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THE GLASS CEILING? LEVEL OF INTEREST IN THE SUBJECT OF ACADEMIC LIBRARIES AROUND THE WORLD IN 2013-2022. THE RESULTS OF QUANTITATIVE ANALYSIS OF PUBLICATIONS FROM THE SCOPUS DATABASE

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KEYWORDS: Academic libraries. Scopus. Bibliometric analysis. Publication barriers. University libraries. Scholarly productivity.

ABSTRACT: **Thesis/Objective** – The purpose of this paper is to show the level of interest in topics related to academic libraries worldwide, as measured by the number of research articles retrieved from the Scopus database. **Research/method** – This study adopts the bibliometric analysis approach. The methodology involved journal article searches in the Scopus database relating to the field of library information science with 2013-2022 as the date limiter. The primary search terms came from the topic of this study and were expanded with secondary search terms by using the Boolean operator: AND. The secondary keywords originated from the literature review and the search process. Results were stored in an Excel file, and they were evaluated based on the research questions. During analysis, the following were established: the yearly distribution of articles; the subject area of the articles; the list of preferred journals; the top list of publishing authors and the countries and languages they represented; the keywords used to characterise the articles. **Findings** – 7870 articles were analysed. Considering the data collected, it was found that the arithmetic mean was 796 texts per year, while the median was 750. The largest number of texts appeared in 2021, the fewest papers were published in 2014. Most of articles were in social sciences. The most popular journal was "Library Philosophy and Practice" (920 articles), followed by "Journal of Academic Librarianship" (474 articles). It was noted that American researchers dominated among the authors (39% of all texts). At the same time, underrepresentation of research findings from many countries around the world was observed, which makes it very difficult to conduct comparative research. **Value** – The authors put forward a rather provocative thesis that perhaps researchers from those countries have difficulty 'breaking through the glass ceiling', understood as the presence of a number of impediments and barriers to publishing abroad. The authors have identified a potential list of such barriers, the verification of which requires further, in-depth research. This study provides a foundation for further research on the topic, as well as resources to be used by LIS researchers, practitioners, and students.

INTRODUCTION

Reviewing the resources of databases in search for answers to questions about the trends in science development and the state of research on a given problem or issue has recently been a useful and increasingly popular scholarly practice. Although it does not always involve a qualitative assessment of the data collected in this manner (Osiński, 2019, p. 45), in the social sciences it is precisely such large collections of digital data (including numerical data) from, for instance, commercial and non-commercial databases that make it possible to grasp the complexity of phenomena, forecast changes and anticipate the development of science. Therefore, the use of such data, sometimes referred to as 'the end of theory', is a method for explaining problems, one that is alternative or complementary to the testing and validation of theoretical models (cf. Masto, Männiste, Siibak, 2020, p. 39). Although some researchers raise the issue of the poor quality of automatically extracted data and point to its low reliability, validity, incompleteness, and often irrelevance (Osiński, 2019, p. 46), others posit the opposite and believe that the fact that the research material was subjected to quality control prior to being entered into the database proves its value, and that mistakes do not provide grounds for excluding the bibliometric method. The authors of this paper concur with the latter group of researchers. Just like Yogesh Bhatta, Karminder Ghumana and Amandeep Dhir, they believe that bibliometric analysis makes it possible to assess the state of science and identify its development trends (Bhatta, Ghumana & Dhir, 2020; Dora and Kumar 2020, p. 246).

LITERATURE REVIEW

Research aimed at characterising publication trends based on texts published in scientific journals has been conducted in various disciplines since at least the late 1960s, with the greatest interest in it observed in the most recent two decades of the 21st century. For instance, Alexandra Bancheva conducted a quantitative assessment of scientific publications related to Arctica and indexed in the Scopus database for the years 2007-2016. She observed a systematic increase in the literature in that research area, and the findings of the study served as the first step to her developing a typology of Arctica-related issues (Bancheva, 2019). Celia Schwertmann, Colin Curtain and Gregory Peterson reviewed and evaluated pharmacy journals. Using five selected indicators, they checked 308 scientificjournals for, among other things, quality, publishing opportunities or presence in major databases (Schwertmann, Curtain & Peterson, 2021).

Among the articles that present the results of bibliometric studies, one can find both papers resulting from content analysis of a single database

(Chong-Carrillo, Moraes-Valenti, Vega-Villasante, Chávez-Chong, Arencibia-Jorge, & Michán-Aguirre, 2018; Onyancha, 2020) and those in which authors compare results obtained from two or more databases (Chertow, Kanaoka, & Park, 2021; Martínez-Heredia, González-Gijón, Soriano Díaz, & Amaro Agudo, 2021; Lee & Kim, 2022). Understandably, bibliometric research is most often performed using the resources of the Scopus and Web of Science databases. However, there are also studies conducted using the resources of the Google Scholar search engine, which indexes not only the metadata of documents, but also their content (Chertow, Kanaoka, & Park, 2021, p. 914).

Data from bibliographic databases (Scopus, Web of Science) demonstrates that the following were the most frequently addressed LIS research topics in 2019-2022: information literacy education (96.7 percentile) (including e.g. information skills, Internet skills, distance education, media literacy), e-books (90.3 percentile) (including e.g. patron-driven acquisition, digital libraries and collections, information behaviour), information sources (84.6 percentile) (including e.g. scientific electronic resources, university library resources, e-journals, university library user satisfaction surveys), library technology (85.5 percentile) (including e.g. national information systems, library services, job market for librarians), academic libraries (85.4 percentile) (including e.g. library services, automation, use of ICT, automated library systems, information sources, library staff). It can be seen from that data that the topic of academic libraries is one of the most frequently addressed themes in LIS research worldwide. Similar conclusions can be drawn from bibliometric analyses conducted by Omwoyo Bosire Onyancha, who demonstrated that in 2001-2005 this topic ranked fourth among the most popular ones, following 'bibliometrics', 'knowledge management' and 'social media' (Onyancha, 2018, p. 465). Manoj Kumar Sa and Mallikarjun Dora obtained analogous findings, having analysed LIS publications by Indian authors for the period 1944-2017. In their study, academic library research ranked fourth, too, following bibliometrics, library technology and library collections (Sa & Dora, 2019).

