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Assessing the Value of Korean School Library Research: A Bibliometric Comparison of Korean and International Journal Papers

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ABSTRACT

This study aimed to assess the value of Korean school library research by comparing Korean and international research on school libraries. To conduct this research, records of international papers indexed by Scopus and domestic papers indexed by the Korean Citation Index (KCI) on school libraries were downloaded. These records were analyzed and compared in terms of publication trends, journals, and author keywords. Approximately, four Korean LIS journals collectively published 39% more papers than the international journals indexed by Scopus, suggesting the substantial contributions made by Korean research on school libraries. The unique subtopics of school libraries in Korean domestic research were the revitalization of school libraries, reading instruction, curriculum development, library instruction, and the *School Library Promotion Act*. The results also showed that despite the many papers on school libraries in domestic journals, there was a lack of papers on Korean school libraries in the Scopus database. Consequently, more research is particularly needed for the Korean researchers to effectively share their domestic research with the international academic community.

1. Introduction

Researchers in Library and Information Science (LIS) may encounter cases in which an inadequate number of papers have been published in international journals. For example, a sufficient amount of international research publications may not be available for a research problem concerning a particular type of libraries in a particular country. This typically indicates that researchers in the given country did not publish their papers in international journals. With this type of research problem, it is useful to consider both domestic and international journal papers.

However, domestic journals are often not visible to the international academic community since most of them are intended for domestic readers. Previous works pointed out that domestic journals are indexed in international bibliographic databases in varying degrees. Mongeon and Paul-Hus (2016) and De Moya-Anegón et al. (2007) suggested that domestic journals can be analyzed in

terms of multiple criteria, such as the subject areas of research, the country of publication, the databases, and the year of indexing. In the case of Russia, only approximately 0.42% of papers published in Russian were present in the 2016 Scopus database (Moed, Markusova, & Akoev, 2018). With regard to Korea, only approximately 0.25% of papers published in Korean were present in the 2016 Scopus database (Moskaleva & Akoev, 2019). The only LIS journal published in Korea that was indexed by Scopus was the *Journal of Information Science in Theory and Practice;* however, this journal is published in English (Rhee, 2019). Hence, only a small percentage of domestic journals are indexed by international databases, such as Scopus. These journals would be likely to gain visibility if they were indexed in an international journal database.

Research on school libraries is an interesting area to examine since papers written by Korean authors on this subject can be readily found in Korean domestic journals. Previous studies have shown that school libraries are frequently discussed in Korean domestic LIS journal publications (Kim, 2017; Kim & Lee, 2016; Lee & Bak, 2016; Seo et al., 2015). However, the Korean researchers' contributions to school libraries do not appear to be recognized beyond Korea. The underlying reason behind the invisibility of Korean research might be the fact that domestic Korean journals are mostly published in the Korean language. Thus, it is difficult for non-Korean researchers to find research on Korean school libraries, despite the many Korean domestic papers published on this topic.

Another reason for comparing Korean domestic papers with international papers is that sub-topics of school libraries may share similar features around the world. There is evidence that many countries have recognized the role of school libraries in education. According to the IFLA/UNESCO School Library Manifesto from 1999, the school library should provide information and ideas that are fundamental to functioning successfully in today's information and knowledge-based society (IFLA/UNESCO School Library Manifesto, 2015). However, there should be some unique characteristics of Korean libraries as such characteristics tend reflect the specific educational strategies and philosophies of a country. Although limited, a bibliometric analysis could aid in gaining insights into the current state of Korean and international school library research.

Accordingly, the objective of this study paper was twofold: a) to identify unique characteristics in of Korean and international journal papers on school libraries, and b) to assess the value of Korean research on school libraries. This paper used the bibliographic records of papers published in the Korean Citation Index (KCI) and Scopus listed journals which were compared in terms of journal paper trends, authors, journals, citation counts, and author keywords.

