was identified in "information behavior," followed by "librarianship and information science."

Table 4
Comparison of research subject distribution by author type

Research subject	Practitioner articles (%) (A)	Academic articles (%) (B)	|A–B|
Technical services	69.5	36.9	32.6
Library management	68.7	44.7	24.0
Information technology	60.5	50.3	10.2
Publishing	56.5	50.0	6.5
LIS staff and organizations	54.8	55.3	0.5
Users and user services	54.1	58.2	4.1
Bibliometrics	51.9	55.7	3.8
Information retrieval	48.7	58.4	9.7
Types of libraries	46.3	66.9	20.6
Library building	45.8	41.7	4.1
Education and learning	35.3	64.7	29.4
Information communication	32.2	67.8	35.6
Librarianship and information science	25.9	76.2	50.3
Information management	25.0	75.0	50.0
Information behavior	20.5	82.1	61.6

According to the differences in percentages between practice and academic articles for each research subject, the 15 research subjects could be divided into three groups. The first group consisted of six research subjects, with the percentage differences ranging between 0.5% and 10.2%, indicating that researchers and practitioners were interested in "LIS staff and user services," "bibliometrics," "users and user services," "library building," "publishing," "information retrieval," and "information technology." The second group consisted of five research subjects, with the percentage differences ranging between 20.6% and 35.6%. This revealed that practitioners were more concerned with "technical services" and "library management," whereas researchers had a higher interest in "types of libraries," "education and learning," and "information communication." The third group consisted of three research subjects, with the percentage differences ranging between 50.0% and 61.6%; researchers were found to have a greater involvement in "librarianship and information science," "information management," and "information behavior."

Fig. 3 shows the annual changes in the proportion of articles related to the 11 research subjects with the highest numbers of articles. The

Table 3
Comparison of research subject distribution by article type.

Research subject	RP	PP	RR	RS	PS	SS	S_P	S_R	S_S	Total (%)
Technical services	16.4	26.2	12.7	14.3	44.4	33.3	28.2	11.7	18.6	19.5
Users and user services	23.6	16.2	17.3	19.6	11.1	0.0	14.3	14.3	18.6	16.3
Information retrieval	8.0	13.4	12.7	8.0	0.0	0.0	7.1	11.1	4.7	10.1
LIS staff and organizations	9.3	8.6	8.8	7.1	0.0	0.0	8.5	8.2	4.7	8.4
Information technology	8.0	7.3	5.1	6.2	22.2	0.0	8.2	6.7	2.3	7.0
Library management	9.3	7.6	5.4	4.5	11.1	0.0	9.0	4.1	2.3	6.7
Librarianship and information science	4.0	2.4	7.6	6.2	0.0	0.0	3.5	12.8	14.0	6.6
Publishing	5.8	6.3	4.5	8.0	0.0	0.0	7.1	5.8	9.3	6.2
Types of libraries	7.6	3.7	7.1	5.4	0.0	0.0	4.3	6.1	2.3	5.4
Information behavior	3.1	2.1	7.1	10.7	0.0	33.3	1.4	8.9	7.0	5.0
Bibliometrics	3.6	3.9	4.8	5.4	0.0	33.3	3.1	2.4	2.3	3.5
Information communication	0.9	0.8	4.0	3.6	0.0	0.0	2.4	3.7	4.7	2.6
Education and learning	0.4	0.5	1.7	0.9	11.1	0.0	1.4	2.6	2.3	1.5
Library building	0.0	0.8	0.6	0.0	0.0	0.0	1.4	1.5	7.0	1.1
Information management	0.0	0.3	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note. RP: coauthored articles by researchers and practitioners; PP: coauthored articles by practitioners; RR: coauthored articles by researchers; RS: coauthored articles by researchers and students; PS: coauthored articles by practitioners and students; SS: coauthored articles by students; S_P: single authored articles by practitioners; S_R: single-authored articles by researchers; S_S: single-authored articles by students.