Among the numerous works that analyse publications, it is noticeable that works that describe quantitative research dominate, with an equally noticeable paucity of studies undertaking qualitative analysis. However, due to the lack of access to studies on academic library research from all countries, it is difficult to make relevant comparisons and assess the scale of development of this field of work. Certainly, however, quantitative analyses make it possible to show the development of a discipline, the productivity of authors or institutions, even though authors apply different criteria when they select their research material (such as a varying number of articles, journals, timeframe, type of publications, their language, elements of bibliographic description). Some of the limitations ap-

plied by authors of papers that document bibliometric research are listed below.

LIMITATIONS RELATED TO CHRONOLOGICAL COVERAGE

In terms of the time frame, the literature demonstrates that researchers adopted the following time frames for their studies: (1) one year (Kumpulainen, 1999; Koufogiannakis, Slater & Crumley, 2004); (2) two years (Aharony, 2012); (3) five years (Tiew, Abrizah & Kaur, 2001; Sootheran, 2014), (4) ten years (Atkins, 1988; Rochester, 1995) and (5) twenty years (Antczak & Gruszka, 2022).

Nevertheless, some deviations from those periods were also noted. Nadeeem Siddique and his team conducted a bibliometric analysis of articles published by Pakistani LIS researchers in a period of more than 60 years (1957–2018) (Siddique et al., 2020), while Manoj Kumar Sa and Mallikarjun Dora studied publications by Indian authors that appeared over the period of 73 years (1944-2017) (Sa & Dora, 2019). Similar studies were also conducted by other researchers (e.g., Kajberg, 1996; Singh & Chander, 2013; Godfrey, 2016; Dora & Kumar, 2017; Eschenfelder et al., 2019; Armann-Keown & Patterson, 2020; Han, 2020; Sahu & Parabhoi, 2020; Mukherjee, 2020). Moreover, some scholars limited their analyses by applying interval sampling (Järvelin & Vakkari, 1993; Ma & Lund, 2020).

LIMITATIONS IN THE WAYS IN WHICH THE RESEARCH MATERIAL WAS SELECTED AND THE TERRITORIAL COVERAGE

When studying LIS research development trends, authors selected their research material in different ways. Sometimes, these were articles published in a single journal. At other times, texts from several or more journals were included. For instance, Ali Hydar, M. Mahadevamurthy and B. M. Jagadeesha focused on the content analysis of "Journal of Academic Librarianship". It arises from the results of their study that 162 articles were published in that journal in 1999, authored by 184 researchers. Among them, researchers from the USA predominated (81%). Over 16 years (1999–2014), an average of 115 texts on academic libraries were published annually in that journal (Hydar et al., 2015). Wai Sin Tiew, Abrizah Abdulah and Kiran Kaur An also focused on articles published in one journal, "Malaysian Journal of Library & Information Science". Having analysed articles from 1996-2000, they determined, among other things: the scope and length of articles, the percentage of multi-authored papers, the most frequently published authors, the affiliation of individual researchers, and the most popular issues addressed in the journal (Tiew, Abrizah & Kaur,

2001). Another journal that was subject to in-depth analysis was "Annals of Library and Information Studies", published in India. Juan José Prieto-Gutiérrez and Francisco Segado-Boj studied the most important issues addressed by authors coming from the same geographical area (India and Asia as a whole) and compared the resulting list with the ten top-rated LIS journals worldwide. To that end, they used data from the multidisciplinary Scopus database (Prieto-Gutiérrez J. J. & Segado-Boj F., 2019). A similar study was conducted by Akhandanand Shukla and Ng Thermi Moyon, who analysed the content of another Indian journal, "International Research: Journals of Library and Information Science", published in open access. A total of 218 articles were included in the study, and the analyses covered criteria such as distribution, authorship, degree of collaboration and authors' origin. It was revealed that researchers from India published their articles most often, while the highest number of researchers who co-authored articles lived in Nigeria (Shukla & Moyon, 2017).

With regard to articles in which authors analysed research material from a few or more periodicals, it is worth mentioning the work of Jeffrey Sootheran. He analysed 106 articles authored by 166 researchers, published in 2006-2010 in 42 LIS journals (Sootheran, 2014). In another study, Suoling Zhu and Wen Shi analysed 18 major LIS journals whose content is indexed in the full-text database of the China National Knowledge Infrastructure (CNKI). Some of the data that was taken into account included: publication years, authors and their institutions, journal titles and keywords (Zhu & Shi, 2017). A similar number of journals was analysed by Stasa Milojevic, Cassidy Sugimoto, Erjia Yan and Ying Ding. They studied 344 articles published in 16 LIS journals in 1988-2007, focusing mainly on the titles of the articles, in which the number of the most frequent words and 'heatmaps' were taken into account (Milojević et al., 2011). A slightly smaller research sample was studied by Noa Aharony, who studied texts published in 2007-2008 in the top 10 LIS journals and presented the distribution of authorship (geographical distribution and affiliation) and keywords (Aharony, 2012).

In defining the territorial coverage of the studies carried out, we again observe a wide divergence. Most often, analyses focused on the publication output of a single country (Rochester, 1995; Kajberg, 1996; Yontar & Yalvac, 2000; Horri, 2004; Goon & Singh, 2007; Gunasekera, 2008; Lin, 2012; Godfrey, 2016; Dora & Kumar, 2017; Sahu & Parabhoi, 2020). Frequently, comprehensive analyses were also made, in which all articles on a given topic were studied, without considering the territorial coverage criterion. It was only because of research that the dominance of individual countries in the global publication output was identified (Hydar et al., 2015; Sootheran, 2014; Milojević et al., 2011; Aharony, 2012).