3. Methodology

In this study, a bibliometric approach was used to analyze the patterns of Korean authors in conducting and reporting research works on the subject of school library. To conduct this search, two types of bibliographic records were used: a) records from Scopus-indexed LIS journal papers, and b) records from Korean domestic LIS journal papers. In this study, only LIS journals that were indexed in Scopus were considered for international journals. Similarly, only LIS journals indexed in KCI were considered for the domestic journals. The Scopus database was based on Elsevier's SJR 2017 report (http://www.sjr.com), and KCI was used (http://www.kci.co.kr) was used for the domestic journals. On the international side, there were a total of 198 indexed international LIS journals, while only eight domestic LIS journals were present in the KCI database. Only the *Journal of Information Science Theory and Practice* was indexed in both indices.
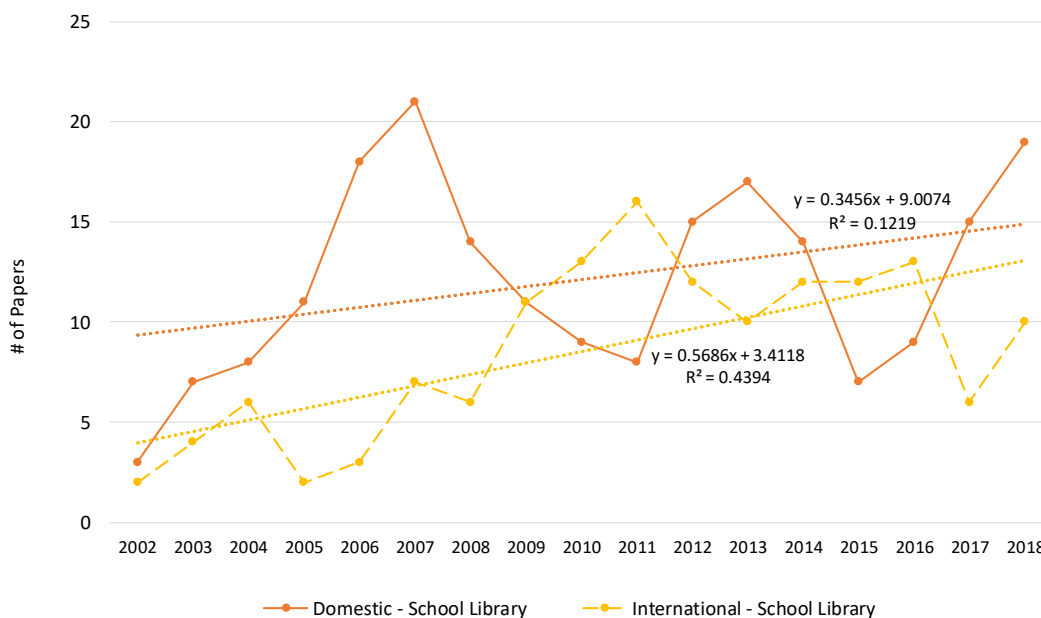
To extract records related to school libraries from these journals, the wild card expression of the search term was used. That is, 'school librar*' was used to match terms such as 'school library', 'school libraries', 'school librarian', etc. Only the title and the author keywords were considered for this purpose. Journal articles were limited to the period from 2002 to 2018 since the author keywords were more commonly found only after 2001. The downloaded data were analyzed using Microsoft Excel, Pajek software (Batagelj & Mrvar, 2004), and VOSViewer visualization software (Van Eck & Waltman, 2009).

4. Results

4.1 The Yearly Trends of Domestic and International Research on School Libraries

Figure 1 depicts the yearly trends of domestic and international papers on school libraries. This figure indicates that both types of journal papers have increased since the year 2002. In comparison, international papers on school libraries have increased to a greater amount (slope=0.35) than domestic papers on school libraries (slope=0.57). The data points do not fit well along the trend line of domestic research (R^2=.12) as there is greater variation among the data points. The data points of international papers fit better along the trend line (R^2=.44). Thus, compared with the trends of domestic papers, the data of international papers fits slightly better along the trending line. Overall, international research appears to be growing faster than the Korean research. This perhaps is influenced by a general growth in the international journals in Scopus in the recent years (Harzing & Alakangas, 2016). Nonetheless, on average, the domestic Korean journals produced more papers on school libraries than international journals.

