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Information Literacy of University Teachers: Bibliometric Analysis with Scopus 1998 - 2023

Long DANG TRAN[1]

Vietnam National University Hanoi, University of Social Sciences and Humanities, Faculty of Library and Information Science, Hanoi, Vietnam

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Corresponding author: Dang Tran Long
E-mail: longdang@ussh.vnu.edu.vn

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ABSTRACT

In the context of rapid developments in information technology, the need to enhance information literacy for students and lecturers in higher education institutions has become increasingly urgent. To effectively utilize various resources and online learning tools, and engage in scientific research activities, it is essential to equip individuals with adequate professional knowledge and information skills. The primary objective of this study is to explore the evolution of scientific publications regarding the quantity, development models, and research trends related to information literacy for university lecturers. We employed bibliometric analysis using VOSviewer software and RStudio integrated with Biblioshiny to evaluate 279 articles (comprising 231 journal articles, 25 conference papers, 17 book chapters, and six books) indexed in Scopus published from 1998 to 2023. The key findings reveal that the years 2021 and 2022 saw a notable surge in research (accounting for 23.7%). The study identifies the most prominent journals publishing case studies on digital technology in education, all of which are of high quality and rank highly within Scopus categories. Furthermore, the research highlights the distribution and trends of keywords, identifying the most influential countries and organizations in the field. Furthermore, the research highlights the distribution and trends of keywords, identifying the most influential countries and organizations in the field.

Keywords: Information literacy, information capacity, higher education.

Introduction

Information literacy has emerged as a critical competency for university faculty in the contemporary academic landscape. Research has demonstrated that e-information literacy positively influences teachers' information-seeking behaviors, thereby enhancing their ability to update their knowledge base and produce scholarly work (Bilawar & Pujar, 2016). Furthermore, information literacy significantly improves teachers' capacity to integrate technology effectively into their instructional practices, leading to enhanced teaching efficacy (Xu & Chen, 2016). A case study conducted at Amin University revealed that faculty members exhibited high levels of information literacy, particularly in the areas of identifying information needs and utilizing information effectively (Habibzadeh & Abdolrahmani, 2020). In the context of foreign language education in Chinese universities, the increasing significance of information literacy for faculty has been acknowledged, with calls for further research to address existing gaps in understanding and improving these skills (Cai, 2024). Collectively, these studies emphasize the indispensable role of information literacy in bolstering university faculty's professional competence and teaching outcomes.

Information Literacy in University

Information literacy has become a hot topic in higher education today. This concept revolves around equipping students with the necessary skills to search, evaluate, and effectively use information sources, thereby meeting the requirements of the learning and research process. Initially, discussions mainly focused on developing information skills training programs in university environments, especially the role of libraries. However, there is a growing view that the formation of information capacity needs to start early, right from the high school level and even in the working environment. UNESCO has affirmed that information literacy is a lifelong learning process (UNESCO, 2005). The ultimate goal is to help people confidently search, evaluate, and use information from various sources to serve life and work (Dangani, 2009).

Equipping university students with information capabilities is not only a requirement but also an investment for the future. Students with good information skills will easily succeed in study, research, and later in work, contributing to improving the quality of human resources for society.

Related Research

Many studies have been conducted to evaluate the impact of information competency on educational quality, student learning effectiveness, and changes in lecturers' teaching behavior. These studies show that information literacy has great potential for lifelong learning for students and faculty. However, there is a wealth of existing studies on information literacy covering concepts, historical perspectives, and overviews (Behrens, 1994), the role of information literacy (Nzomo & Fehrmann, 2020), global contextual analysis of information literacy in education (Julien, 2005), analysis and comparison of information literacy policies in European countries (Basili, 2011), as well as studies on information literacy in Southeast Asian countries (Saadia & Naveed, 2022).

Research Gap

In tandem with the advancements in technology and information within higher education, educational researchers have exhibited increasing interest in the topic of information literacy. Notably, several scholars have employed bibliometric methods to provide a systematic overview of the field (Bhardwaj, 2017; Kolle, 2017; Pinto et al., 2013).

