



Print ISSN: 1738-3110 / Online ISSN 2093-7717  
 JDS website: <http://www.jds.or.kr/>  
<http://dx.doi.org/10.15722/jds.20.03.202203.59>

## A Study on the Strategic Globalization Performance of ‘Journal of Distribution Science’

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Received: February 21, 2022. Revised: March 02, 2022. Accepted: March 05, 2022.

### Abstract

**Purpose:** The purpose of this study is to provide information for other journals as well as the continuous development of distribution science research by confirming the globalization performance of the Journal of Distribution Science (JDS), the main journal of KODISA. **Research Design, Data, and Methodology:** A total of 863 papers published in JDS from 2011 to 2021 searched by scienceON were divided into 4 periods and analyzed under the headings of submission system, standardity, collaboration, and degree of achievement of publication goals. SPSS 24.0 and R 4.1.1 package were used to perform the publication frequency analysis, crosstab-analysis, keyword frequency analysis, and LDA topic modeling were performed. In addition, trend analysis with weight applied to each word was performed. **Results:** It was found that the ratio of English-written papers, which is the indicator of a journal's standardity, is continuously increasing, and the ratio of overseas authors, which is the indicator of collaboration, is also continuously increasing. It was confirmed through keyword trend analysis by period and LDA topic modeling results – which were weighted to confirm the degree of achievement of the journal's publication goal – that the articles published by the journal has been in agreement with monthly research topic proposed by JDS. **Conclusion:** By examining the five criteria for globalization, it can be concluded that JDS's efforts for globalization are achieving significant results and providing effective directions for other academic journals. However, in order for JDS to become a top academic journal, it was suggested that efforts should be made to establish a system for collaborative research by domestic and foreign authors, as well as to provide a clear definition for the monthly research topics and classification of sub-topics.

**Keywords :** KODISA, Globalization, Performance, Journal of Distribution Science(JDS)

**JEL Classification Code:** C10, C19, D30, D39, L82.

### 1. Introduction

The issue of journal globalization, which is of interest in this study, also cannot be free from this phenomenon. For example, Times Higher Education (THE), a British university evaluation agency, has been evaluating the overall competitiveness of world universities since 2004 and has been announcing them every year. According to the announcement on September 1, 2021 it considers the 5 areas which consist of 13 indicators namely, education/learning

conditions (30%), research productivity (30%), research influence (30%), level of globalization (7.5%), and technology transfer (2.5%) (KESS, 2021). For the area of research productivity, the number of papers published by full-time researcher (6%) was evaluated, for the area of research influence the citation index (30%) was evaluated, and for the area of globalization the ratio of international collaborative researches was evaluated. This means that 38.5% of evaluation areas and indicators are related to

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publication of journal articles (KESS, 2021). Therefore, the reality is that full-time researchers at domestic and foreign universities not only have to strive to increase their research productivity and globalization level of their study, but are also under pressure to publish in reputable journals in order to increase the citation index to meet the standard of Research Influence area.

Academic journals are not only a mirror that reflects the theoretical and practical interests of various academic fields, but also a beacon that provides the direction of theoretical systems and research methods, and is a historical record of changes in various theoretical and social phenomena (Yang, 2019; Yang & Yang, 2021). Therefore, researchers are making ceaseless efforts for the purpose of publishing not only in academic journals but also in renowned journals (Yang & Yang, 2021). In addition, from the standpoint of the academic society that operates the journal, good quality papers are selected through strict evaluation and strengthening of ethical standards (Hwang, Lee, Lee, Kim, Yang, Youn, & Lim, 2015; Hwang & Youn, 2016; Hwang, Lee, Kim, Shin, Kim, Kim, Lee, Kim, & Youn, 2017) and efforts are made to actively promote the journal and improve the impact factor (Kim & Youn, 2012; Yang & Yang, 2021).

It is confirmed that there is various academic research conducted, in numerous fields, on globalization of academic journals. For example, Ames (2011) found that the 6 criteria for measuring the success of a journal are the achievement of the journal's publication purpose, influence in academia, cost-effectiveness, continuous quality maintenance, validity and responsiveness to global changes, and duration (Ames, 2011). Moreover, Kim (2012) analyzed, in his study on the globalization of SCI journals publishing in Korea, the change in the number of publications in domestic SCI journals by foreign researchers, along with the increasing trend of international collaborative research between domestic and foreign authors and interest in domestic and international collaborative research network. In addition, Chun (2010)'s study on the globalization of Korean studies suggested enhancement of the exchange value of Korean studies, Park (2007) suggested globalization through liberal arts education that integrates knowledge and values, and Chang (2017) argued that Korea-related design research should communicate with the world to revitalize discourse on Korean design identity in order to achieve the globalization of Korean design researches.