<Fig. 1> The Trends of Domestic and International Journal Papers

4.2 Journals with Articles on School Libraries

Papers on school libraries can be published in various domestic and international journals. As shown in Table 1, there was a total of 27 international journals that published papers on school libraries in 2017. Since there were 195 journals indexed by Scopus, the percentage of Scopus-indexed LIS journals that published papers on school libraries was 14%. In contrast, five domestic journals, indexed by the KCI, published papers on school libraries. Even though this is a much lower number in comparison to international journals, the percentage of domestic journals that published papers on school libraries was much higher than that of international journals as five out of nine journals published at least one paper on school libraries. A possible explanation for this result is that many Korean domestic journals are more diversified and have a wider scope. Most Korean LIS journals can be considered as general LIS journals, while international journals focus on specific topic areas such as the school library.

As shown, the two journals that published the most number of papers on school libraries are *Library Philosophy and Practice (21 pap*ers, 14.1%) and *School Library Media Research* (21 papers, 14.1%). There were two international journals entirely dedicated to publications on school libraries, namely *School Library Media Research* and *School Library Research*. Although the total

number of papers in each journal was greater than in most other journals, there were some other papers in these journals neither contained the author keywords nor the key term 'school librar*'. Thus, not all of the papers from these two journals were included in the retrieved records. Additionally, a small percentage of records that did not contain the 'school librar*' may not have been retrieved since only the title and the author keyword fields were used in retrieving the records. Hence, these limitations had to be taken into consideration in interpreting the retrieved results.

On the domestic side, the *Journal of Korean Library and Information Science Society* (*JKLISS*) published the most papers on school libraries. JKLISS published 112 papers (54%) on school libraries, which is far greater any other international journals. This journal is a Korean domestic general LIS journal with a broad scope. Although only five Korean journals published papers on school libraries, these five Korean journals published more papers than all of the 27 Scopus indexed journals by 58 papers (207 minus 149). Thus Korean LIS journals approximately published 39% more papers than the international journals indexed by Scopus. As a whole, the result indicates that the contribution of Korean research on school libraries is comparatively noteworthy.

<Tab. 1> Domestic and International Papers on School Libraries

Ra-nk	International Journals		Domestic Journals	
	Journal Name	# of Papers (%)	Journal Name	# of Papers (%)
1	Library Philosophy and Practice	21(14.1)	Journal of Korean Library & Info. Sci. (JKLISS)	112(54.0)
2	School Library Media Research	21(14.1)	Journal of Korean Society for Library & Info. Sci. (JKSLIS)	39(18.8)
3	School Library Research	18(12.1)	J. of the Korean Biblia Soc. for Lib. & Info. Sci. (JKBSLI)	37(18.0)
4	Journal of Librarianship & Info. Sci.	12(8.1)	J. of Korea Soc. for Info. Mgmt (JKSIM)	15(7.3)
5	Library Trends	10(6.7)	JISTAP	4(1.9)
6	Libri	10(6.7)		
7	Malaysian Journal of Lib. &	10(6.7)		
8	Library and Information Science	7(4.7)		
9	International Information and Library	6(4.0)		
10	Journal of Info. Sci. Theory & Practice	4(2.7)		
11	Library Quarterly	4(2.7)		
12	Electronic Library	3(2.0)		
13	Journal of Academic Librarianship	3(2.0)		
14	Canadian Journal of Info. and Library	2(1.3)		
15	Library and Information Science	2(1.3)		
16	Journal of the American Society for In formation Sci. & Tech. (JASIST)	2(1.3)		
17	Information Research	2(1.3)		
18	Education for Information	2(1.3)		

19	Law Library Journal	2(1.3)		
20	Interlending and Document Supply	1(0.7)		
21	Libres	1(0.7)		
22	Information Technology and Library	1(0.7)		
23	Lib. Collections, Acquisition &	1(0.7)		
24	College and Research Library News	1(0.7)		
25	Journal of the Medical Library	1(0.7)		
26	Knowledge Organization	1(0.7)		
27	Medical Reference Services Quarterly	1(0.7)		
	Total	149 (100.0)		207 (100.0)

4.3 Comparison of Citation Counts

The basic citation statistics of Korean domestic papers and international papers are shown in Table 2. As shown, international papers received slightly fewer citations on average (μ=3.77) than domestic papers (μ=3.27). However, both datasets showed an equal median (2.00) and mode (0.00). In both types of databases, most papers did not receive any citations.