LIMITATIONS RELATED TO THE SUBJECT MATTER

Sometimes, research on academic libraries was limited to only one issue. For instance, Jeffrey Sootheran, mentioned above, devoted his article to research on academic libraries exclusively in the context of funding (Sootheran, 2014). Dyah Puspitasari Srirahayu and her team, on the other hand, addressed the topic of leadership in academic libraries (Srirahayu et al., 2020).

Bibliometric and content analysis in the area of academic libraries research trends are very limited. Bibliometrics is a field of study that involves the quantitative analysis of publications, bibliographies, and other forms of written communication (Pritchard, 1969). Researchers pay little attention to this subject in the scientific literature (Cervone, 2005; Sootheran, 2014). Analyses of LIS research trends in general are far more frequent. In fact, quantitative research in this area has intensified since the mid-20th century. It is important to note that bibliometrics is a rapidly developing field. Numerous researchers have contributed to its growth, leading to the emergence of subfields such as scientometrics, informetrics, and altmetrics. These subfields focus on different aspects of quantitative analysis in the scholarly domain. Eugene Garfield, founder, and creator of the Science Citation Index (SCI), also made significant contributions to the field. Garfield's work on citation indexing and the creation of bibliographic databases laid the groundwork for modern bibliometric analysis. It is in these papers that authors sometimes single out academic libraries as a separate area of diagnosed trends (in chronological order: Atkins, 1988; Järvelin & Vakkari, 1990; Buttlar, 1991; Kumpulainen, 1999; González-Alcaide et al., 2008; Milojević et al., 2011; Singh & Chander, 2013; Tuomaala et al., 2014; Dora & Kumar, 2020; Han, 2020).

It arises from the review of the texts devoted to the development of research on academic libraries that the lack of data from some countries, authors' selective treatment of the topic, and various limitations make it difficult to conduct a comprehensive and comparative analysis of trends in the global development of academic librarianship.

METHODOLOGY

At the desk research stage, we looked for papers in which the authors used bibliometric analysis and content analysis methods to study the presence of academic library research, based on scientific articles. The research described here covered the ten-year period 2013-2022. The data was sourced from the Scopus database, which is the largest bibliographic database in the world and indexes (as of the beginning of March 2023) approximately 39,000 titles of scientific journals (*Indexing scientific journals in the Scopus database*). In Ove Kähler's opinion.

One of the key success factors of Scopus has been this breadth of content – allowing users to view results from a representative sweep of journals and not just the relatively narrow group of top-cited titles (Kähler, 2010, p. 240).

The study focused on research articles on academic libraries. The following search phrase was used: TITLE-ABS-KEY ("university library" OR "academic library" OR "college library" OR "university libraries" OR "academic libraries" OR "college libraries") AND PUBYEAR > 2012 AND PUBYEAR < 2023 AND (LIMIT-TO (DOCTYPE , "ar"). Bibliometric analysis was used to analyze the collected material. The study's primary objective was to find out about the development of research on academic libraries according to the Scopus database.

The following research questions were formulated for that purpose:

RQ 1: What was the yearly distribution of articles?

RQ 2: In which years were the most and the fewest articles published?

RQ 3: To which disciplines do the articles belong?

RQ 4: In which journals did the authors publish?

RQ 5: What institutions, countries and languages did the authors represent?

RQ 6: Who published the most?

RQ 7: What country name keywords were used to characterise the articles?

The study aimed to assess the level of interest in academic libraries research worldwide and to check whether and to what extent this issue is the subject of analysis in disciplines and fields other than library science. For these reasons, the study was quantitative and based solely on assessing formal elements of the publication (such as publication date, language of publication, author's country of origin, author's affiliation, journal titles, and citation distribution).

Results

Publication activity by year (RQ1; RQ2)

Based on the data from the Scopus database, it was found that a total of **7870** articles on academic libraries were published between 2013 and 2022, which means that the arithmetic mean was 796 texts per year; the median was 750 (cf. Figure 1). The highest number of articles was published in 2021 – 994 articles, while the lowest number was published in 2014 – 658 papers. On average, 66 texts were written per month (based on the median – 63). The difference in the number of articles between the years with the highest and lowest numbers of texts was 336 i.e., in 2021, there were about one-third more publications on academic libraries than in 2014. Even if in

the light of the data presented here there appears to be a marked decline in the researchers' interest in academic libraries in 2022, it should be borne in mind that it is possible that in April 2023 i.e., when the data was collected, not all 2022 articles were indexed in the Scopus database.

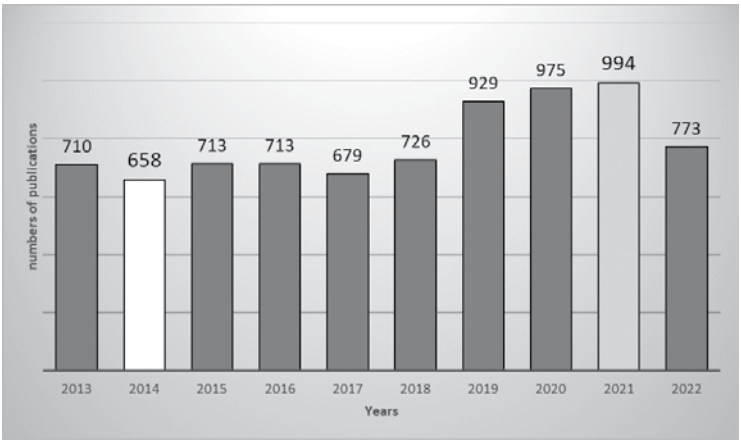

Figure 1: Number of articles on academic libraries in the SCOPUS database from 2013 to 2022

Source: own compilation based on data from the Scopus database.

DISCIPLINES TO WHICH TEXTS ON ACADEMIC LIBRARIES WERE ASSIGNED (RQ3)

The assignment of texts to disciplines was not clear-cut in some cases, as some of the texts were interdisciplinary and for this reason, they were assigned to two or more areas. The percentage shares of articles presented in Figure 2 are therefore calculated in relation to the total number of texts from the areas taken into consideration (10938).