Despite these contributions, several limitations persist within the existing literature. Kolle (2017), for instance, focused on a bibliometric analysis spanning 2005-2014, neglecting a specific focus on university lecturers. Similarly, Bhardwaj (2017) conducted a general bibliometric analysis of information literacy in the social sciences and humanities between 2001 and 2012. Pinto et al. (2013) also adopted a broad approach, analyzing bibliometric trends in the social sciences and health sciences from 1974 to 2011. Consequently, a comprehensive review of the current state of knowledge on information literacy for university teachers remains absent. This study aims to fill this void by conducting a comprehensive bibliometric analysis.

Research Questions

This study aims to answer the following research questions (RQ):

- RQ1. What is the status of publications and open access publications on information capacity by year?
- RQ2. Which countries and organizations are most influential in information literacy research?
- RQ3. Which journals were the most influential in this study?
- RQ4. Who are the most influential researchers?
- RQ5. Most cited articles?
- RQ6. What is the distribution and trend of keywords?

Method

Pritchard (1969) was the first to introduce the analysis of bibliometric indicators, and it has since become a popular tool for evaluating scientific advancement in numerous fields, both locally and globally. In this specific study, the method for data collection and analysis (Ha et al., 2020) was employed to conduct bibliometric analysis. Bibliometric analysis involves several descriptive statistics regarding the network of authors, journals, universities, countries, and research keywords through citation data and frequency analysis techniques. This research employs co-word analysis and co-occurrence analysis of research keywords. Co-word statistics allow us to explore the volume and common patterns of published studies on the topic of digital literacy for students.

Data collection

Scopus, Web of Science, and Google Scholar are the most widely used sources within the academic community. Google Scholar, recognized as a web-based database, excels at retrieving information on literature. In contrast, Scopus and Web of Science offer advantages in citation performance evaluation (Falagas et al., 2008). Furthermore, Scopus provides broader journal coverage compared to Web of Science (Hallinger & Nguyen, 2020; Pham et al., 2021; Singh et al., 2021). Consequently, Scopus was chosen as the primary source for data collection.

The keywords used by the author as search strings in this study are: “information skill, information competence, information literacy, information capacity”. In this research, the author focuses on literature related to the topic for university educators. The initial query was entered into the advanced search template of Scopus at 19:50 on August 14, 2024, which is presented below:

TITLE-ABS-KEY ("information skill*" OR "information competenc*" OR "information literacy" OR "information capacit*") AND (TITLE-ABS-KEY ("university teacher*" OR "university lecturer*") OR TITLE-ABS-KEY ((teacher* OR lecturer*) AND (universit* OR college OR "higher education*")))

The initial search resulted in 630 documents. The PRISMA guidelines for systematic reviews (Moher et al., 2009) were employed to refine these search results. Figure 1 illustrates the steps outlined in the PRISMA diagram. During the

screening phase, Scopus filters were utilized to eliminate irrelevant documents, based on the following criteria:

- Document types: article, conference paper, book, book chapter.
- Subject area: Social sciences, Arts and Humanities, Business Management and Accounting, Psychology, Decision Sciences, Economics Econometrics and Finance.
- Language: English
- Published year: exclude 2024

The dataset was initially narrowed down to 388 publications. A thorough review of titles, abstracts, and full texts was conducted to identify documents that were not relevant to the information literacy of university teachers. This process resulted in the elimination of 109 ineligible documents, leaving a final dataset of 279 records for analysis.

The ethical process in the study was as follows:

- Ethics Committee Approval: The author stated that ethical permission was not required for the study because humans and animals were not used. However, ethical guidelines were followed throughout the study.
- Informed Consent: No living beings requiring informed consent were involved in this study.

Data Analysis

The retrieved dataset was downloaded as a Microsoft Excel file. The file has 279 qualified records where author name is mentioned, author(s) affiliation(s), document name, genre source, document summary, author keywords, number citation date of the document, year of publication of the document, and references. This information is used for bibliometric analysis, which answers the RQ above. Each RQ is supported by two analytical methods: statistical description and scientific mapping. First, descriptive statistics list authors, authors with national relevance, author links, sources, and documents in information competency research for university lecturers based on index statistics. , for example, the number of publications, number of citations, and Hirsch index (h-index). In this phase, the application RStudio with the biblioshiny package, Microsoft Excel was applied to analyze and display the analyzed data. Second, the scientific map shows the relationships between related objects that involve authors, countries, sources, links, and documents in this study analyzed on the VOSviewer application. VOSviewer version 1.6.18 (https://www.vosviewer.com/) was used to visualize all scientific maps in this scholar.