<Tab. 2> Descriptive Statistics of Citation Counts

Journal Type	N	Mean	Median	Mode	St. Dev.	Min	Max	Sum
International	149	3.77	2.00	0	5.46	0	35	547
Domestic	207	3.27	2.00	0	4.23	0	23	676

In scientometrics, the research impact of a subject category is often measured by the number of citations received (Bornmann & Daniel, 2008). Previous studies examined various citation patterns of subject categories and showed a wide range of differences among them (Patience et al., 2017). In this study, we observed the impact of Korean and international papers on school library research. It is also important to mention that there is a caveat to interpreting the citation count-based result as there are some factors (e.g., quality of paper, the journal's language, and papers' accessibility and visibility) affecting the number of citations of journals and papers (Tahamtan, Afshar, & Ahamdzadeh, 2016). Thus, the descriptive statistics of citation counts shown in Table 2 reflect various factors that influence citation counts.

One particular factor that is worth mentioning is that there are differences between Korean domestic and international papers in terms of the language used in citing papers. Since all Korean domestic papers shown in this list are written in Korean, they are expected to receive almost all of their citations from Korean domestic publications. In contrast, international journal papers are

expected to receive citations from any academic paper on school libraries. To an extent, international journal papers indexed by Scopus received more citations due to their increased visibility.

4.4 Topics of Highly Cited Papers

Highly cited articles have been commonly used to reveal the characteristics of various research domains (Abrizah et al., 2014; Bauer et al., 2016; Brinjikji et al., 2013; Feijoo et al., 2014, Jafarzadeh et al., 2015). In this paper, the 10 most highly cited papers on school libraries were considered. Table 3 shows the top 10 highly cited Korean domestic papers as well as the top 10 highly cited international papers on school libraries. As a whole, the top 10 highly cited international papers received slightly more citations than the top 10 highly cited Korean domestic papers. This was expected since studies, such as the one conducted by Nguyen, Ho-Le, and Le (2017), showed that international papers indexed by Scopus receive more citations than domestic papers. As shown, in the domestic journals, the eight highly cited papers were published in *JKLISS*. This journal published more papers on school libraries than any other Korean domestic journal, and the published papers collectively received more citations than those of any other domestic journal. In the highly cited international paper list, *Journal of the American Society for Information Science and Technology* published only two articles (refer to Table 1), but both papers are listed in the top 10 highly cited papers.

Highly cited papers were qualitatively labeled with key sub-topics in order to gain insights into the characteristics of Korean and international research on school libraries. In comparison, more Korean domestic papers in this table are written on school curriculum and services whereas more international papers are written on the school libraries' roles and their impact on education. There are also notable similar sub-topics. Papers D2 and I7 are both written on school media specialists. We can also see that the sub-topic 'Education' is common in both domestic and international papers. Although this list is limited to the top 10 highly cited papers on school libraries, it still portrays some notable research topics within school library research.

<Tab. 3> Top 10 Highly Cited Papers on School Libraries

Type	Index Based on Rank	Title	Authors	Pub. Year	Journal Name	Cited	Key Subtopics
DOM	D1	A Study on Developing Patterns for Integrated Culture and Arts Education Program in Libraries	Hoang, G.	2008	JKLISS	23	Education Program