Examining previous studies, the direction of globalization should aim to develop, as shown in <Figure 1> below, the standardization by using English as the common language; the openness for anyone to search and submit; the collaboration by increasing the proportion of overseas authors and international collaborative researches; meeting the publication purpose; and maintaining a continuous quality level by strengthening publication ethics.



**Figure 1:** Criteria for Globalization of domestic academic journals

This study analyzed the standardization, the degree of collaboration and achievement of the publication goal of the all journals published by JDS which can be searched from Science On from 2011 and 2021, in order to check the level of globalization accomplishment.

According to Yang and Yang (2022), among papers on research ethics, published in Korea from 2000 to 2021, the largest number of publications was on bioethics of the Korean Society for Bioethics, and the second largest number was on research ethics, published in Journal of Research and Publication Ethics and JDS, both by KODISA. Such achievements already exhibit the contribution of KODISA in research ethics. So, we will exclude further analysis of this topic in this study.

In addition, JDS has implemented the Open Access System since 2013, and after participating in the National Research Foundation (NRF)'s online thesis submission and review system project (JAMS) in 2014, it implemented ACOMS, the online submission and review management system developed by the Korea Institute of Science and Technology Information (KISTI) from July 2021 in order to preemptively promote the efficiency and convenience of paper submission and review. Therefore, the openness criterion of globalization was deemed to be sufficient, so it is excluded from the analysis.

In order to check the globalization performance of JDS, the analysis was conducted by dividing the analysis period into 4 periods: the period using the internal submission system, period using JAMS, period using JAMS & ACOMS together, and period using ACOMS only. For each period, the ratio of English-written papers was analyzed to see the standardization, frequency analysis and crosstab-analysis was conducted to find out the degree of international collaboration. The degree of achievement of the publication

purpose was analyzed by comparing the topic of actual published papers with the monthly research topics presented by JDS, by using the keyword analysis and weighted trend analysis and LDA topic modeling for the abstracts published in each period.

The results of this study are expected to be able to evaluate the direction of globalization (or internationalization) of JDS, a top academic journal in the field of social science in Korea. It is also expected to provide numerous implications that can contribute to the globalization of many other academic societies and journals.

## 2. About KODISA & JDS

The Korea Association for Distribution Science (KODISA) has succeeded in the quantitative and qualitative growth of its academic journals since 2010. It publishes more than 300 papers per year among other social science journals, and publishes the largest number of copies of more than 12,000 copies per year (Yang & Yang, 2021). The sub-associations of KODISA, according to its website, includes the International Convergence Management Association, Korea Artificial Intelligence Association, Korea Sports Science Association, East Asian Economics and Business Association, Korea Research Ethics Association, Korea 4th Industry Association, and Korea Food and Health Convergence Association. Directly managed journals include Journal of Distribution Science (JDS), The Journal of Asian Finance, Economics, and Business (JAFEB), The Journal of Industrial Distribution & Business (JIDB), and Asian Journal of Business (AJBE), East Asian Journal of

Business Economics (EAJBE), The Journal of Economics, Marketing and Management (JEMM), The Korean Journal of Franchise Management (KJFM), Korean Journal of Artificial Intelligence (KJAI), The Journal of Sport and Applied Science (JSAS), The Journal of Wellbeing Management and Applied Psychology (JWMAP), The Korean Journal of Food & Health Convergence (KJFHC), The Journal of Research and Publication Ethics (JRPE), Fourth Industrial Review (FIR), and KODISA ICBE Proceedings: KODISA International Conference on Business and Economics (ICBE).

Youn, Kim, Lee, Hwang, and Lee (2014) stated in their Editorial Review that since 2013 the website of JDS, JIDB, EAJBM (renamed to AJBE), and JAFEB are English-based and are adopting the Open Access System. Moreover, as of December 2013, more than 60% of contributors and editors/reviewers for JDS, more than 90% for JIDB, AJBE, and JAFEB are from overseas (Youn et al., 2014). In addition, all Korean-language articles provide English abstracts and English references to help foreign researchers, and JEL Classification Code is used to ensure the professionalism. KODISA is establishing an international cooperative research system by providing a basis for international diversity of editors and authors and the publication of a vast amount of papers (Youn et al., 2014). As such, it is certain that KODISA is putting enormous effort to globalize not only academic journals under their direct management, but also academic journals of its affiliated societies.

A summary list of information on each journal registered in the Korea Citation Index (KCI) is presented in <Table 1>.

