

# Journal Publishing and Authorship in Library and Information Science by Early Career Researchers in South Korea

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## ABSTRACT

This study explored journal publishing and authorship by South Korean early career researchers (ECRs) in the field of library and information science (LIS). This research analyzed relevant journal publication data and conducted interviews to obtain information on the experiences and opinions of ECRs. Results indicated that South Korean ECRs in LIS were highly productive. This was evidenced by their annual publishing rate of 2.04 articles per person. In addition, Social Science Citation Index (SSCI) publications were produced at an annual average of 0.26 articles per person, while the quartile ratings for SSCI journal publications were also relatively high. However, unlike the trends seen in other academic fields, their collaborative research efforts were not considered very high because such efforts did not correspond to half their total publications. ECRs often participate as lead or corresponding authors despite being new researchers. ECRs are publishing first in the journals approved by their universities. These researchers cannot receive proper credit if the journal was not approved in this manner. ECRs are particularly disadvantaged when publishing in international journals corresponding to specific areas that are not on the SSCI list. By examining the journal publishing and authorship efforts of ECRs, this study discovered a variety of difficulties that should be addressed. For example, South Korean universities do not currently have cooperative research guidelines to solve authorship problems. The results from this study can serve as a basis to establish academic publishing and authorship policies while promoting scholarly communication in LIS and other scientific fields.

**Keywords:** early career researcher, journal publishing, authorship, Social Science Citation Index, library and information science

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## 1. INTRODUCTION

Research competition has intensified throughout the global era, while academic publishing has also shown significant change. In particular, there is now a greater quantity and quality of academic publications from new researchers (Shaw & Vaughan, 2008; Lee & You, 2014; Choi & Yang, 2018). This study aimed to determine the current conditions of journal publishing and authorship for early career researchers (ECRs) while identifying any related problems.

The scholarly definition for ECR differs from that used in this study. For example, Nicholas et al. (2017) and Xu, Nicholas, Zeng, Su, and Watkinson (2018) defined ECRs as researchers not exceeding 35 years of age who have either earned a doctoral degree or are currently enrolled in a PhD program. Both studies explained that ECR status corresponds to instability for researchers who have not achieved full-time or tenured employment. However, this study defined ECR in accordance with the application requirements for the young researcher program at the National Research Foundation of Korea (NRF; <https://www.nrf.re.kr/>; i.e., researchers who earned a doctoral degree less than 10 years prior to applying or were employed in colleges or universities as assistant professors for less than five years). This study did not establish an age limit and extended the definition of ECR to include postdoctoral fellows and beginning professors. Regardless of whether they are unemployed or already hired, ECRs are not in a secure position to consistently publish papers for contracting and promotion.

Assistant professors working in South Korea spend a significant amount of time in education, research, and service delivery for promotion evaluations. ECRs may have trouble in the classroom because they have little teaching experience and sometimes face obstacles in communicating with students. Negative end-of-semester lecture evaluations may negatively affect contracting and promotion. ECRs especially focus on teaching for this reason. In fact, it is journal publishing that significantly impacts recruitment, contracting, promotion, and tenure consideration.

South Korean universities and research institutes have emphasized the quantitative aspects of research achievements for decades. However, qualitative aspects have also gained consideration in recent years. Academic institutions largely believe that it is reasonable to gauge the quality of journals according to citation counts. Researchers at academic institutions are thus pressured to publish in high-ranking journals with high citation counts. High-ranking journals often refer to top journals indexed in the Web of Science (WoS, <http://www.webofknowledge.com>) or Science Citation Index

(SCI)/Social Science Citation Index (SSCI)/Arts & Humanities Citation Index (A&HCI). The journal impact factor quartile for publications provided by Journal Citation Reports (JCR, <https://jcr.incites.thomsonreuters.com>) does not differ from the calculation method. South Korean academic institutes generally prefer to publish in first or second quartile journals. There is also concern that publishing in fourth quartile journals will result in negative consequences for the university's rating, especially in the Leiden ranking.

The 2018 Leiden ranking includes 938 global universities that have produced at least 1,000 WoS indexed publications in the last four years (Leiden Ranking, 2018). In addition, the number of publications in the top 10% of total papers is an important criterion. Thus, having more papers in the top 10% results in a better Leiden ranking. Ironically, not publishing is more advantageous to achieving a positive Leiden assessment than publishing papers that receive few citations. South Korean universities have recently begun to promote publication in international journals while producing highly-cited papers and conducting collaborative research. ECRs are therefore highly motivated and aware of the need to publish highly cited papers in high-ranking journals.