Most frequently, due to the subject area of research, authors wrote their papers about academic libraries from the perspective of the Social Sciences – 66% (7224 texts). Slightly more than one in ten texts was included in the subject area of Arts and Humanities or Computer Science, also due to the research subject (13-12%; 1413 and 1335 texts, respectively). The remaining 966 articles, representing a total of 11% of the whole set, were assigned to: Business, Management and Accounting, Engineering, Medicine, Decision Sciences, Environmental Science, Agricultural and Biological Sciences, Mathematics, due to the university represented by the library described.

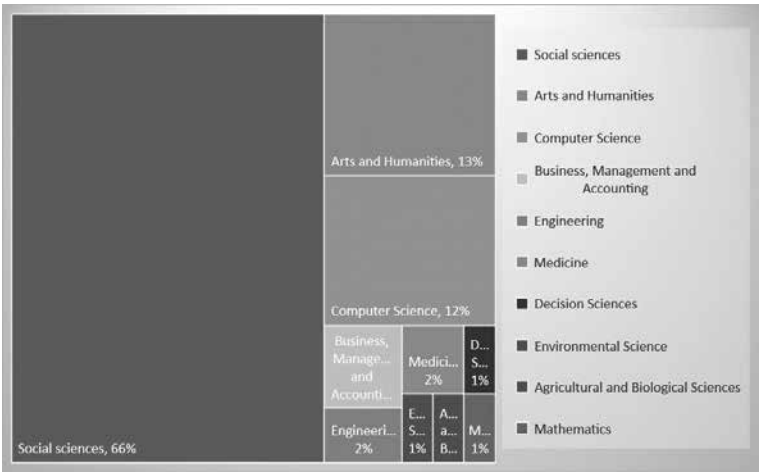

Figure 2: Percentage of texts about academic libraries by subject area. N=10938

Source: own compilation based on data from the Scopus database.

JOURNALS IN WHICH ARTICLES ABOUT ACADEMIC LIBRARIES WERE PUBLISHED (RQ4)

Using the Scopus database to select a list of journals with the highest number of texts on academic libraries, those with at least four articles published were selected. A subset of 6855 articles was included in 160 journals. The 20 journals with the highest number of texts that were selected for analysis represented 12.5% of the sample and belonged to the 88% centile of this group of journals. The highest number of articles was found in "Library Philosophy and Practice" (920), followed by "Journal of Academic Librarianship" (474). Almost half of that number of articles (240) appeared in "Journal of Library Administration". The list of journals with more than two hundred articles is closed by "Library Management" (210).

One hundred or more articles were published in "Serials Review", "Collection Management" (108 each), "Portal", "Electronic Library" (118 each), "Library Hi Tech" (119), "Serials Librarian" and "College and Undergraduate Libraries" (129 each), among others. 142 papers were published in "New Review of Academic Librarianship", and 153 papers were published in "Evidence Based Library and Information Practice". Two more articles were found in "College and Research Libraries", while 188 were published in "Reference Services Review".

In the list of the 20 journals with the highest number of articles, there were five with fewer than one hundred publications on academic libraries. These were: "International Information and Library Review" (99 articles), "Journal of Librarianship and Information Science" (90), "IFLA Journal" (88), "Public Services Quarterly" (87) and "College and Research Libraries News" (84 articles).

Moreover, it was found that 50% of the journal titles were in the second quartile of the top journals from the 2021 Scopus list. In each of the first and the third quartiles there were 25% of the journals.

In terms of the 2021 CiteScore, which refers to the annual average number of citations to recent articles published in a journal, "College and Research Libraries" proved to be the best performing title (index 3.9), followed by "Library Hi Tech" (3.2) and "Journal of Librarianship and Information Science" (3). All those were in the first quartile of the top journals. The CiteScore for the journals in the second quartile was lower; it ranged from 2.1 for "Portal" and 2 for "IFLA Journal" to 0.4 for the aforementioned "Library Philosophy and Practice" (the lowest value in the sample). In contrast, some journals in the third quartile received a higher CiteScore e.g., "College and Research Libraries News" and "Evidence Based Library and Information Practice" (0.8 each).

Considering the SCOPUS-developed SNIP (Source Normalized Impact per Paper) index for 2021, "College and Research Libraries" ranked highest (value: 2.255), followed closely by "Journal of Librarianship and Information Science" (1.792) and "Journal of Academic Librarianship" (1.493) and "Collection Management" (1.456). The lowest indexed titles were "College and Research Libraries News" (0.566), "Evidence Based Library and Information Practice" (0.425) and "Public Services Quarterly" (0.148).

In the case of a half of the identified journals, the Impact Factor was not calculated for them. The journals with the highest IF were "Journal of Academic Librarianship" (1.953), followed by "College and Research Libraries" (1.814) and "Journal of Librarianship and Information Science" (1.762). "Library Management" (0.489) and "Serials Review" (0.351) ranked lowest in terms of IF.

"Journal of Academic Librarianship" (61) and "College and Research Libraries" (55) had the highest H-index in the study group of journals, while "Public Services Quarterly" (16) and "Evidence Based Library and Information Practice" (15) ranked the lowest in this respect. The average H-index was 29.9 (median 29). The details are shown in Table 1.