**Table 1:** KODISA Journal List

Journal	Academy	Year of first publication	Research field	language of publication	Annual publication period	Journal Grade
JDS	KODISA	1999	Industry/service economy	English	12 times	SCOPUS KCI
JAFEB		2014	economics			ESCI KCI
JIDB		2010	economy by sector	English/ Korean		KCI
AJBE (≡ EAJBM)		2011	Business	English	4 times	KCI
FIR		2021	Corporate/ Industry/Technology Management	English	2 times	-
KODISA ICBE		1999	Social Science/ Finance/Economics/ Business Management		1 times	Proceedings
EAJBE	EABEA	2013	Industry/service economy	English	4 times	KCI
JEMM	ICMA	2013	Business Administration		6 times	KCI
KJAI	KAIA	2013	science and technology		2 times	KCI candidate
JWMAP	KWCA	2018	Welfare/Health/Welfare Economy		4 times	
KJFHC	KFHCA	2015	science and technology		6 times	
JSAS	KSSA	2017	sports management		English/ Korean	4 times
JRPE	KREA	2020	business ethics	2 times		-
KJFM	KSFM	2009	Sales management/marketing	4 times		KCI

JDS, the analysis target of this study, is the main journal of KODISA and has published an average of 123.9 papers annually since 2014 (Yang & Yang, 2021). JDS, a journal directly managed by KODISA, is one of the first participants for the National Research Foundation (NRF)'s online journal submission and review system project (JAMS) on June 20, 2014 and used JAMS for 6 years. The online submission review management system (ACOMS) developed by the Institute of Science and Technology Information (KISTI) was introduced and used together with JAMS, and from July 1, 2021, JDS has completely converted to ACOMS. The purpose of conversion to ACOMS was to promote the efficiency and convenience of review by the foreign researchers. At the same time, JDS is putting effort to achieve the purpose of the journal by suggesting monthly research topics to researchers so that research in various distribution fields can be represented. <Table 2> presents the monthly research topics suggested by JDS.

**Table 2:** JDS's Monthly Suggested Study Topics

Month	Topic	Detailed topic
January	Retailer brand (Private label, Private brand, store brand, etc.)	Customer attitudes, development and handling process, etc.
February	Retail policy	Customer attitudes towards retail regulations, effects of regulations, international comparison, etc.
March	Instore merchandising	Customer attitudes, display, store lay out, store atmosphere, store management, product management, product assortment, etc.
April	Retail economy (retail theory)	Competition structure, retailing structure, retailing system (retailing, wholesaling), evolution of retail format, etc.
May	International retailing	Market entry modes, retail strategy, a case study, etc.
June	General customer behavior	Store selection, product selection, shopping patterns, ethics, price, promotion, complaints, etc.
July	On-line retailing	Customer behavior, business models, bitcoin, block chain, etc.
August	Retail buying	Global sourcing, buying organization, buying methods, a case study, etc.
September	Supply chain management	Relationships, a case study, etc.
October	Retailing Management	Accounting, financial performance analysis, loss rate, loss prevention, ROI improvement, ROI analysis, etc.
November	Retail location and, Other issues	Retail services, entrepreneurship, etc.
December	Special issues	Traditional market management, small- and medium-sized retailers, etc.

Source: KODISA JAMS (2022).

### 3. Research Methodology

#### 3.1. Analysis Methods

To carry out this study, JDS papers loaded in science ON of Korea Institute of Science and Technology Information were searched. For analysis, frequency analysis and crosstab-analysis were performed using SPSS 24.0, and topic modeling using LDA (Latent Dirichlet Allocation) algorithm, and keyword frequency analysis for the journal abstracts and word-clouding were performed using R 4.1.1 package. For data visualization, LDAvis, a web-based topic modeling visualization tool that can easily identify major topics and words by ranking each topic and words within the document according to their importance (Sievert & Shirley, 2014), was used.

#### 3.2. Data Collection

A total of 863 papers were searched for 11 years from 2011 to December 2021. In order to check the performance of using the online submission system, the period of using the self-submission system (January 2011 to May 2014), the period of using the JAMS (June 2014 - May of 2020), the period of using the JAMS & ACOMS concurrently (June 2020 to June 2021) and the period of ACOMS (July 2021 to December 2021) were divided and analyzed as shown in the Table 3.

**Table 3:** Number of papers per period

Period (Submission system)	Year(Month)	number of papers
1 <sup>st</sup> Period (Self-submission system)	2011	36
	2012	64
	2013	91
	2014(May)	29
	sum	220
2 <sup>nd</sup> Period (JAMS)	2014(June)	53
	2015	83
	2016	106
	2017	82
2 <sup>nd</sup> Period (JAMS)	2018	67
	2019	95
	2020(May)	38
	sum	524
3 <sup>rd</sup> Period (JAMS & ACOMS)	2020	50
	2021(June)	32
	sum	82
4 <sup>th</sup> Period (ACOMS)	2021(July-December)	37