This atmosphere has urged South Korean ECRs to constantly publish in international journals. This is unlike the situation for senior researchers, who mainly target South Korean journals (Lee & Bak, 2016). It is not easy for ECRs to conduct research; they do not have the requisite experience. Many also have difficulty publishing in English as opposed to their native language. University commitments to publishing (especially in high-ranking journals) are thus likely to put pressure on ECRs. Meanwhile, scholarly communication has become much more active because of various widespread media practices, including those seen through social networking services and websites like YouTube (Brand, Allen, Altman, Hlava, & Scott, 2015). The proportion of collaborative research has also increased. These are the current trends affecting the academic environment for ECRs. South Korean social norms tend to ensure that main positions and roles are given to those with more seniority (i.e., "age before honesty"), which may also affect author role distributions in collaborative papers. Senior researchers may have advantages when assigning main authors, while ECRs can feel that they do not receive similar chances (Maciejovsky, Budescu, & Ariely, 2009). This academic situation and the associated social norms provide a background for studying ECR journal publishing and authorship.

Journal publishing patterns and authorship practices vary widely across disciplines. It is thus undesirable to analyze the situation in a general sense. A more appropriate analysis

involves data examination to derive implications according to specific disciplines. This study, therefore, elected to analyze ECRs from the field of library and information science (LIS). Theories are also important in this area. However, it is highly necessary to gain feedback from librarians in this field regarding their experiences in achieving academic advancement. Librarians, policymakers, and professors working in LIS often collaborate through industrial-academic projects. Here, the influence of project managers can become significant, resulting in disadvantages for ECRs or librarians in terms of authorship. It is also the responsibility of scholars in the scientific community to establish a reasonable authorship-credit allocation policy and refine cooperative research guidelines for addressing the authorship problem (Brand et al., 2015).

In this context, this study reviewed previous research on journal publishing in the LIS field before collecting and comprehensively analyzing ECR journal publishing and authorship data. Interviews were then conducted with ECRs. The results will serve as a basis for establishing academic publishing and authorship policies in addition to promoting scholarly communication in LIS and other scientific fields.

## 2. LITERATURE REVIEW

Few previous studies have focused on publishing productivity in the LIS field, especially regarding the activity of ECRs. This study, therefore, broadened the scope by examining research productivity and authorship in LIS regardless of researcher age or position.

Many studies use paper counts to measure the research productivity of LIS authors (Adkins & Budd, 2006; Choi & Yang, 2018; Chung & Park, 2011; Davarpanah & Aslekia, 2008; Larivière, Sugimoto, & Cronin, 2012; Lee & Yang, 2011a; Lee & Yang, 2011b; Shaw & Vaughan, 2008). This study relied on Lee and Yang's (2011b) research on the journal publishing productivity of South Korean LIS professors, in which they examined papers published by 159 South Korean LIS professors from 2001 to 2010. These professors published 2,231 papers in national journals and 111 papers in international journals. The annual average number of publications per person was 1.40 in South Korean journals and 0.07 in international journals. Of those studied, 36 professors were published in WoS journals (22.64% of the total).

Choi and Yang (2018) showed the number of papers produced by 205 South Korean LIS professors from 2011 to 2016. Of these, 1,789 papers were published in national

journals, while 221 were published in international journals. The annual average number of publications per person was 1.45 in South Korean journals and 0.18 in international journals. Both of the above studies indicated that while the number of publications produced by South Korean LIS professors in South Korean journals remained nearly unchanged, their number of publications in international journals increased significantly.

Shaw and Vaughan (2008) analyzed the journal publishing of 720 LIS professors at universities in the United States during their active scholarship lifetime. They revealed that the average annual number of publications in print journals per person was 0.25 for assistant professors, 0.35 for associate professors, and 0.72 for full-time professors. Adkins and Budd (2006) examined SSCI articles written by LIS professors in the United States from 1999 to 2004. The most productive professors produced a very large number of papers (e.g., Tenopir with 59, Jasco with 32, and Cronin with 25). Meanwhile, Mukherjee (2010) examined LIS SSCI papers from Asian authors who published between 2001 and 2007. He also included LIS articles written by researchers within other majors. All totalled, 384 were written in China, 275 in Taiwan, and 216 in South Korea. The paper counts in all three countries significantly increased from 2001 to 2007.