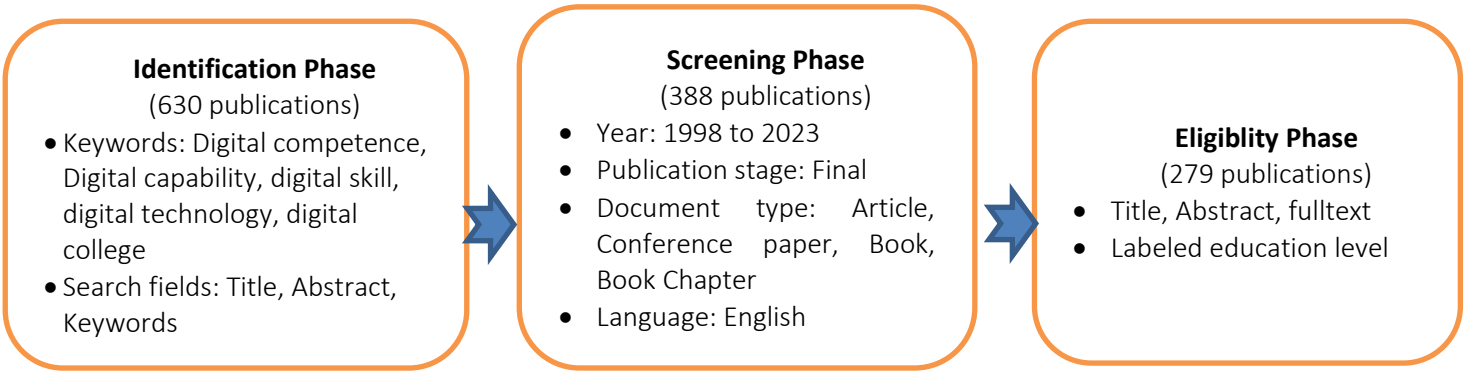

Figure 1.

Data Gathering Process Followed by PRISMA Guideline (Data Collected from Scopus [https://scopus.com/] on 4 August 2024

Result

General Information About Publication

Collection Analysis of 279 publications on information competencies for students on the Scopus database from 1998 to 2023 shows significant growth, especially in the recent period. Following 231 articles (83% of the publications), there are 25 conference articles (9%). In addition, book chapters have 17 articles (6%), and the number of books is not much, with six posts (2%). The first article on this topic was published in 1998 by Ercegovac, Z., as "Information Literacy: Teaching Now for the Year 2000." However, the number of studies increased dramatically only recently, with the years 2021 and 2022 recording the highest number of articles (n = 30, n = 36), accounting for 2.4% of the total number of publications. This shows the academic community's growing interest in information competency, especially in the context of strongly developing digital technology.