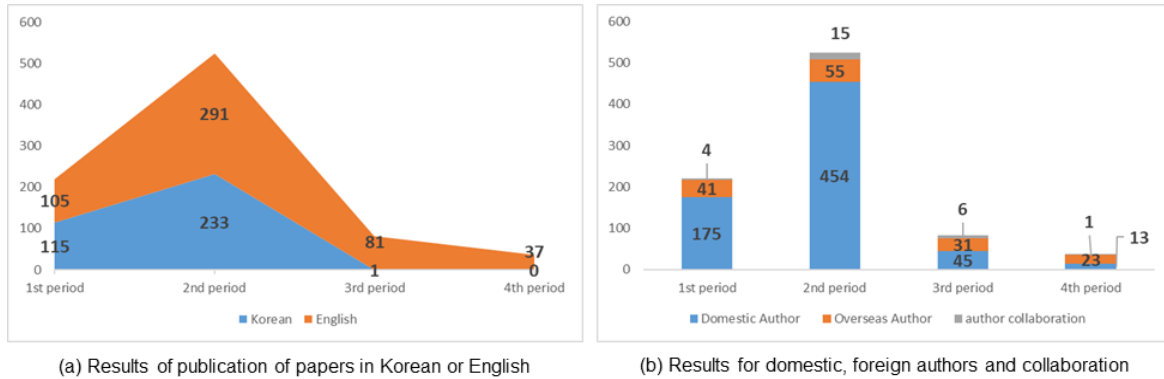


Figure 2: Analysis of languages used and authors by period

## 4. Analysis Results

### 4.1. Keywords and Author Analysis by Periods

To analyze the degree of standardization the ratio of English-written papers was calculated. As shown in (a) of <Figure 2>, English-written papers accounted for 47.7% (105/115) during the period of using internal submission system, 55.5% (291/233) during the period using JAMS, it increased to 98.8% (81/1) in the period of concurrent use of JAMS & ACOMS, and 100% (37/0) in the period of using ACOMS. This seems to be because JDS changed its policy from a mixed publication in Korean and English to an all-English publication.

In order to analyze for the collaboration, frequency analysis was performed after coding the target papers as three groups; Domestic author when the author is from the a domestic (i.e., Korean) institution, Foreign author, and domestic/foreign collaboration. The result of the analysis, as shown in (b) of <Figure 2>, identified that the proportion of foreign authors was 18.6% (41 articles) during the period of using the internal submission system, and slightly decreased to 10.5% (55 articles) during the period of using JAMS, but it increased to 37.8% (31 articles) during the JAMS &

ACOMS concurrently used period and 62.2% (23 articles) during the ACOMS used period. However, the degree of collaboration between domestic and foreign authors was 1.8%, 2.9%, 7.3%, and 2.7% for the same period, indicating that the degree of collaboration is still not sufficiently large.

Meanwhile, the result of crosstab-analysis using SPSS 24.0 showed that the Pearson  $\chi^2$  value for the period and language was found to be 93.805 (df=3, p= .000) and 101.742 (df=6, p=.000) for the period and nationality. These results indicate that the increase in the degree of publication of English-written papers and the proportion of overseas authors according to the period is statistically related and it can be predicted that it will increase further in the future. Therefore, it can be said that JDS has made achievements for globalization in terms of standardization and collaboration by increasing the proportion of overseas authors after implementing the ACOMS system and by its policy change to take only English-language papers.

### 4.2. Keyword Analysis and Word Clouding

<Table 4> and <Figure 3> show the results of keyword analysis and word clouding on the abstract of the papers to be analyzed using the R 4.1.1 package.

Table 4: Top 20 words through keyword analysis

Ranking	1 <sup>st</sup> Period		2 <sup>nd</sup> Period		3 <sup>rd</sup> Period		4 <sup>th</sup> Period	
	Word	Fq.	Word	Fq.	Word	Fq.	Word	Fq.
1	market	470	consumer	777	customer	108	distribution	42
2	customer	452	customer	703	consumer	102	consumer	41
3	consumer	382	service	658	product	93	online	35
4	brand	350	product	531	service	83	performance	33
5	service	325	market	520	quality	77	behavior	32
6	quality	272	brand	511	satisfaction	63	customer	30
7	store	253	social	482	distribution	62	relationship	29
8	product	237	relationship	479	relationship	60	channel	27
9	business	230	satisfaction	458	brand	54	social	26
10	company	222	performance	411	marketing	47	product	25

11	relationship	221	business	405	market	43	strategy	25
12	satisfaction	196	industry	377	purchase	42	shopping	21
13	price	177	company	368	strategy	41	entrepreneurial	20
14	traditional	177	distribution	321	industry	37	marketing	20
15	marketing	176	strategy	313	online	37	purchase	20
16	strategy	170	purchase	311	business	35	service	20
17	industry	164	information	297	social	35	industry	18
18	system	153	store	290	performance	33	supply	17
19	retailer	149	quality	285	information	32	covid	16
20	distribution	142	support	272	environment	31	government	16