Lee and Yang (2011a) presented the number of joint studies performed by 159 South Korean LIS professors. From 2001 to 2010, 52.75% of all papers were produced by a single author, while 30.75% were produced by two authors (i.e., 83.5% of these publications were written by one or two authors). Choi and Yang (2018) counted publications by 205 South Korean LIS professors between 2011 and 2016 and found that although the number of single-authored papers decreased, the number of collaborative papers increased. Their charts show that the number of single-authored papers decreased from about 56% in 2011 to approximately 38% in 2016. This indicates that instances of collaborative research have significantly increased. Of note, the number of collaborative papers consisting of more than three authors exceeded 10% of all papers in 2015 and 2016. The popularity of collaborative research is increasing not only in the LIS field but also in other fields around the world. Frandsen and Nicolaisen (2010) conducted an analysis of joint research papers published in 12 information science core journals from 1978 to 2007. Results showed that multi-authorship had increased over time. Their charts showed that in 1978, approximately 64% of all studied papers were from single authors, 27% were from two authors, and 8% were from three authors. In 2007, approximately 33% of all studied papers were from a single author, 31% were from two authors, and 23% were from three authors.

At any university, a single author can obtain a 1 (i.e., 100%

with a total credit). However, the credit allocation method used for co-authors varies greatly depending on the university. Lee and Yang's (2017) study indicated that co-author credits amounted to one at nine universities, less than one at three universities, and greater than one at 14 universities. Universities with low sums for co-author credits tended to have drastically low preferences for collaborative research. Researchers around the world are also highly aware of the authorship quota. Chinese universities have received criticism for only assigning credit to a single or lead author in their promotion of science engineering professors (Xu et al., 2018). There is growing concern that if credit is only granted to the lead authorship of a joint research project that is spread across humanities and social studies fields, collaboration between advisors and students will diminish. Despite these criticisms and concerns, Chinese universities are tightening their authorship requirements.

The authorship quota is also important in research evaluations; it is even more important when choosing where to publish. Lee and Yang (2017) analyzed research outputs evaluation criteria in the LIS field at 27 universities in South Korea. All South Korean universities implement evaluation methods that award credit points differently according to the journal. This has been going on for several decades. On average, 27 universities gave credit scores for the Korea Citation Index (KCI, <https://www.kci.go.kr>) 100, SSCI 249, and Scopus 142. Here, KCI is the citation index for South Korean journals produced by the NRF. According to them, SSCI credit is more than twice as high as for domestic journals, while the gap between points is larger among prestigious private universities. These universities are also implementing policies to differentiate credit according to the impact factor quartile of SSCI journals.

Many universities across the world also tend to allow high credit to highly-cited international journal publications. Nicholas et al. (2017) interviewed 116 ECR scientists, engineers, and social scientists from the United States, the United Kingdom, France, Spain, Poland, Malaysia, and China; their SSCI/SCI or Scopus journal-publishing preferences were clear. Furthermore, ECRs were confident that publishing in top international journals would enhance their careers.

Chinese ECRs are also a high priority in the publications of SSCI or SCI journals (Xu et al., 2018). Publishing in a world-renowned journal can increase the international influence of the research. Publication in such journals is also much more favourable for quantitative metrics research achievement evaluation and is very positive for individual recruitment, contract renewal, promotion, and tenure. These researchers are also making great efforts to publish in high-impact SSCI or SCI

journals. The United States and China are the world leaders for these types of publications. Publishing in third-quartile journals or above is the next step for Chinese researchers who have already published many SSCI or SCI papers. This may also be the same context in which Chinese universities do not assign credit to Scopus journals.

Conversely, South Korean LIS authors do not seriously consider where to publish, especially about national journals. Some academic institutes are exceptions, but they allow the same credit when publishing in five leading domestic journals. The fact that there is little difference between the readers of domestic journals alleviates this consideration for South Korean authors. Choi and Yang (2018) confirmed that there were only 205 LIS professors in South Korea at the time of their study. This relatively small number made it unnecessary to worry about selecting South Korean journals. However, the competition among universities to publish in SSCI journals is becoming increasingly intense. There is also growing pressure for South Korean LIS authors to produce SSCI publications; this especially affects ECRs.