Table 1. List of journals with the highest number of articles on academic libraries with selected bibliometric indicators

Lp.	Magazine title	Number of articles	2021 Quartile	Cite Score 2021	SNIP 2021	JIF 2021	H-index
1	Library Philosophy and Practice	920	Q2	0.4	0.628	0.651	24
2	Journal of Academic Librarianship	474	Q1	2.7	1.493	1.953	61

3	Journal of Library Administration	240	Q2	1.6	1.220	0.673	21
4	Library Management	210	Q2	1.5	0.95	0.489	36
5	Reference Services Review	188	Q2	1.7	n/a	0.933	40
6	College and Research Libraries	155	Q1	3.9	2.255	1.814	55
7	Evidence Based Library and Information Practice	153	Q3	0.8	0.425	n/a	15
8	New Review of Academic Librarianship	142	Q2	1.9	0.785	n/a	21
9	College and Undergraduate Libraries	129	Q2	1.7	0.733	n/a	21
10	Serials Librarian	129	Q3	0.7	0.974	n/a	18
11	Library Hi Tech	119	Q1	3.2	1.112	1.623	41
12	Electronic Library	118	Q1	2.6	1.038	1.675	41
13	Portal	118	Q2	2.1	1.44	n/a	40
14	Collection Management	108	Q2	1.4	1.456	n/a	19
15	Serials Review	108	Q3	0.6	0.63	0.351	24
16	International Information and Library Review	99	Q2	1.1	0.88	n/a	27
17	Journal of Librarianship and Information Science	90	Q1	3	1.762	1.82	33
18	IFLA Journal	88	Q2	2	0.879	n/a	22
19	Public Services Quarterly	87	Q3	0.6	0.148	n/a	16
20	College and Research Libraries News	84	Q3	0.8	0.566	n/a	23

Source: authors' study based on data from the SCOPUS database and from www.scimagojr.com.

In academic-related journals, Figure 3 displays the distribution of citations within articles. "The College and Research Libraries Journal", "The Library Hi Tech", and "The Journal of Academic Librarianship" are at the centre of the citation network, with higher citation scores It is commonly assumed that articles published in the first quarter (Q1) receive more citations than those published in the other quartiles.

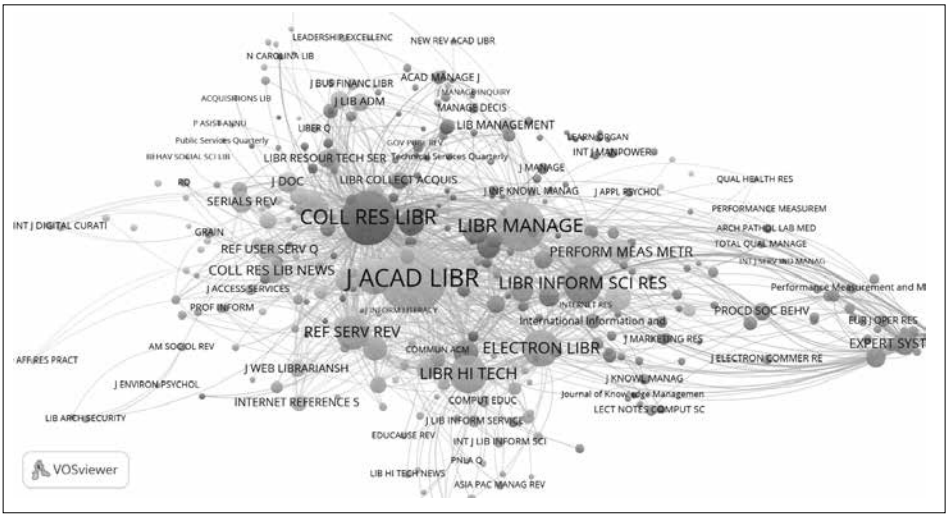

Figure 3. Academic-related co-citations journals map

Source: van Eck, N. J.; Waltman, L. (2010) VOSViewer: Visualizing Scientific Landscapes [Software]. Available from https://www.vosviewer.com. Retrieval date 07-19-2023.

COUNTRIES, INSTITUTIONS AND LANGUAGES REPRESENTED BY AUTHORS OF PUBLICATIONS (RQ5)

Considering the data extracted from the SCOPUS database, it was noted that the number of authors publishing papers on academic libraries was 8350, which was almost 1000 more than the 7870 articles, due to the fact that some articles were co-authored. In Table 2, countries with the affiliations of at least 3% of all texts are listed. In North America, the largest number of articles were written in the USA. The contribution of the US researchers accounted for almost 90% of all publications from this continent. In Asia, by contrast, the dominant countries in terms of number of publications were India (27% of articles) and China (18%). In Europe, the UK was the most active country in terms of publications (20%; 3% of all publications). Spain ranked second (15%, which was also 3% in relation to the full collection). In Africa, the highest number of papers was recorded for authors from Nigeria (54%; 7% in relation to the full collection) and RSA (20%; 2% in relation to the full collection).

Considering the share of authors from the selected countries in the total publication output on academic libraries, the US researchers should be mentioned as the first contributors (39% of all affiliations). Countries whose share exceeded more than 5% of the total number of authors were: Nigeria 7% and India 6%.

Table 2. Affiliations of authors publishing on academic libraries in 2013-2022 based on the Scopus database

Country	Number of affiliations	Percentages for country affiliations	Percentages for all affiliations
UK	281	20	3
Spain	213	15	3
Croatia	95	7	1
Germany	94	7	1
Austria	62	5	1
Italy	60	4	1
Turkey	51	4	1
France	48	3	1
Russian Federation	45	3	1
Poland	42	3	1
Netherlands	37	3	0
Sweden	37	3	0
Greece	36	3	0
Total number of authors from Europe N=1377	**1101**	**80**	**14**
India	498	27	6
China	325	18	4
Pakistan	231	12	3
Iran	120	6	1
Malaysia	97	5	1
Indonesia	60	3	1
Hong Kong	58	3	1
Taiwan	57	3	1
Japan	47	3	1
Saudi Arabia	47	3	1
Total number of authors from Asia N=1856	**1540**	**83**	**20**
Australia	217	83	3
New Zealand	30	11	0
Fiji	8	3	0

Total number of authors from Australia N=261	**255**	**97**	**3**
Nigeria	545	54	7
RSA	203	20	2
Ghana	108	11	1
Kenya	28	3	0
Total number of authors from Africa N=1015	**884**	**88**	**10**
USA	3264	89	39
Canada	324	9	4
Total number of authors from North America N=3675	**3588**	**98**	**43**
Brazil	119	72	1
Colombia	13	8	0
Ecuador	9	5	0
Chile	6	4	0
Trinidad and Tobago	6	4	0
Puerto Rico	5	3	0
Total number of authors from South America N=166	**158**	**96**	**1**
Total affiliations N=8350	**7526**	**90**	**91**

Source: own compilation based on data from the Scopus database. Red indicates the highest global score.