Note) Fq. means frequency (Excluding 'man' and 'ment' among words in each period)



(a) 1st Period



(b) 2nd Period



(c) 3rd Period



(d) 4th Period

Figure 3: Results of Word clouding

### 4.3. Weighted Trend Analysis for Keywords

As mentioned in the data collection, frequency of journal publication during each submission system's period is different, and hence it is difficult to directly compare each other. Therefore, weight was given to each period based on the period of using JAMS which has the highest number of paper published, and then, analyzed the changes in keywords by each period. As shown in <Figure 4>, by using

the trend line analysis, for the words appearing in all four periods the words with decreasing frequency are presented on the left side of the figure (e.g. market, customer, consumer, etc.), and words with increasing frequency are presented on the right side of the figure (e.g. distribution, online, performance, etc.). Words marked with a dotted line are words that appear only during that period, and words that appear limited to a specific period are indicated in the middle of the figure.

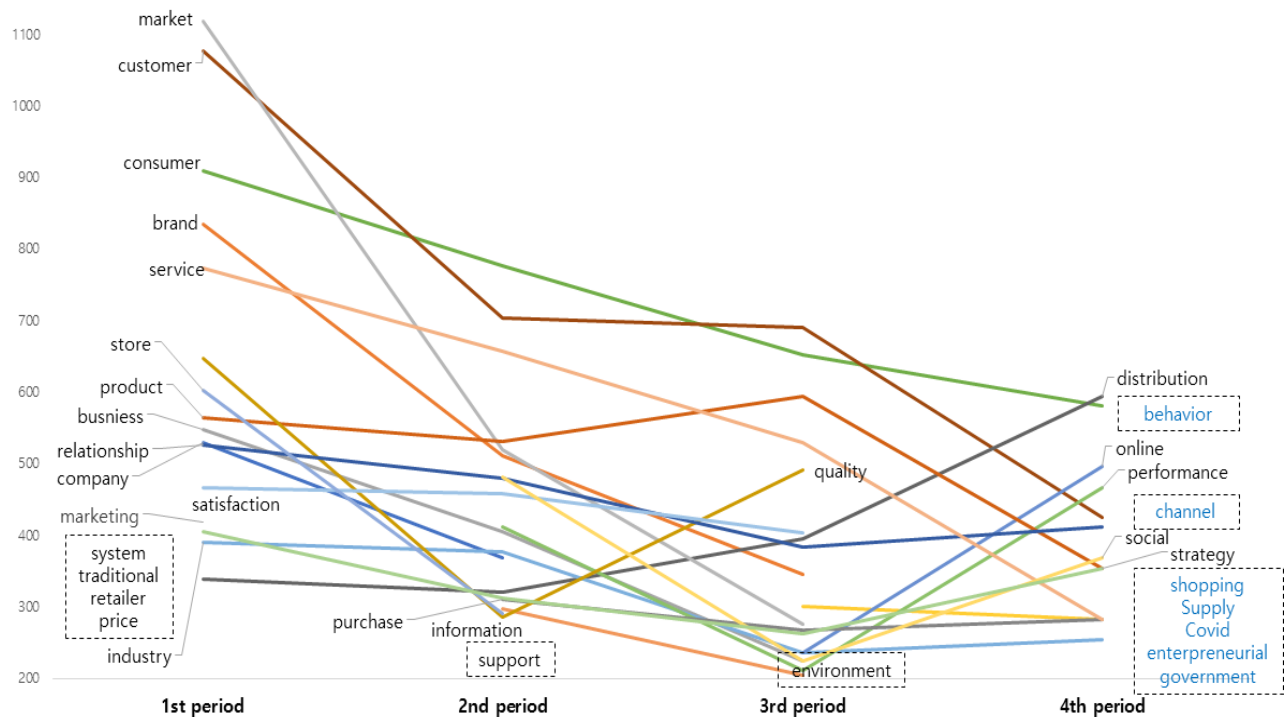


Figure 4: Keyword trend analysis result with weight applied

The result of the analysis showed that among the top 20 words, the words whose frequency increased until the final period were 'distribution', 'online', 'performance', 'social', and 'strategy', and the words that appeared only during the ACOMS period were 'behavior', 'channel', 'shopping', 'supply', 'Covid', 'entrepreneurial', 'overnment', etc. These results indicate that when JDS used JAMS in the past, it published papers on wide-ranging research topics in the marketing field, some not directly related to the distribution. But recently, research topics of JDS are being more in agreement to the distribution science field. Also, the number of foreign authors has increased.