The choice of journal in which to publish is crucial for scholars across the globe. Researchers typically consider many factors aside from whether their university or research institution accepts these journals. Xu et al. (2018) conducted a survey on 11 factors considered in the journal selections of 14 Chinese ECRs. They responded that SSCI/SCI status, general prestige, and whether the journal was approved by their respective universities were highly important. In addition to other items, they did not value paper charges or innovative journal features. ECRs tend to target several journals before submitting to the most relevant. There are also cases in which a target scientific journal is established at the beginning of the project. Based on both academic publishing trends and previous research reviews, this study set out the following research questions:

- 1) What are the trends associated with academic journal publications and authorship for South Korean ECRs in LIS?
- 2) What difficulties are involved in journal publishing and authorship for research conducted by South Korean ECRs in LIS, and what are the proper solutions?

### 3. METHODS

This study targeted the recent journal publishing practices of active ECRs conducting research as South Korean LIS scholars. Thus, ECR journal publications in the recent five years from 2014 to 2018 were analyzed among 23 participants of an NRF-sponsored LIS project titled "The Young Researcher Program."

Despite intense competition, three of these scholars received more than one project, while only 19 ECRs were targeted. Specific ECRs were chosen because they presented more research output than other new researchers, thus appearing to be more interested in publishing and authorship and more likely to provide constructive feedback through interviews. This research also referred to journal publications from ECRs who contracted projects as long as a few decades ago. The Korea Researcher Information (KRI, <https://www.kri.go.kr/kri2>) site was also searched to determine whether LIS-related tasks were selected for the “Program for Emerging Research Fellows” project (now called the young researcher program) before and after 2000. Two projects were found, one from 1998 and the other from 2002. Projects older than these could no longer be found.

The project details, research achievements, and personal profiles of the ECRs were easily obtained from the NRF’s KRI website. Table 1 shows the characteristics of the 19 ECRs targeted in this study. Except for one, all were working at colleges or universities. Each ECR had earned a PhD. Six held PhDs from foreign universities (31.58%). Seventeen (89.48%) were in the LIS field, while one was in computer science and the other was in communication studies.

However, the KRI site only showed the number of authors for collaborative studies. Thus, this study pooled the roles of lead, corresponding, and non-lead authorship using two sites (i.e., DBpia at <https://www.dbpia.co.kr/> and Google Scholar at <https://scholar.google.co.kr>). Excluding conference proceedings and books, individual journal publications were collected up to five years prior to the year the project was granted. Rather

than finding the journal impact factor, this study also collected impact factor quartile rankings provided by Journal Citation Reports (JCR). This is because journal impact factor is a proxy for journal quality level rather than a precise measure of quality (i.e., it is more appropriate to use the impact factor quartile ranking of journals within the LIS field).

The NRF examines domestic journals in South Korea for evaluation criteria (e.g., regular publishing, strict peer review, and research ethics compliance). Currently, 2,024 journals are listed by KCI; South Korean academic institutes assign credit to authors who publish in this journal. KCI also provides citation counts. However, the collection period was too short for use in this study. For non-SSCI/KCI journals, this study obtained necessary information from individual journal websites.

The trend in ECR journal publishing and authorship can be determined by analyzing metric data (e.g., journal publication productivity and authorship). However, it is difficult to identify the background to and cause of this trend. The publication trend is the cumulative result of the selection and decision processes of ECRs according to each publishing journal. It is, therefore, possible to identify the causes of any related publishing trends by gathering and analyzing the selection and judgment criteria of publishing journals selected by ECRs. These interviews were also useful in determining any related authorship practices or difficulties. In summary, this study conducted a quantitative metric analysis as its primary research method, while a qualitative data analysis was used for support. The specific interview questions were as follows:

Table 1. Details of selected early career researchers

Category	Subcategory	Details	Persons (%)	Subtotal
Affiliation	College/university	Department of library & information science	16 (84.22)	18 (94.74)
		Department of culture, tourism, & contents	1 (5.26)	
		College of general education	1 (5.26)	
	Research institute		1 (5.26)	1 (5.26)
PhD	Domestic		13 (68.42)	13 (68.42)
	Foreign		6 (31.58)	6 (31.58)
Subject field	Library & information science	Information service	4 (21.05)	17 (89.48)
		Library management	4 (21.05)	
		Cataloging & classification	3 (15.80)	
		Bibliography	2 (10.53)	
		Records management & archives	2 (10.53)	
		Digital library	1 (5.26)	
		Information science	1 (5.26)	
		Computer science	Machine learning	
	Communication studies	Organizational communication	1 (5.26)	1 (5.26)
Total			19 (100.00)	

- #1) What influence did you have on the choice of journal in which your research was published?
- #2) Was there pressure on you to publish in top-ranked journals?
- #3a) Does your department, university, or funder have a set of formal authorship guidelines for assigning author roles? If not, how do you decide?
- #3b) Have you ever experienced an inappropriate authorship assignment or listed a non-contributing advisor/senior as an author?
- #4) What difficulties have you faced in journal publishing and authorship? What factors are you dissatisfied with within these areas?