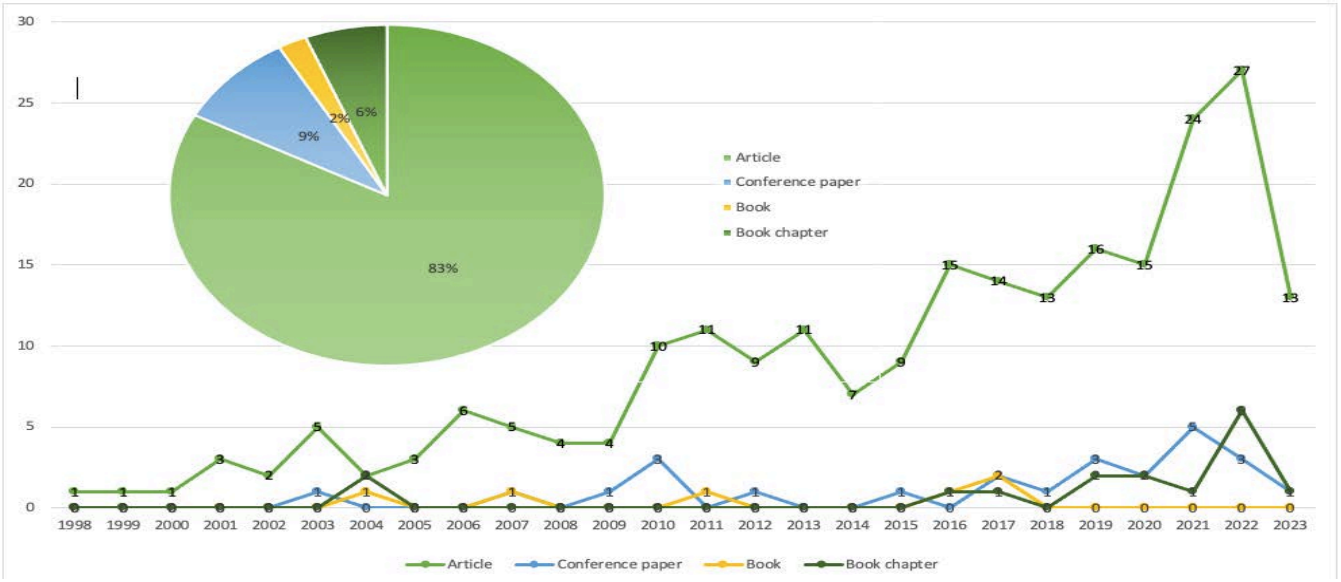

Figure 2.

Information Capacity Growth Trajectory from 2004 to 2023

Open Access Publications

Open-access publishing has become an important trend in current scientific research. According to data from Scopus, out of 279 publications, one-third (103 or 36.9%) are open-access publications and the first publication in this field appeared in 2003 according to Figure 3. Although There was steady growth over the years, in 2020, 2022, and 2023, the number of open-access publications surpassed non-open-access publications. This shows the growing trend of publishing research openly, helping to increase the accessibility and sharing of scientific information.