#### 4.4. LDA Topic Modelling

The research of Yang (2021) and Yang and Yang (2022) LDA topic modeling was conducted with the expectation that analysis of research topics for each period can demonstrate the changes in JDS's publication purpose, although some of the changes can already be seen by examining <Figure 4>. The preprocessing process for topic modeling was omitted. The number of topics (K) was determined by using the method proposed by Griffiths and Steyvers (2004), Cao, Xiz, Li, Zhang, and Tang (2009), Arun, Suresh, Veni Madhavan, and Narasimha Myrthy (2010), Deveaud, SanJuan, and Bellot (2014) as the Find Topics Number command of the R package. The result of the analysis showed that the number of topics during the

internal submission system period was 13 and 12 during the JAMS period, 5 during the JAMS & ACOMS period, and 6 topics during the ACOMS operation period.

Topic names were set based on the monthly research topic suggested by JDS in <Table 2> and analyzed to confirm that it is relevant to the publication direction of JDS. As a result of the naming, <Topic 1> and <Topic 10> of the internal submission system period were not classified as the monthly research topics, so they were named 'Retail strategy' (Topic 1) and 'Economic issues' (Topic 10), and similarly the <Topic 12> of the JAMS period was not classified but the words were similar to <Topic 10> of the internal submission system period so it was named as 'Economic issues' (topic 12). The topic names are presented in <Table 5>, and the result of visualizing topics by period with LDAvis is presented in <Figure 5>.

As shown in <Table 5>, during the internal submission system period, research topics were slightly different from the monthly topics suggested by JDS. The fields 'Retail strategy', 'Retail buying', 'Special issues', and 'Retail economy' accounted for 50.7% of the total research subjects. However, during JAMS period most of papers were fit the monthly topics although 'Economic issues' (2.5%) was included. 'Online retailing', 'Retail policy', 'Retail economy', 'Retailing management', 'Retail buying' was found to account for 59.2% of all research topics. On the other hand, during the mixed period of JAMS & ACOMS, 'Online retailing' and 'SCM', out of a total of 5 topics,

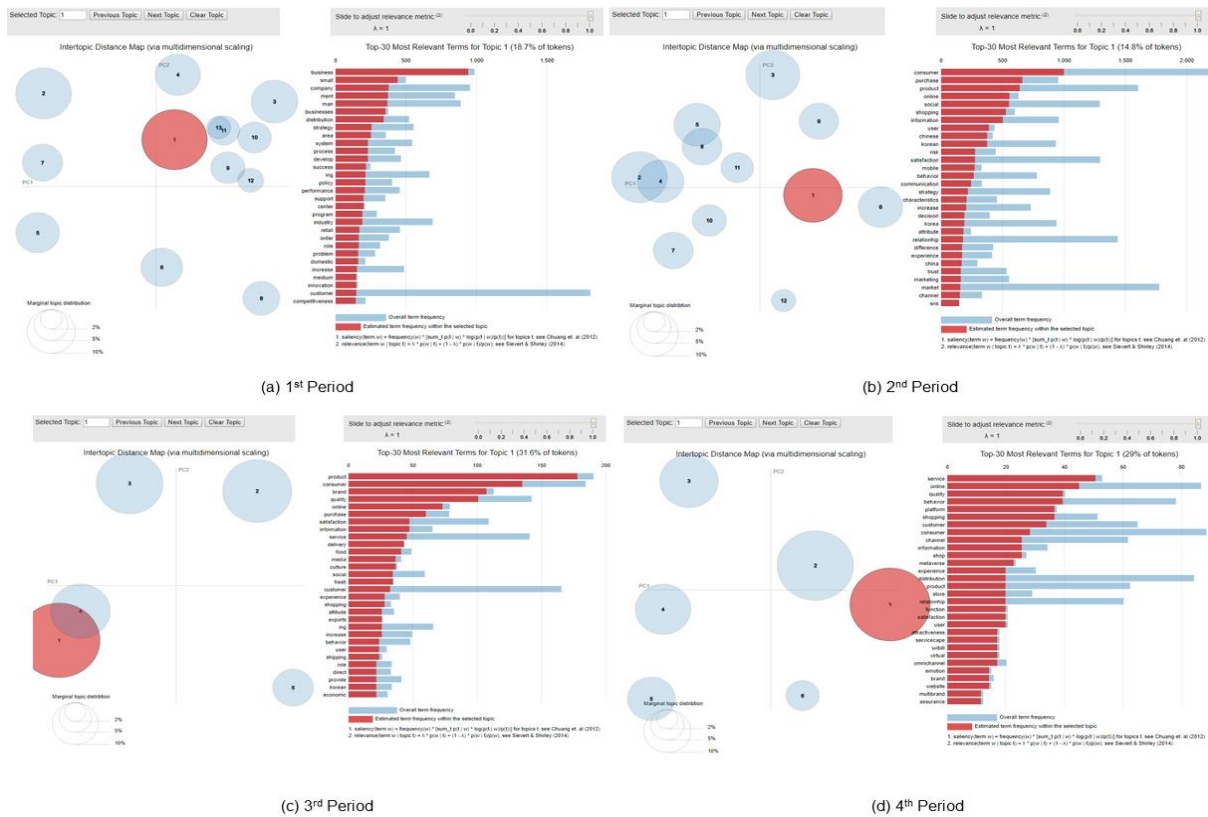
accounted for 54.2% of the total research topics, and during the ACOMS operation period, 'Online retailing' and 'Instore merchandising' were 55.3 of the research subjects. % was confirmed. Although the number of papers published during the mixed period of JAMS & ACOMS and ACOMS