To identify #1, this study derived 10 key factors that could influence journal choice and created ten questions based on these. Nine of the 11 factors proposed by Xu et al. (2018) were used as they were, and one was newly created. Thus the newly created question of this study was “Did you choose the journal because it was an SSCI or KCI journal?” The two questions that Xu et al. (2018) presented but were not adopted in this study are as follows: Is the journal indexed in WoS? Is the journal approved by your university? Their two questions were not only partially overlapping, but also seemed difficult to answer quickly when they are easily understood by interviewees. For these finalized 10 questions, this study asked for answers with a 5-point Likert scale. The findings of #1 are described in Section 4.2.1. Unlike #1, questions from #2 to #4 were open-ended questions that respondents could freely answer, so a transcript of the interview was taken down in note form. Notable contents from the #2, #3a, #3b, and #4 interview responses were taken and summarized by the researcher.

Journal publication productivity and authorship was conducted using articles published by 19 ECRs. On the other hand, the interviews for #1 to #4 were performed only on six ECRs who had published in both domestic and SSCI journals. Interviews with these six ECRs provided a clearer picture of the practices and difficulties of SSCI journal publishing as well as domestic journals.

A telephone interview was conducted by the researcher in August 2018. These interviews were set up in advance and

conducted according to appointments. According to the interviewees, the length of interview time was somewhat different, but the average time per interview was about 30 minutes. These ECRs comprehensively responded to the interview questions. They were aware that their identities would not be revealed and thus did not hesitate in revealing difficulties, complaints, and honest opinions. The interview results for #1 to #4 were given in Section 4.2.

## 4. RESULTS

### 4.1. Current Journal Publishing and Authorship Practices

Over the five-year period examined in this study, four outstanding ECRs published 17 or 18 papers, while another four published five or fewer. This study also searched the personal websites of the ECRs (which did not contain papers) and discovered additional research achievements (e.g., conference proceedings and books).

Table 2 shows the status of the articles published. The 19 studied ECRs published between 0 and 18 articles over the five-year period prior to the NRF project. They published a total of 194 articles (an average of 10.21), or two articles per person annually. These figures are higher than the average annual article counts for ECRs who earned NRF projects in 1998 and 2000.

Table 3 shows publications according to indexed database. The ECRs produced 166 domestic papers, accounting for 85.57% of the total. In addition, 28 papers were published in international journals (14.43%); of these, 25 were SSCI papers (12.89% of the overall total). When converted to an annual per-person statistic, SSCI papers were published at a rate of 0.26. In fact, six authors published between one and five SSCI papers. An analysis of each article revealed that 143 KCI papers were only published in some specific journals rather than being evenly distributed across all journals. A total of 116 papers were published in the top five KCI journals, accounting for 81.12% of all KCI papers. On the other hand, the 25 SSCI papers were evenly distributed across many journals. Of these, 12 were published in different journals.

Table 2. Summary of published articles

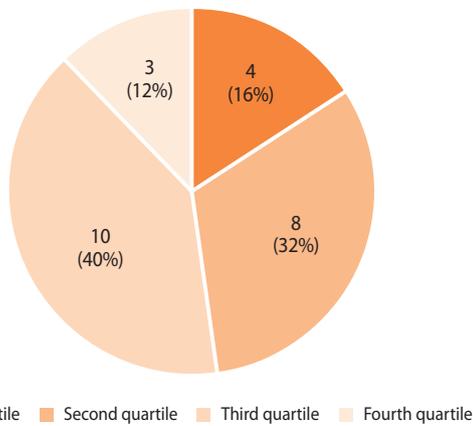
2014-2018 project						1998-2002 project			
Persons	Min	Max	Total	Average	Average per year	Persons	Total	Average	Average per year
19	0	18	194	10.21	2.04	2	6	3	0.6

**Table 3.** Article publishing status as classified by indexed database

Category	Details	Quantity	%	Subtotal	
				Publication count	%
Domestic	KCI	143	73.71	166	85.57
	Non-KCI	18	9.28		
	Others	5	2.58		
International	SSCI	25 <sup>a)</sup>	12.89	28	14.43
	Scopus	1	0.52		
	Others	2	1.03		
Total		194	100	194	100

KCI, Korea Citation Index; SSCI, Social Science Citation Index.