E S T I C	D2	A Study on the Instructional Contents and Strategies for School Library Media Specialist Education	Kim, J.	2006	JKBSLI	20	Media Specialist
	D3	A Study on the Model of Library Assisted Instruction Based on Information Activities	Lee, B.	2006	JKLISS	19	Library Assisted Instruction
	D4	A Critical Study on School Reading Instruction Policy	Lee, Y.	2006	JKLISS	17	Reading Instruction
	D5	A Study on the Content Construction of G Education Course In LIS	Lee, M.	2007	JKBSLI	16	Curriculum Development
	D6	An analysis of the Impact of the School Library Revitalization Project	Kwak, C., & Chang, Y.	2006	JKLISS	14	Revitalization Plan
	D7	Institutionalization of Information Literacy Instruction and Library Assisted Instruction Considering National Level Curriculum	Lee, B.	2007	JKLISS	13	Information Literacy; Instruction
	D8	School Library Information Services for Satisfying Academic High School Students' Information Needs	Lee, Y.	2006	JKLISS	13	Information Services
	D9	Development of the Integrated Curriculum as the Activation Strategy of the School Library Instruction	Song, G.	2005	JKLISS	12	Curriculum Development
	D10	The Impact of Teacher Librarian's Professionalism on the School Library Revitalization	Kwon, E.	2007	JKLISS	12	Teacher Librarian; Revitalization
I N T E R N A T I O N A L	I1	Inquiry Project-Based Learning with A Partnership of Three Types of Teachers and the School Librarian	Chu, K.W.S.	2009	Journal of the American Society for Information Science and Technology	35	Learning
	I2	College Success: High School Librarian Make the Difference	Smalley, T.N.	2004	Journal of Academic Librarianhip	22	School Librarian
	I3	Reimagining the Role of School Library in STEM Education: Creating Hybrid Spaces for Exploration	Subramaniam M.M., Ahn J., Fleischmann K.R., & Druin A.	2012	Library Quarterly	20	Education
	I4	The Information and Communication Technology Competencies of Students Enrolled In School Library Media Certification Programs	Hanson-Baldauf D., & Hassell S.H.	2009	Library and Information Science	18	ICT; School Media
	I5	School Library Web Sites: 1996-2002	Clyde, L.A.	2004	Electronic Library	17	Website
	I6	Chat Reference Service In Medical Library: Part 2 - Trends In Medical School Library	Dee, C.R.	2003	Medical Reference	17	Reference Service
	I7	Research In School Library Media for the Next Decade: Polishing the Diamond	Neuman, D.	2003	Library Trends	16	School Library Media
	I8	The Impact of New York's School Library on Student Achievement and Motivation: Phase III	Small R.V., Shanahan K.A., & Stasak M.	2010	School Library Media Research	15	School Library Impact
	I9	From Activity to Learning: Using Cultural Historical Activity Theory to Model School Library Programmes and Practices	Meyers, E.M.	2007	Information Research	14	Learning; Culture
	I10	The Impact of New York's School Library on Student Achievement and Motivation: Phase II-In-Depth Study	Small, R.V., & Snyder, j.	2009	School Library Media Research	12	School Library Impact

4.5 Author Keywords of School Library Papers

Analyzing the author keywords can be an effective means to find the distinctive characteristics of a research domain (Khan, & Wood, 2015; Kim, 2017; Zhang et al, 2016). In this paper, the keywords were analyzed in terms of frequency counts and the relationships between the keywords. Table 4 shows the most frequently used keywords in papers on school libraries occurring three or more times. Corresponding to this table, Figure 2 shows a visualization of the keywords. In comparison, keywords on school libraries appear more on the Korean domestic side than the international side. Keywords that are common between Korean and international journals are shown in shaded color. Some keywords that are not common can still be considered conceptually similar. For instance, information literacy appears more distinctively in international research, and library instructions appear more distinctively on the domestic side. However, these two areas are closely related. These types of related keywords had to be taken into consideration in comparing the topical areas of school libraries.

As shown, variants of the keyword 'reading', such as 'reading education', 'reading promotion', and 'reading strategy', are unique to domestic journals. Furthermore, 'school library promotion act' and keywords related to curriculum development (e.g., 'curriculum', 'school library based instruction') are also distinctive in domestic research. In Korea, the *School Libraries Promotion Act* legislated in 2007 was enacted to protect and promote the school libraries by ensuring that Korean secondary schools are equipped with the fundamental elements identified as indispensable to well-functioning libraries (Chang & Park, 2013). Particularly in the areas of managing and operating school libraries, a considerable number of studies have been produced on issues related to the *School Libraries Promotion Act* since the year 2000 in Korea (Kim, 2013). Regarding the laws of school libraries in general, Wimolsittichai (2017) pointed out that governments in many have various education laws and authorities that may ensure the proper functioning of school libraries.

In both Table 4 and Figure 2, the distinctive differences in the frequency count of author keywords can be noticed. In Figure 2, the size of the node indicates the frequency count of the author keywords. Conceptually, there is a close relationship between teacher librarians and school librarians. Both keywords appear as major components in both sides. On the domestic side, the most frequently occurring author keyword is 'teacher librarian'. The importance of this keyword is highlighted on the domestic side due to its higher frequency count, and the size of the node indicates the frequency count of the keyword. The link between school library and teacher librarian is shown with a thicker line. Another feature indicating the prominence of the 'teacher librarian' keyword is the thicker line connecting it with the central 'school library' keyword. Other frequently used keywords on the domestic side are 'school library based instruction', 'school librarian promotion

act', and 'librarian'. Although the figure shown represents the 'school library', 'public library' appears as an associated keyword in both domestic and international journal papers. This suggests that there is a close relationship between the public library and the school library.