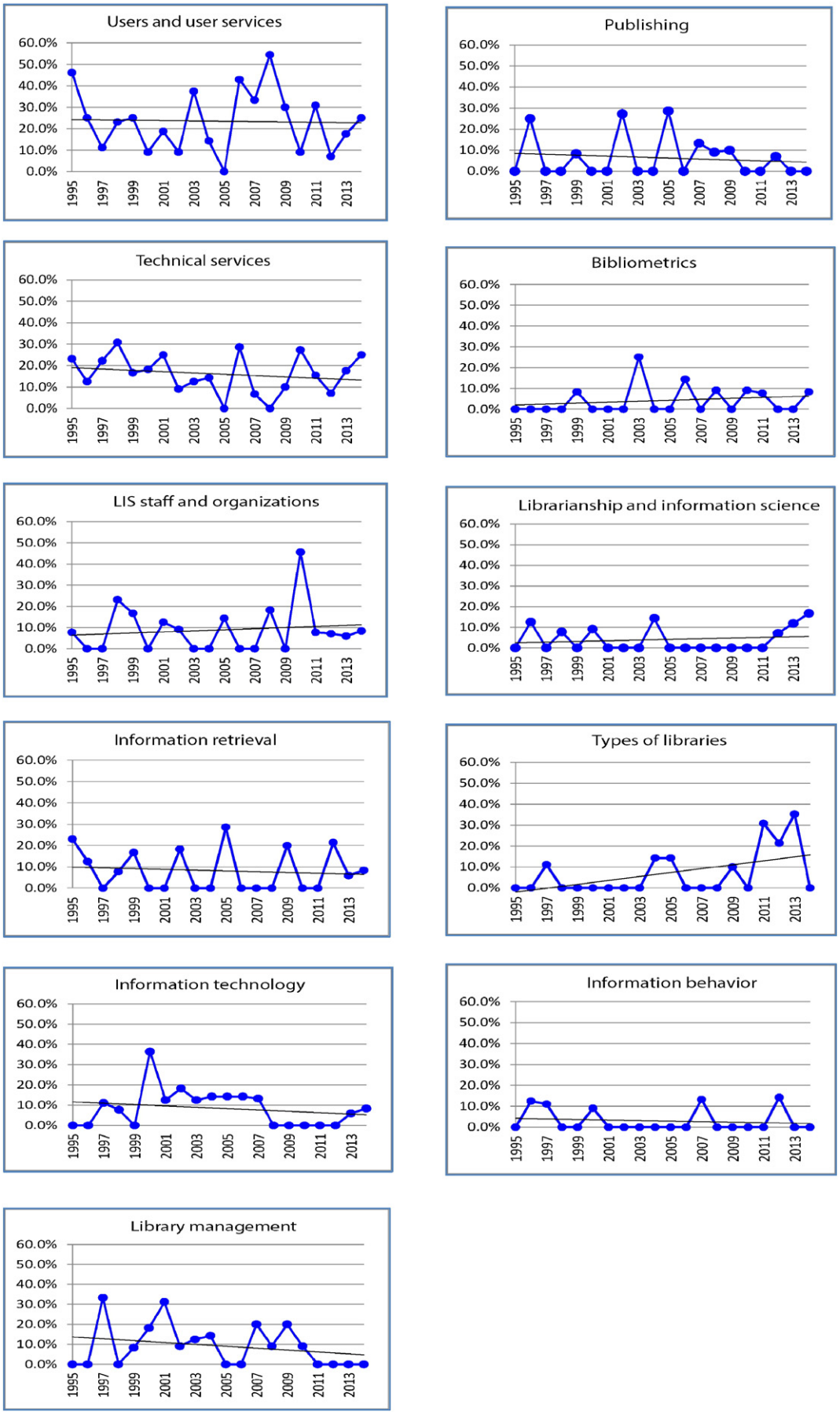

Fig. 3. Trends in annual proportions of RP articles by research subject.

articles related to information communication and education and learning are not shown because no trends were apparent from the low number of articles. Increasing trends were observed in only four research subjects based on trend lines, namely LIS staff and organizations, bibliometrics, librarianship and information science, and types of libraries.

CONCLUSION

The longitudinal trend analysis of LIS articles published between 1995 and 2014 evidenced a clear change in various types of research collaborations, particularly between researchers and practitioners, which served as the focus of this study. A decreasing research–practice divide was identified in LIS, as indicated by an increasing trend among coauthored articles resulting from researcher–practitioner collaborations. This finding confirms the assumption of this study that research–practice divides could be improved, although only a slight increasing trend appeared.