<sup>a)</sup>SSCI articles produced by six authors who had written between 1 and 5.



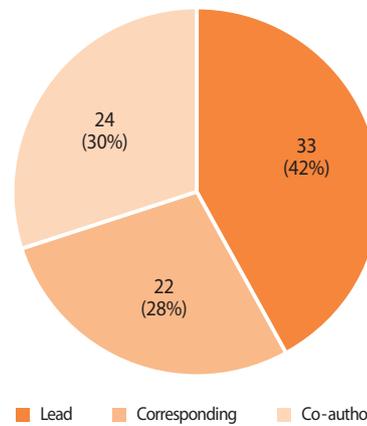
**Fig. 1.** Quartile ranking distribution of Social Science Citation Index-indexed papers.

Fig. 1 shows the impact factor quartile ranking distribution of the SSCI journals in which the ECRs published. The number of titles of each quartile was 4, 8, 10, and 3, respectively; the quartile with the highest frequency was Q3. Q3 and Q2 combined for a total of 18, accounting for 72% of all SSCI publications. This means that the majority of SSCI papers written by South Korean ECRs in LIS are of an intermediate grade. Nevertheless, the overall quartile grade of the papers was not low (almost half of the 25 SSCI papers were Q1 and Q2).

Table 4 shows the number of authors for all 194 publications. Of this total, 115 (59.28%) were single studies, while 79 were joint studies. For joint studies, 46 papers were written by two authors, while only two had more than five authors. Fig. 2 shows the categorization of 79 collaborative studies conducted by ECRs according to author roles. As a result, there were 33 lead authorship papers, 22 corresponding authorship papers, and 24 non-lead authorship papers. A total of 70% of all collaborative studies were from main authors (e.g., lead or corresponding authorship).

**Table 4.** Distribution of author numbers

No. of authors	Publication count	%	Subtotal	% of subtotal
1	115	59.28	115	59.28
2	46	23.71	79	40.72
3	27	13.92		
4	4	2.06		
5	1	0.52		
≥6	1	0.52		
Total	194	100	194	100



**Fig. 2.** Published papers classified by authorship type.

## 4.2. Journal Choice Practices and Difficulties Identified Through Interviews

### 4.2.1. Journal Choice

With the journal titles published alone, it is difficult to know exactly what criteria the ECRs used when choosing journals. This study identified these criteria by conducting interviews with the six studied ECRs who published in both domestic and SSCI journals. Here, almost the same selection criteria from Xu et al. (2018) were used. As shown in Table 5, both results revealed an analogous journal selection policy that first involves publishing in SSCI journals and those approved by universities. Page charges and innovative features had little impact on journal selection. South Korean ECRs appear to be more concerned with high impact factors, topic relevance, and specialist audiences than those researched by Xu et al. (2018).

### 4.2.2. Pressure to Publish in Top-ranked Journals

Random letters were assigned also to the six interviewees.

During the interview, all six ECRs indicated that they felt pressure from their respective departments/universities to publish in SSCI journals (even the top-ranked).

Author A said he was working on publishing in a Q1 SSCI journal and that his university was planning research achievement standards that would only allocate credit for Q1 journals. Despite not being Q1 journals, he said that some specific journals were highly reputable to specialist readers and that he was sorry he was unable to publish in them.

Author B had similar opinions, although she was highly interested in school libraries and had published in an authoritative school library journal with a small readership (this was not an SSCI journal). She earned very little credit for her paper (even less than that given to KCI journals). She admitted that she was very disappointed. She has since decided to publish the paper in a university-approved SSCI journal instead of the specialized journal in which she first wanted to publish.

Of the difficulties related to journal-publishing choice, author C said that there was too much room to choose, but there was a great deal of pressure to publish in top journals. At her department/university, only two LIS journals listed by KCI were approved as national journals. She complained about her department/university, which did not accept all eight LIS journals listed by KCI for credit. In this situation, she explained that researchers will inevitably wait on SSCI/SCI/A&HCI

journal publishing instead of submitting to the few LIS journals listed by KCI that were also approved by her department/university. She also had suspicions that her department/university deliberately insisted on this policy to prevent authors from frequently submitting to KCI journals.

#### 4.2.3. Authorship Guidelines and Inappropriate Authorship Practices

All interview participants said they had no official principles or guidelines for authoring (e.g., those stipulating lead, corresponding, or non-lead authorship). Rather, the lead or corresponding author was generally chosen among all collaborators. However, more specific criteria have now been set; it would help if a documented research management guide was published. For example, the person first proposing the research idea, leading the research initiative, and contributing more than half of the manuscript should be credited with lead authorship.