operation period is smaller than that of other periods, this result means that the monthly research topic proposed by JDS is likely to be settled, and researches related to major issues in the distribution field are being published.

**Table 5:** Topic Name & Token Ratio by Period

No	1 <sup>st</sup> Period		2 <sup>nd</sup> Period		3 <sup>rd</sup> Period		4 <sup>th</sup> Period	
	Topic name	%	Topic name	%	Topic name	%	Topic name	%
1	<b>Retail strategy</b>	18.7	Online retailing	14.8	Online retailing	31.6	Online retailing	29.0
2	Retail buying	13.6	Retail policy	13.3	SCM	22.6	Instore merchandising	26.3
3	Special issues	9.5	Retail economy	12.5	<i>Customer behavior</i>	21.2	Retailing management	15.5
4	Retail economy	8.9	Retailing management	9.3	Retailing management	16.8	Retail buying	13.9
5	Instore merchandising	8.4	Retail buying	9.3	Retail buying	7.8	SCM	10.3
6	<i>Other issues</i>	7.6	Retailer brand	8.5			Retailer brand	5.0
7	Retailer brand	7.1	SCM	6.8				
8	Retail policy	6.0	Special issues	6.8				
9	SCM	5.2	<i>Customer behavior</i>	6.6				
10	<b>Economic issues</b>	5.0	KODISA Journals	5.0				
11	Online retailing	4.5	<i>Other issues</i>	4.6				
12	KODISA journals	3.0	<b>Economic issues</b>	2.5				
13	Retailing management	2.6						

Note: Other issues represent retail location and other issues, and Customer behavior represent the general customer behavior. Words in bold font indicate the research topics not included in <Table 2>.



**Figure 5:** LDAvis Visualization Results by Period



The results of LDAvis in <Table 5> are as follows. First, during the internal submission system period, 'Online retailing' of <Topic 11> and 'Retailing management' of <Topic 13> overlapped significantly, this means that related studies were published. Meanwhile, during the JAMS period, 'Retail policy' of <Topic 2> and 'Retailing management' of <Topic 4> overlap significantly, 'Retail buying' of <Topic 5> and 'Special issues' of <Topic 8> also overlapped, confirming that related studies were published. During the JAMS & ACOMS period, 'Online retailing' of <Topic 1> and 'Retailing management' of <Topic 4> appeared to overlap, but during the ACOMS period, different issues were studied for each topic. This result can also be interpreted as that although the absolute amount of papers presented during the ACOMS period is fewer than the other periods the researchers, especially overseas researchers, are submitting papers that are relating to the research topic proposed by JDS.

## 5. Summary and Discussions

In order to examine the globalization performance of JDS, the main journal of KODISA, this study examined the standardization, openness, collaboration, achievement of publication goal which are the given criteria when assessing the level of globalization. Further, standardization, collaboration, and achievement of publication goal in terms of the publication ethics were examined. The analysis was conducted by dividing JDS publication period by four periods based on its operating submission and review system, namely, internal submission system period, JAMS period, JAMS & ACOMS period, and ACOMS period. The results of analysis are as follow;

First, the proportion of English-written papers were identified to check the degree of standardization for each period. It was confirmed that the percentage of English-written papers increased as the periods elapsed, and that 100% of the papers were published in English during the period of using ACOMS. Moreover, the results of crosstab-analysis on the proportion of publication of English papers by period showed that the Pearson  $\chi^2$  value was 93.805 (d.f=3, p=.000). This means that it is statistically significant to expect the increase in the number of English papers in the future. Therefore, it can be concluded that JDS is meeting the criteria of standardization, which considers the use of the English language.

Second, the ratios of Korean and overseas authors were analyzed to confirm collaborations. It was found that the ratio of overseas authors increased considerably from the period of using JAMS and ACOMS, and increased to 62.2% during the period of using ACOMS. The result of crosstab-analysis of the period and author showed the Pearson  $\chi^2$

value was 101.742 (d.f=6, p=.000), which indicate that the continuous increase in the proportion of foreign authors in the future. However, the analysis indicated that there is lack of domestic and foreign collaborative researches, which is another criterion for the collaboration, indicating that a supporting strategy is needed.