In summary, authors represented North America in nearly half of the cases, followed by Asia (22%), Europe (14%) and Africa (10%). Australia was represented by only 3% of author affiliations, while South America was represented by 1% (cf. Figure 3).

The authors publishing the most on academic libraries were most often affiliated to American, Nigerian and Pakistani universities. Although American universities predominated in the TOP 10 list of affiliations (a total of 261 affiliations), the highest number of papers was established for a Nigerian university (University of Nigeria; 86) and a Pakistani university (University of the Punjab; 78). It is noteworthy that the dominance

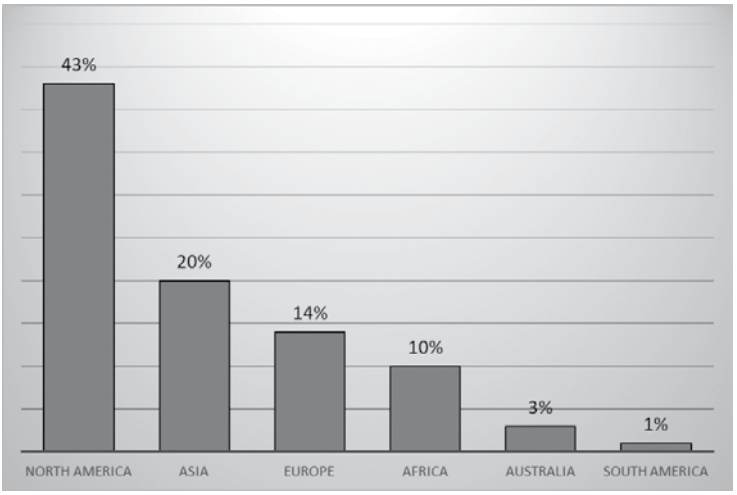

Figure 3: Percentage of affiliations of authors publishing papers on academic libraries between 2012 and 2023 based on the SCOPUS database

Source: own compilation based on data from the Scopus database.

of the same Pakistani university was also demonstrated by Siddique and colleagues in their publication (Siddique et al., 2020). A full list of the universities to which the authors of the publications were affiliated is included in Table 3.

Table 3. Top 10 affiliations of authors publishing on academic libraries between 2012 and 2023 based on the SCOPUS database

Lp.	Name of university	Country	Number of affiliations
1	University of Nigeria	Nigeria	86
2	University of the Punjab	Pakistan	78
3	University of South Africa	RSA	77
4	City University of New York	USA	71
5	Texas A&M University	USA	71
6	University of Illinois Urbana-Champaign	USA	64
7	Pennsylvania State University	USA	55
8	University of Ibadan	Nigeria	53
9	McGill University	Canada	52
10	The Islamia University of Bahawalpur	Pakistan	47

Source: own compilation based on data from the Scopus database.

More than 90% of the selected texts (7217) were written in English. The other languages in which at least over 50 articles were published were: Spanish, German, Portuguese, Croatian, Chinese.

PUBLICATION ACTIVITY OF AUTHORS (RQ6)

When analysing the summary of the most active authors writing papers on academic libraries, it is important to note that the highest total number of articles published on this topic is followed by the highest number of citations and their authors' Hirsch index. Despite some exceptions for authors with low citation counts (cf. Table 4; f.i. Khurram Shahzad), this is basically a group of the most cited names.

Dickson Chiu of the University of Hong Kong, Pokfulam, is the most active author when it comes to writing papers on academic libraries (24 articles). At the same time, he is the author of a total of 279 papers, which were cited more than 3000 times. His Hirsch index was 30. Slightly lower Hirsch indices (h-24) were recorded for Khalid Mahmood from the University of the Punjab (Lahore, Pakistan), author of 17 papers on academic libraries and 170 papers in general, which scored 2202 citations, and Andrew M. Cox from The University of Sheffield (the United Kingdom), author of 15 papers on academic libraries and 129 papers in general, which were cited a total of 2186 times.

Multi-author collaboration in the preparation of articles was demonstrated for 12 of the 20 researchers included in Table 4.

Table 4. Authors publishing on academic libraries in 2012–2023 with more than 11 articles based on the SCOPUS database compared to the overall scientific output

Author's surname and first name	**Author's affiliation**	**Number of articles on academic libraries**	**Data on all the works of the author**			
			Total number of citations	**Total number of documents by this author**	**H-index**	**Total number of co-authored works**
Chiu, Dickson	The University of Hong Kong, Pokfulam, Hong Kong	24	3344	279	30	328
Bhatti, Rubina	The Islamia University of Bahawalpur, Bahawalpur, Pakistan	22	773	71	12	41

Ameen, Kanwal	University of Home Economics Lahore, Lahore, Pakistan	20	1084	123	18	48
Rysavy, Monica D.T.	Director of Education and Operations, Long Beach, United States	18	139	34	6	12
Michalak, Russell S.	Goldey-Beacom College, Wilmington, United States	18	132	32	5	10
Ashiq, Murtaza	Islamabad Model College for Boys H-9, Islamabad, Pakistan	17	321	41	11	58
Baro, Emmanuel Ebikabowei	Federal University, Otuoke, Otuoke, Nigeria	17	501	39	14	39
Mahmood, Khalid	University of the Punjab, Lahore, Pakistan	17	2202	170	24	153
Shahzad, Khurram	Government College University Lahore, Lahore, Pakistan	17	12	44	2	39
Tella, Adeyinka	University of Ilorin, Ilorin, Nigeria	17	740	98	13	85
Ahmed, Shamshad	University of Sargodha, Sargodha, Pakistan	15	174	28	10	28
Cox, Andrew.M.	The University of Sheffield, Sheffield, United Kingdom	15	2186	129	24	136
Ugwu, Cyprian Ifeanyi	University of South Africa, Pretoria, South Africa	15	143	21	8	20
Lo, Patrick	The University of Hong Kong, Pokfulam, Hong Kong	14	635	57	15	68
Craft, Anna R.	The University of North Carolina at Greensboro, Greensboro, United States	13	51	19	4	8
Pacios, Ana R.	Universidad Carlos III de Madrid, Madrid, Spain	13	247	51	9	39

Bangani, Siviwe	Stellenbosch University, Stellenbosch, South Africa	12	89	23	5	12
Omeluzor, Saturday U.	Federal University of Petroleum Resources, Effurun, Effurun, Nigeria	12	107	20	7	25
Rafiq, Muhammad	University of the Punjab, Lahore, Pakistan	12	433	42	12	36
Sheikh, Arslan	COMSATS University Islamabad, Islamabad, Pakistan	12	147	28	8	32

Source: own compilation based on data from the Scopus database.