Except for one, the interviewed ECRs were satisfied with role assignments for multi-authored works. Author C actively participated in publishing research but was not listed as a lead or corresponding author. She complained that she had listed a senior professor who did not participate in writing the paper (a so-called ghost author) as a lead author. The five other ECRs said they had never been pressured to list a senior/advisor who did not contribute to the paper as a co-author.

Table 5. Researchers' responses to factors considered in deciding where to publish

Factor	Importance <sup>a)</sup>	
	This study (Korean 6, 2018)	Xu et al. (Chinese 14, 2018)
Indexed in WoS (SCI, SSCI, A&HCI)	5 <sup>b)</sup>	5
Journal approved by university	5 <sup>b)</sup>	5
High impact factor	4	2
Most relevant to the field	4	2
General prestige	4	5
Fast manuscript processing	4	3
Covers specialist audience	3	1
Open access	2	1
High level of peer review	2	3
No page charges	1	0
Innovative features	1	0

WoS, Web of Science; SCI, Science Citation Index; SSCI, Social Science Citation Index; A&HCI, Arts & Humanities Citation Index.

<sup>a)</sup>The average scores provided by interviewees who rated criteria on a graduated scale from 1=not important to 5=extremely important.

<sup>b)</sup>The question was changed to 'SSCI or Korea Citation Index?' (Refer 3. METHODS).

#### 4.2.4. Additional Comments on Publishing or Authorship

All six ECRs experienced stress during the journal publishing process. Author C said competition between universities raised the research achievement standards for each department/university every few years. Even when a PhD was employed in the same department, the volume and quality standards of research output required for different tenure promotions depended on the promotion policy regarding the employed year of the employee. ECRs are required to publish in journals that meet their own standards. Rather than pushing journal publication on a tenured professor, it is often necessary to boost the quality and quantity of journal publishing required for the promotion of assistant or associate professors. Due to this academic environment, she stated that she always considered a journal that was likely to be accepted among the university-approved KCI or SSCI journals rather than one simply regarded as suitable for the manuscript.

On the other hand, five ECRs excepting author F pointed out the limitations of peer review as a difficulty in journal publishing. These ECRs were confused because referees demanded that the contents or methods listed in the manuscript be considerably revised without full understanding. This was because there were not enough referees in the sub-discipline; such reviews were the results of adjudicator screening. The interviewees also asserted that specialists who were familiar with their sub-disciplines should be supplemented to achieve fair and constructive review feedback.

## 5. DISCUSSION AND CONCLUSIONS

This study gathered journal publishing data from 19 South Korean ECRs in LIS. Subjects were chosen to participate in the NRF's New Researcher Program from 2014 to 2018. This study analyzed the productivity, journals, authorship, and pressures associated with their publishing activities. Six ECRs were also interviewed to ascertain their experiences and opinions related to journal publishing and authorship.

The status of journal publishing for ECRs was generally positive. The 19 studied ECRs published a total of 194 papers over the last five years. Their level of productivity was thus considered good. Domestic papers accounted for 166 (85.57%) of the total. This number was overwhelmingly higher than the number of international papers (28, 14.43%) (Table 3). South Korean researchers typically write papers in their native language and publish the results in a domestic journal. However, such studies are obviously limited in that they are only shared with readers proficient in Korean. Publishing in

domestic journals only partly accomplishes the original purpose of publishing in journals that contribute to the development of science by widely spreading research. In this context, it is understandable that South Korean departments/universities do not award high credit to domestic journal publications. Meanwhile, international journal publications (especially SSCI journals) receive high levels of credit and are encouraged (average credits among 27 universities: KCI, 100; SSCI, 249; Scopus, 142) (Lee & Yang, 2017). SSCI journal papers thus receive approximately 2.5 times the credit of KCI publications. Even at this writer's university, SSCI journal publications are given three times the amount of credit as KCI papers (Sejong University, 2018).