Third, the result of weighted keyword analysis showed that the words which increased in frequency by period were 'distribution', 'online', 'performance', 'social', and 'strategy', and words that appeared only during the ACOMS period were 'behavior', 'channel', 'shopping', 'supply', 'Covid', 'entrepreneurial', 'government', etc. This result can be said that JDS is being refined into research topics that fit its publication purpose, which is focusing on distribution science, compared to the past when various research topics of marketing were published, including distribution science.

Fourth, as a result of LDA topic modeling by period, the number of topics during the internal submission system period was 13 and 12 during the JAMS period, 5 during the JAMS & ACOMS period, and 6 during the ACOMS period. As a result of comparing these by naming them based on the monthly research topic proposed by JDS, there were some topics that could not be classified as the monthly topics during internal submission system period and JAMS period, but the topics of the JAMS & ACOMS period and ACOMS period were relevant to the monthly research topic proposed by JDS. This result also suggests that even though the number of published papers is fewer compared to other periods, the monthly research topic proposed by JDS is likely to be settled, and it means that researches related to major issues in the distribution field are being published. It can be interpreted that the JDS is achieving its publication goal to some extent.

Based on the analysis of globalization performance of JDS, the following implications and points for improvements in the globalization process for other journals can be stated,

First, the results related to publication ethics and openness that JDS is aiming for can be used as benchmarks for other academic journals aiming for globalization. JDS is the main journal published by KODISA and has published various papers related to research ethics (eg, Hwang et al., 2014; Hwang et al., 2015; Hwang et al., 2017; Hwang & Youn, 2016). The research ethics of the Korean Research Ethics Society (JRPE) was founded as a branch journal and continue to put emphasis on the strict publication ethics. Regarding openness, the Open Access System has already been implemented since 2013. JDS was also the first participant of the National Research Foundation (NRF) Online Journal Submission Review System Project (JAMS) in 2014. From July 1, 2021, it implemented the online submission review management system (ACOMS) of the Korea Institute of Science and Technology Information

(KISTI), which made it easier for both domestic and overseas researchers to search and submit their paper, in an environment similar to that of leading overseas academic journals. Therefore, other academic journals aiming for globalization will be able to benchmark JDS's strategic approach or lay the groundwork for globalization through consulting. In particular, it is important to note that the proportion of overseas contributors has increased since the introduction of ACOMS, and this should be further strengthened.

Second, JDS policy to only accept English-language articles has contributed to its globalization. Even if this policy cannot be wholly implemented, English-language abstracts and English-language references should be provided for Korean-language articles. The use of the JEL Classification Code strengthened the diversity of editors and authors, and it is an effective operating strategy to become an international academic journal. These results suggest that other academic journals aiming for globalization need to examine their publication policies and consider the possibility of converting them to English papers. Lastly, there should be a strategy for increasing the citation of articles in Korea-based journals, including JDS.

Third, the proportion of publications by overseas authors in JDS is expected to increase continuously, so the ratio of overseas authors to meet the criteria of collaboration is expected to be satisfactory. However, the result of analysis showed that the cooperation between the Korean authors and foreign authors is insufficient and there should be measures to promote more collaborative research. For example, collaboration between Korean and foreign authors can be promoted by holding international conferences, etc. However, such effort is uncertain in the COVID-19 pandemic situation, and other measures should be taken.

Fourth, as a result of LDA topic modeling, it was found that the monthly research topics of the JDS were relatively adequate, but it was found that more sophisticated research topics should be given and applied. JDS, the main academic journal of KODISA, launched in 1999 as a society pursuing complex and convergence studies related to the overall field of distribution. It proposed to publish original research on distribution economics and distribution management issues. Therefore, in order to deal with various topics in the distribution field, it is necessary to present the definition of the research topic more clearly and to refine the classification of sub-topics. This is because, in the distribution field, sub-themes are expected to change according to the rapidly changing environment such as the 4th industrial revolution. This reconstruction will provide great help to other academic journals in setting and presenting the publication purpose for globalization.

Although this study confirmed various evidences on globalization performance, there are some limitations, so

future studies need to supplement this. First, although it is clear that the classification into the four periods could assess the openness of journal and compare the online submission systems, the limitation is that the frequency of submissions during the JAMS & ACOMS period and, in particular, the ACOMS period is relatively small. Therefore, continuous monitoring of published papers during the ACOMS period is needed, not only for the purpose of JDS to become the best journal through continuous globalization, but also for analysis of the effectiveness of the submission system. Second, based on previous studies, this study presented the criteria for globalization as five factors: standardization, openness, collaboration, publication purpose, and publication ethics, but there may be additional factors. Therefore, in future research, it will be necessary to analyze the top foreign academic journals from various viewpoints to identify additional standards.

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