COUNTRY KEYWORDS ATTRIBUTED TO ARTICLES ON ACADEMIC LIBRARIES (RQ7)

Analysis of keywords relating to the geographic location (country, nationality) makes it clear that the largest number of works were written considering the national experience of Nigeria (174), Pakistan (91) and India (60). Less numerous in the collection analysed were papers addressing the academic library activities from the perspective of Chinese (56), Ghanaian (55), Spanish (45), Canadian (43), American (34) and Bangladeshi (31) conditions (see Table 5). Nigeria appeared in this list nearly twice as often as Pakistan, which ranked second. Bangladesh, last on the list (9th place), was included as a keyword almost six times less often than Nigeria, first. It is worth noting that the list presented here includes occurrences of our phrase of interest more than 30 times. With the data extracted from the Scopus database, it is not possible to determine the number of occurrences of the keywords related to other countries.

Table 5. Country keywords assigned to articles on academic libraries

Lp.	Keywords selected by country	Number of keywords
1	Nigeria	174
2	Pakistan	91
3	India	60
4	China	56
5	Ghana	55
6	Spain	45

7	Canada	43
8	United States	34
9	Bangladesh	31

Source: own compilation based on data from the Scopus database.

DISCUSSION AND CONCLUSIONS

The study of bibliometric data extracted from the Scopus database demonstrates that academic libraries are a topic that is frequently addressed by researchers, albeit scattered in the journal literature, and that interest in this topic is increasing. This is also confirmed by the findings of other researchers who have analysed this issue (Winkler, & Kiszl, 2020; Han, 2020; Kolasa, 2021). When the results of this study are compared with the findings of Mariola Antczak and Zbigniew Gruszka (2022), who conducted a study of the presence of articles on academic libraries in the resources of the Library, Information Science and Technology Abstracts (LISTA) database for the period 2000-2019, it should be noted that in the period 2013-2019 the number of articles on academic libraries in both analysed databases (LISTA and Scopus) is relatively proportional in the respective years. The average difference between the data from these databases was 260 texts in favour of the LISTA database. Due to the authors' application of a different chronological coverage, it was possible to compare the obtained results concerning the development of research on academic libraries only for the years 2013-2019. Obtaining a similar number of articles in both studies contradicts the view that automatically retrieved data is characterised by incompleteness (Osiński, 2019, p. 46).

The analysis conducted here shows that most of the texts were written in Social Sciences. This is not surprising, as LIS, to which the subject of academic libraries belongs, is treated as an issue belonging to the Social Sciences, sometimes also to the Arts and Humanities and Computer Science, in most countries and by most researchers. The problem of assigning a discipline to the field of science has already been pointed out by, among others, Sosińska-Kalata (2020) or Vakkari, Chang, & Jarvelin (2022). It seems that the Scopus database is not free from this problem.

The highest number of articles was found in "Library Philosophy and Practice" (920), followed by "Journal of Academic Librarianship" (474). High scores for these journals were also found in other bibliometric analyses, including those by Ramani Ranjan Sahu, & Lambodara Parabhoi (2020), Nadeem Siddique et al. (2021). However, this was not confirmed by the findings of Sootheran, 2014, who did not identify the presence of articles on academic libraries in these two periodicals (Sootheran, 2014). Among the 20 journals in the present study, 7 titles are among the top

international journals cited by LIS researchers (Kolasa, 2019, p. 572; Jan & Hussein, 2021; Sootheran, 2014), which is a good exemplification of Bradford's law. It may also mean that studies of data from different databases (Web of Science, Scopus, LISTA) and different chronological periods produce similar results. Such a situation is not surprising, if we take it into account that these databases sometimes record the same sources (journals). It does, however, provides sufficient grounds to conclude that bibliographic databases can serve as predictors of scholarly activity.

Considering the share of authors from the selected countries in the overall publication activity on academic libraries, the USA should be listed as the first contributor (39% of all affiliations). Other researchers reached analogous conclusions. The number of affiliated authors exceeded 5% of the total number for Nigeria (7%) and India (6%). The dominance of authors coming from the USA is a direct consequence of some commonly known facts: the increased capacity of US universities to conduct research due to the significant financial resources allocated for this purpose, modern research infrastructure with high-quality equipment and access to state-of-the-art technology, the dominance of English as *lingua franca* in the field of science. On the other hand, the increasing presence of authors from locations on continents such as Asia and Africa may be a manifestation of general globalisation trends in science, as well as a result of their local conditions, i.e. growing investment in the development of research infrastructure, increasingly widespread access to the Internet, which facilitates research work and the publication of research results, and the growing importance of international publications in the evaluation of output conducted for local needs (guidelines of policy-makers and ministries of science).

Based on the comprehensive analysis of the factors extracted from the Scopus database, the following observations can be made:

1. Researchers from countries that are underrepresented in Scopus publish articles on academic libraries either in their national academic journals or in other sources (e.g., websites, university journals, blogs, post-conference materials) and therefore do not submit their articles to reputable foreign journals.