According to the results, most coauthored articles involved two types of collaborations between the same types of authors: academic–academic and practitioner–practitioner collaborations. This shows that authors tend to collaborate with other authors in the same occupation. Holding similar research interests and views may be factors facilitating researcher–researcher and practitioner–practitioner collaborations. Barriers to collaborations between authors of different type are greater than barriers to collaborations between authors of the same type. This explains why researcher–researcher and practitioner–practitioner collaborations were also the two types of research collaboration with greatest upward trends.

The low proportion of articles resulting from academic–practitioner collaborations is consistent with the findings of Finlay, Ni, Tsou, and Sugimoto (2013). Although articles resulting from academic–practitioner collaborations accounted for only 10% of all articles and evidenced a slight increasing trend, growth among academic–practitioner collaborations can be expected because numerous researchers have emphasized the importance of researcher–practitioner collaboration. The researcher–practitioner collaboration is believed to be useful in narrowing the research–practice divide; however, the extent to which researcher–practitioner collaborations reduce the negative effects on disciplinary development caused by research–practice divides must be further investigated. Coauthored articles are common results of research collaboration; therefore, increases in articles coauthored by researchers and practitioners can be expected when researcher–practitioner collaborations are promoted.

The slight increasing trend regarding researcher–practitioner collaborations also indicates that greater difficulties exist in researcher–practitioner collaborations than in other types of collaborations. Joint (2005) stated that understanding the main common concerns between researchers and practitioners is the basic requirement in initiating collaborations. In addition, although articles resulting from researcher–practitioner collaborations outnumbered those produced by researcher–student collaborations, articles resulting from researcher–student collaborations evidenced a larger growth trend. This may be because researcher–student collaborations originate from relationships between advisers and graduate students, and thus develop more easily than researcher–practitioner collaborations.

Researchers and practitioners were identified as the dominant authors in LIS in this study. Because most practitioners are librarians, the finding of this study is consistent with those of previous studies in which librarians have been shown to be the primary authors in certain journals (Olsgaard & Olsgaard, 1980). This implies that LIS has a practice-oriented characteristic. Practical knowledge plays an essential role in the development of LIS knowledge. Watson-Boone (2000) stated that librarians are practitioner researchers. In addition, the characteristics of LIS knowledge were revealed in the six selected LIS journals that exhibit coexistence of research and practice-oriented subjects.

The differences in preferences for research subjects between researchers and practitioners were identified and reflected by the main research subjects of various types of coauthored articles. Articles on technical services were dominant among PP articles, whereas users and user services was the most prevalent subject among RR articles. The typical practice-oriented nature of technical services related to libraries may explain why practitioner authors tend to collaborate with other practitioner authors. Regarding studies related to users and user services, because users are central to library services, including technical services, user studies have been emphasized. The results of user studies can be widely applied to library services and contribute to other LIS research. Therefore, user studies include prevalent subjects conducted by researchers. Regarding RP articles, those on users and user services were dominant, indicating that researchers may play a more prominent role than do practitioners in their collaborative research. However, the relationship between researchers and practitioners, as well as their collaborative research processes, must be studied further.

Researchers and practitioners have published articles related to numerous research subjects; however, most research subjects showed slight decreasing trends, implying that research subjects are dynamic. No research subjects remain dominant between 1995 and 2014. Observing the changes in research subject trends is essential for tracking the development of a specific discipline. Therefore, the findings encourage LIS researcher and practitioner authors to expand research topics. Researcher and practitioners can collaborate with a wide range of research topics.

The main limitation of this study was that only six LIS journals were investigated and more practice-based journals than research-based journals were included and analyzed. Including other research journals to the sample can maintain a balanced number of practitioner and researcher journals, increasing the proportion of articles by researchers. Different findings related to proportions and trends of RP articles may be observed. Most journals do not provide author job titles or only provide job title information for recent years; this may explain why empirical studies related to researcher–practitioner collaborations are rare. Furthermore, examining detailed author affiliation information listed in the full text of articles is a laborious task. Considering the differences among disciplinary cultures, future studies should investigate disciplines beyond LIS. Comparing the trends in research–practice divides among disciplines can assist in identifying whether differences exist in this regard. In addition, to clarify the purposes and processes of collaborations between researchers and practitioners, surveys or interviews are suggested for future studies to obtain more detailed findings.

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