The difficulties for ECRs in publishing in academic journals became more apparent through the interview process. Departments/universities seemed to pressure these ECRs to publish in Q1 SSCI journals. However, this study has already presented that among the 25 SSCI papers written by the examined ECRs, there were only four Q1 papers (16%) (Fig. 1). One ECR stated that his university was preparing a rigorous promotion screening standard that would only reflect Q1 journal publications and the remaining journals would not be recognized. He showed considerable shock and dissatisfaction with these changes. There are several reasons that his university insists on this policy. First, major South Korean universities are competing for positive reputations and rankings. It is possible that obtaining a university rating in the top 10% of papers published (Leiden Ranking, 2018) according to the Leiden ranking may provide considerable prestige. South Korean universities seem to have already found a way to add criteria that imitate the Leiden ranking when conducting faculty research evaluations. Several major universities (including mine) have subdivided the SSCI according to the impact factor quartiles and have begun to assign credits accordingly (Sejong University, 2018). In this way, universities seem to believe that differentiating credits for each quartile has effects that accompany qualitative paper evaluations. Since South Korean universities have used quantitative assessments such as SSCI or KCI paper counts to assess faculty research achievements for decades, it may now be easier for them to make these decisions using the quartiles directly. Thus, the active use of quartile ratings attracts attention because it allows university headquarters to take the initiative in evaluating the research achievements of all professors instead of the senior faculty members of each department only.

Rather than choosing a journal that fit their manuscript topic, most ECRs said they often published in journals with high evaluation credits in which they were likely to pass referee reviews. These were selected among the journals approved by

their departments/universities. Thus, they rarely published in journals with low or no credits. For example, if a journal is enthusiastically read, but only by a narrower readership in the sub-discipline, the impact factor/credit is often low. Some ECRs thus said that even if a journal was suitable for their manuscript, it was unwise to publish in it. Although all researchers (including ECRs) are decisive for immediate research evaluation, it has long been necessary to consider publishing in journals (e.g., sub-discipline journals) that are useful for career advancement (Nisonger & Davis, 2005). Referring to the above, the South Korean university headquarters directly involved in the journal publishing choices of their faculty and which have initiative in the evaluation of their research achievements may invite side effects that will distort the landscape of the academic publishing industry. Researchers, universities, and institutes seeking rankings all seem to require serious improvements in conducting their evaluations of journal articles for long-term academic advancement.

On the other hand, South Korean ECRs seem to have no major authorship problems. Of the total papers, the ratio of single to multi-authored papers was 6:4 (Fig. 2). As not many joint studies were conducted, little conflict was involved in authorship role allocation. In joint studies, for instance, 70% of Korean ECRs have lead or corresponding authorship, while only 30% had simple co-authorship. The interviews also revealed that authors were not disadvantaged by receiving a contributor's role while acting as junior researchers. Only one ECR identified abusive practices in which a listed author did not directly participate in the paper.

Collaborative research is gaining global popularity. It is thus notable that South Korean ECRs in LIS do not show related publishing patterns. Collaboration can encourage author productivity and enhance paper quality not only in science, technology, and medicine but also in social sciences (Bahr & Zemon, 2000; Lee & Bak, 2016). It is therefore worth noting that there is another reason that ECRs were not active in collaborative research. That is, single authorship is recognized as 100% of the total score, but there is concern that departments/universities may have low recognition rates for co-authors. Reports have indicated that three universities award co-author credits below 100% (Lee & Yang, 2017). A university with such a policy may operate with the suspicion that some authors are listed without contributing. However, modern practice involves various digital traces that remain after the collaborative research has concluded. This is because documents are shared by e-mail or through personal cloud storage (e.g., Dropbox) during the process. It is therefore unlikely that unethical social norms (e.g., free-riding or senior preference) will arise. It is thus important to

point out that it is an antiquated practice to lower co-authorship credits.

Authorship guidelines seem highly necessary for dissolving the doubts of these universities while encouraging healthy collaboration. Such guidelines can also be referred to when assigning participatory roles; it has been confirmed that this needs to be specified in future projects. The International Committee of Medical Journal Editors and the Committee on Publications Ethics provide good examples of who should be listed as an author (Brand et al., 2015; International Committee of Medical Journal Editors, 2018). All six ECRs participating in this study's interviews were also very helpful in discussing authorship guidelines and helping to achieve collaboration. These ECRs held the common opinion that collaboration with overseas researchers should be encouraged to actively pursue SSCI publishing.

In the South Korea LIS field there are not enough research projects being carried out through joint research. The scientific community is not large enough to facilitate such collaboration. Less credit is thus given for these efforts. In the case of LIS, a joint study between researcher and librarian, not between researchers, would be particularly practical. In South Korea, however, little research has been done. Future studies will likely reveal the cause of this problem and appropriate countermeasures. More comprehensive and meaningful implications also can emerge if information on the journal publishing practices of senior researchers is also analyzed and combined with this study's results.

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