2. Researchers from countries that are underrepresented in Scopus do submit their articles to journals that are indexed in this database, but have difficulty breaking through the 'glass ceiling', which is understood as the presence of a number of impediments and barriers to publishing abroad, including:

- time barrier – lack of time to conduct large-scale research due to overload with teaching or other professional responsibilities;
- source availability barrier – related to commercial or difficult access to foreign databases;

- economic barrier – resulting from the lack of funding for advanced research and the scarcity of funds for translating articles (lack of grants);
- language barrier – failure to meet the language correctness criteria, as well as the artificial privileging of English-language publications and omitting valuable journals published in national languages in the indexation;
- competition barrier – existence of significant competition in the form of an excessive number of articles submitted to journal editors or a preference for works by authors who are internationally recognised in the research community, often with top academic titles;
- cooperation barrier – lack of opportunities for networking with scholars from different countries, which hinders the exchange of research experience in the preparation of scientific texts;
- content barrier – insufficient quality of texts submitted by authors or non-significant results;
- motivation barrier – insufficient motivation to go beyond one's own country and domestic audience with research results, as well as fear of poor reception or misunderstanding of the issues taken up in the paper by the research community abroad;
- thematic barrier – related to conducting research in narrow disciplines, addressing topics that are unfashionable from the perspective of journal editors, as well as omission from indexation of specialised journals, which are often the main publications in their fields;
- skills barrier – resulting from the limited ability to write a substantively correct text, its adaptation to publisher's rules related to the article structure, and its submission via electronic platforms [limited submission skills; limited writing skills];
- exclusionary barrier – journal editors are guided in their decision to publish an article by citation rates, popularity of authors and the presence of their names in the SCOPUS database.

The barriers listed above are consistent with those identified by 21 LIS researchers from 11 countries (Lund et al., 2023), who also cited limited English language skills, lack of research funding, and conducting research in narrowly specialised areas as the major impediments.

Analysis of the Scopus data on the institutions, countries and languages of authors publishing articles on academic libraries leads to the general conclusion that this subject is dominated by US researchers, but also by the English language. The representation of other major languages such as Arabic, Chinese, French, Spanish, Russian is minimal. Problems related to language inaccessibility in research space have been highlighted by Desrochers & Larivière (2016), Ramírez-Castañeda (2020) and Dubova et al. (2020), among others.

English-language publications that are dominated by authors from the USA, and to a lesser extent Nigeria and India, may lead to the erroneous conclusion that librarianship and academic libraries are mainly developed in these countries. The inadequate presence of works by researchers from European countries (France, Germany, Croatia), selected African countries, and the significant underrepresentation of the Australian and South American continents makes it impossible to compare trends in the development of academic libraries from different regions of the world, and makes it difficult to draw a global picture of LIS research. These issues require further focus.

LIMITATIONS OF THE STUDY

The authors intentionally did not refer to the population of researchers interested in this issue in each country. They also did not analyze the content of the publication. Such an analysis could reveal more detailed topics undertaken by individual researchers. However, it would not allow for determining the pace of development of the level of interest in the analyzed issue in the world or comparing the scientific achievements of researchers from different countries.

DECLARATION OF INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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SZKLANY SUFIT? POZIOM ŚWIATOWEGO ZAINTERESOWANIA TEMATYKĄ BIBLIOTEK AKADEMICKICH W LATACH 2013-2022. WYNIKI ANALIZY ILOŚCIOWEJ PUBLIKACJI UWZGLĘDNIONYCH W BAZIE SCOPUS

SŁOWA KLUCZOWE: Biblioteki akademickie. Scopus. Analiza bibliometryczna. Bariery w publikowaniu. Biblioteki uniwersyteckie. Produktywność naukowa.

ABSTRAKT: **Cel** – Celem artykułu jest zademonstrowanie poziomu światowego zainteresowania tematyką bibliotek akademickich, odzwierciedlonego liczbą poświęconych jej

artykułów naukowych uwzględnionych w bazie Scopus. **Metody badań** – W badaniu posłużono się analizą bibliometryczną. W bazie Scopus przeszukano artykuły z obszaru bibliotekoznawstwa i informacji naukowej opublikowane w latach 2013-2022. Jako podstawowych terminów wyszukiwawczych użyto słów opisujących temat badania, uzupełniając je o terminy pomocnicze, dołączane za pomocą operatora boolowskiego AND. Pomocnicze terminy wyszukiwawcze zgromadzono dzięki przeglądowi literatury przedmiotu oraz procesowi badawczemu. Wyniki zebrano w arkuszu kalkulacyjnym MS Excel i dokonano ich oceny na podstawie pytań związanych z prowadzonym badaniem. Podczas analizy ustalono: roczny rozkład artykułów i ich tematykę; listę preferowanych czasopism; listę przodujących autorów oraz krajów ich pochodzenia i użytkowanych języków; a także słowa kluczowe stosowane do charakterystyki przedmiotowej artykułów. **Wyniki** – Przeanalizowano 7870 artykułów. W odniesieniu do zgromadzonych danych ustalono, że średnia arytmetyczna publikowanych artykułów wynosiła 796 tekstów na rok, a mediana – 750. Najwięcej artykułów ukazało się w roku 2021, a najmniej – w 2014. Przeważnie były to teksty poświęcone naukom społecznym. Największą popularnością cieszyło się publikowanie w czasopiśmie "Library Philosophy and Practice" (920 artykułów), a zaraz po nim – na łamach "Journal of Academic Librarianship" (474 artykuły). Odnotowano, że wśród autorów tekstów dominowali naukowcy amerykańscy (39% wszystkich tekstów). Jednocześnie zaobserwowano niedostateczną reprezentację produkcji naukowej z wielu krajów świata, co znacząco utrudnia przeprowadzenie analizy porównawczej. Wnioski – Autorzy wysunęli dość prowokacyjną tezę – być może naukowcy ze słabo reprezentowanych krajów mają problem z przebiciem się przez "szklany sufit", rozumiany jako liczba utrudnień i barier na drodze do publikowania w wydawnictwach zagranicznych. Autorzy opracowali potencjalną listę takich barier – jej weryfikacja wymaga pogłębionych badań. Niniejsza analiza oferuje podstawy do dalszych badań, a także zasoby do wykorzystania przez naukowców, praktyków i studentów w dziedzinie bibliotekoznawstwa i informacji naukowej.