On the international side, a keyword with country name, such as South Africa, indicates the degree of international research on school libraries within the given country. A keyword referring to a country name should be much more common on the international side than on the domestic side. As shown in the figure and table, South Africa is the only country name that occurs more than three times as a keyword. Since 'Korea' does not appear as a keyword on the international side, there appears to be a lack of coverage on Korean school libraries.

VOSViewer allows one to show the average year of publications of papers associated with specific keywords by displaying the keywords in lighter to darker colors. In the figure, we can see that the average year of the keyword 'school library' is darker on the international side than the domestic side, which suggests that the international journal papers are older than the domestic ones. We can also see that the average year of the keyword 'teacher librarian' is newer in the domestic papers compared to the 'school librarian' equivalent in international papers. The figures also show that papers on school librarians are slightly older on the international side than the domestic side.
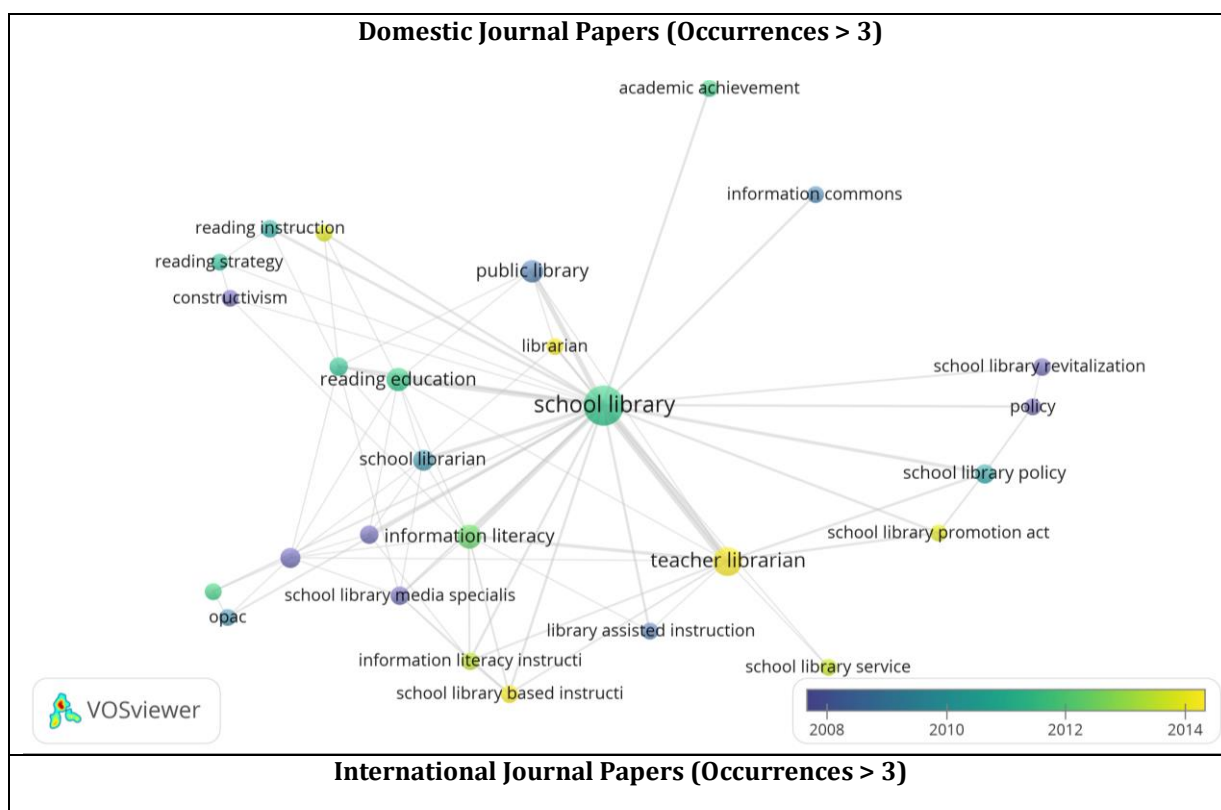
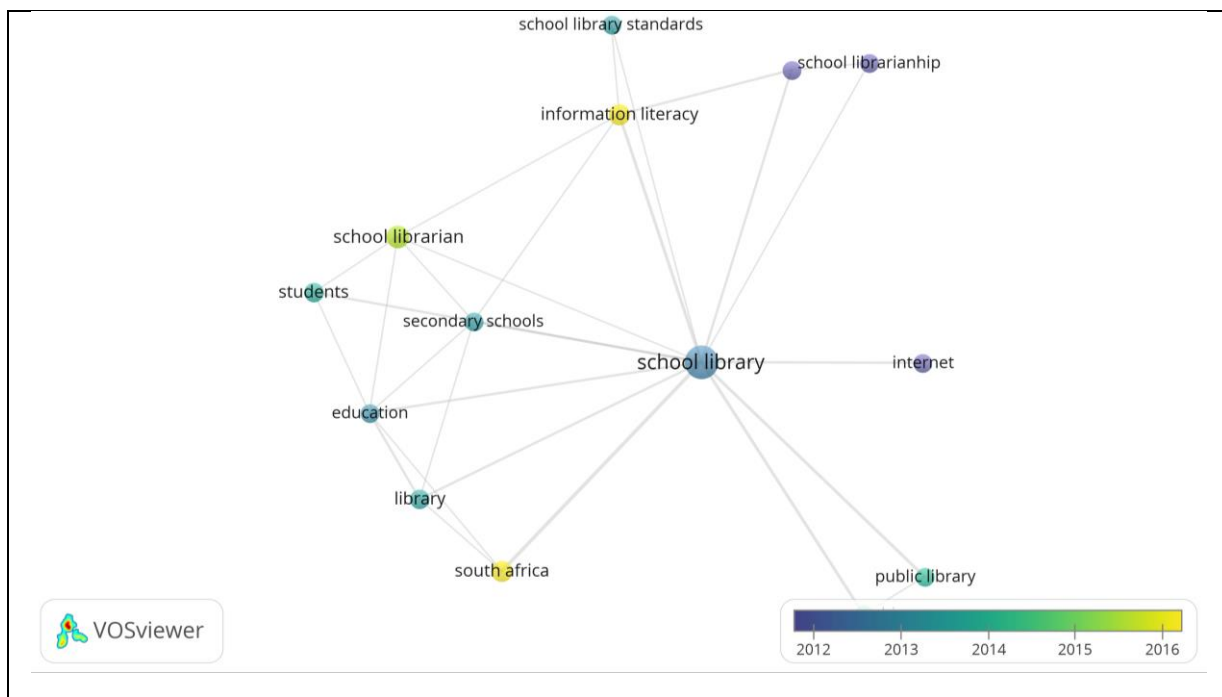<Tab. 4> Frequently Used Author Keywords in Papers on School Libraries (Occurrences > 3)

Rank	School Library	
	Domestic (Freq. & Keyword)	International (Freq. & Keyword)
1	129 School Library	38 School Library
2	33 Teacher Librarian	7 School Librarian
3	14 Information Literacy	5 South Africa
4	13 Reading Education	5 Information Literacy
5	11 Public Library	4 Students
6	8 School Librarian	4 Library
7	7 School Library Media Center	3 Teacher Librarian
8	6 School Library Policy	3 Secondary Schools
9	5 School Library Media Specialist	3 School Library Standards
10	5 Reading Promotion	3 School Librarianship
11	5 Curriculum	3 Public Library
12	4 School Library Revitalization Project	3 Internet
13	4 School Library Based Instruction	3 Education
14	4 Reading Instruction	3 Censorship
15	4 Policy	
16	4 Library Assisted Instruction	

17	4 Information Literacy Instruction	
18	3 School Library Service	
19	3 School Library Promotion Act	
20	3 Reading Strategy	

Note: The keywords that appear in both sides are highlighted.

Fig, 2. Visualization of Author Keywords in Papers on School Libraries

5. International Korean School Library Research

In order to find additional characteristics of domestic and international research on school libraries, it is useful to investigate the coverage of Korean school libraries in international papers. For this purpose, the retrieved records of Scopus indexed papers were further refined by applying the following search terms: 'Korea' and 'School Library'. When this method was applied for the years from 2002 to 2008, the only two papers retrieved were the following:

1. Cho, J. (2018). The Trends of Media Coverage about Libraries in Korea: Using Semantic Network Analysis of Portal News. *Libri*, *68*(4), 291-300.

2. Lo, P., Chao-chen Chen, J., Dukic, Z., Youn, Y. R., Hirakue, Y., Nakahima, M., & Yang, G. (2014). The roles of the school librarians as information literacy specialists: a comparative study between Hong Kong, Shanghai, Korea, Taipei and Japan. *New Library World*, *115*(7/8), 314-339.

The topic of the paper written by Cho (2018) is not directly related to school libraries, despite having the keyword 'school library'. On the other hand, the topic of the paper written by Lo et al. (2014) is more directly related to Korean school libraries. In this paper, Korea is included in a comparative analysis of school librarians in the Asian nations. In particular, this paper covers the different roles and expectations of the school librarians. Since this is the only international paper on Korean school libraries, there is clearly a lack of international papers on Korean school libraries.

Since a single paper is insufficient in covering the various issues of Korean school libraries, the retrieved result clearly indicates the poor coverage of Scopus on this subject.

5. Discussion and Conclusion

The result of this study supports the views of previous studies that suggested that the value of domestic journal papers has been under-estimated (Kulczycki et al., 2018; González-Alcaide et. al, 2012; Larivière & Macaluso, 2011). To assess the value of Korean research on school libraries, this study compared the Korean domestic research and international research on school libraries and showed varying differences and similarities between them in terms of highly cited papers, authors keywords and the total production of papers. Collectively, the five Korean LIS journals (JKLISS, JKSLIS, JKBSLI, and JKSIM, and JISTAP) published 58 papers (39%) more than the international journals indexed by Scopus. In terms of overall research production on school libraries, the total of Korean domestic papers was greater than that of Scopus indexed international journal papers. In terms of journals, papers on school libraries have been published in a variety of international journals since an author can submit his or her paper to a wide range of international journals.

Regarding sub-topics within school libraries, revitalization of school libraries, reading instruction, curriculum development, library instruction, and the *School Library Promotion Act* were among the unique sub-topics of Korean domestic research on school libraries. Compared with the international papers, Korean authors published more papers on teacher librarians, which underscores the importance of teacher librarians in Korean school libraries. These sub-topics seem to reflect the domestic issues that are important in Korean society. In summary, the result indicates that the overall contribution of Korean research on school libraries is substantial. However, there was a lack of international papers authored by researchers affiliated with Korea with only two such papers having been retrieved in our research.

Domestic journals not indexed by major international indices, such as Scopus, often have challenging issues: a) inability to comply with international editing norms and governance structure of international journals (Vélez-Cuartas, Lucio-Arias, & Leydesdorff, 2015); b) irregularity in publication, improper execution of review process, non-disclosure of article processing charges, lower percentage of foreign contributors and low citation rate (Mukherjee, 2018); and c) language barriers (Baussano et al., 2008; Amano, González-Varo, & Sutherland, 2016). Despite these common issues, this paper has shown that the volume and diversity of topical areas of domestic research on school libraries is worth noting for the international research community.

For future studies, the extent of school library research in other countries should be investigated. We have shown that while the visibility of domestic research in the international arena is poor, the

Korean domestic research may offer valuable works in LIS. In this paper, the only country that occurred more than three times in international journals was 'South Africa'. There may be a considerable amount of school library research concerning other countries, and their works may face similar issues as those in Korea. Future research can investigate domestic research on school libraries concerning other countries using the methods used in this paper.

In the twenty-first century, we need more than mere recognition of the value of domestic research. We need to find more effective ways of sharing the domestic research publications with the international community. There is a substantial amount of valuable non-English domestic papers that are not visible to the international community primarily due to the language differences. Thus, we need solutions to share non-English domestic research with the international research community, as language is a major barrier to sharing knowledge among scholars (Amano et al., 2016). In this regard, innovative solutions are needed to improve the existing Institutional repositories with a multilingual interface (Roy, Biswas, & Mukhopadhyay, 2017) and machine translation technologies (Zheng et al, 2018). Making research efforts on these fronts could ultimately lead to making domestic journal papers more visible and useful outside of their countries in the future.

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