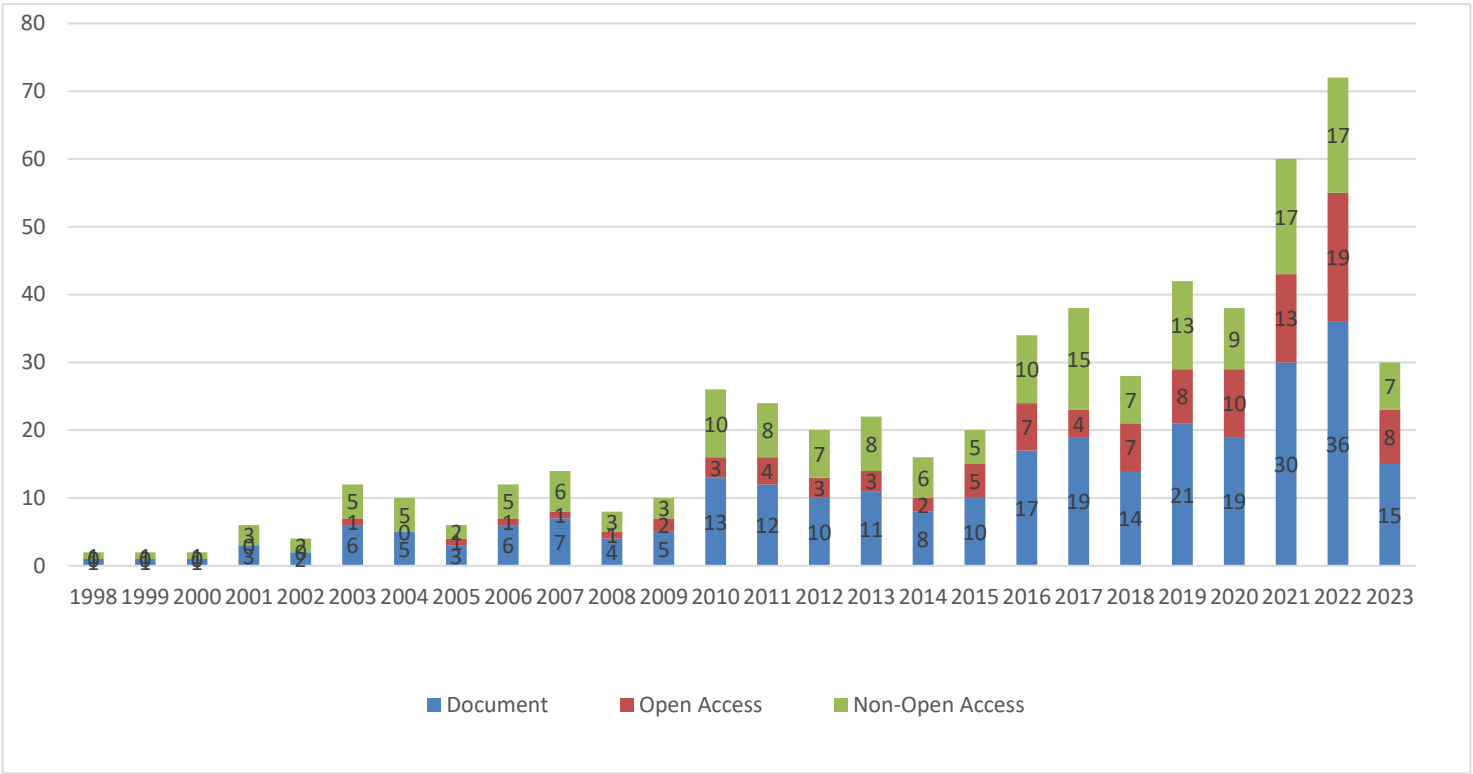

Figure 3.

Documents, Open Access and Non-Open Acces

Table1.

Top 10 Countries with the Most Articles

CR	Country	NP	%	TC	%
1	The US	72	25.8	699	23.5
2	Spain	21	7.5	415	14.0
3	China	20	7.2	101	3.4
4	Australia	17	6.1	193	6.5
5	Russian Federation	16	5.7	136	4.6
6	Nigeria	15	5.4	79	2.6
7	The UK	11	3.9	200	6.7
8	South Africa	9	3.2	50	1.7
9	Turkey	9	3.2	187	6.3
10	Malaysia	8	2.9	11	.4

Abbreviations: NP: Number of publications & TC: Total of citations

Table 1 presents the ten most productive countries based on a cumulative number of publications and citations. The United States outnumbered all other countries (n=72, accounting for 25.8% of all publications). Not only that, this country also excels in total citations with 699 citations (23.5% of total citations), equivalent to an average number of citations per document of 9.7. The second country in terms of number of publications is Spain (n=21, 7.5% of total). With an impressive average of 19.8 citations per document and 415 citations, the country has the highest average number of citations among the countries surveyed in this study. Next are China and Australia, with 20 (7.2%) and 17 (6.1%) publications, respectively, and 101 and 193 citations, respectively. The respective published lists are the Russian Federation (n=16), Nigeria (n=15), United Kingdom (n=11), South Africa (n=9), Turkey (n=9) and Malaysia (n=8). Among the remaining countries on the list, only the Russian Federation, the United Kingdom, and Turkey have several citations above 100 (n=136, n=200, n=187) while the rest have fewer than 100 citations and 100 quotes.

According to data from Scopus, 63 countries have publications related to information literacy for students. Figure 4 shows the transnational cooperation network consisting of 39 partner countries. Each node in Figure 4 represents a country, while the colors of the nodes represent clusters of links between countries. The node size corresponds to the number of publications, and the thickness of the lines connecting the nodes reflects the strength of transnational collaboration. Countries in this network have at least two publications related to the research topic published. The network built in Figure 4 shows the clusters: Yellow, blue, red, purple, and green. The countries listed in Table 1 also appear in this network. In the above analysis, the United States has a much higher number of publications than the rest, but cross-national research collaboration is more extensive in this country. Cooperation between the remaining countries is also very prosperous and diverse.

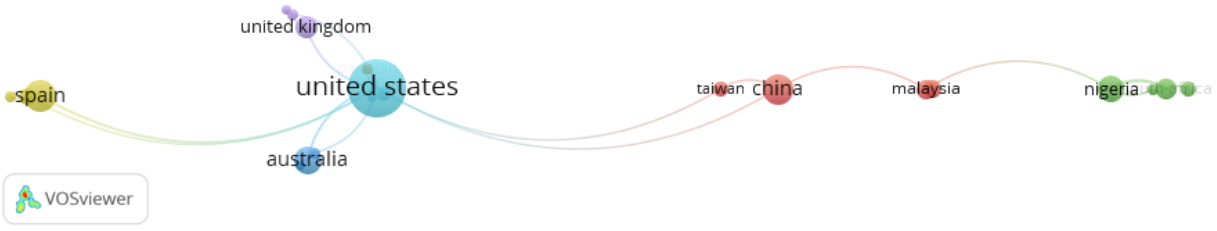

Figure 4.

Transnational Cooperation Network of 39 Partner Countries with 2 Publications (Source: Author's Own Compilation, Using VOSviewe

Figure 5 illustrates the change in research collaboration on faculty information competencies over time. Countries are classified according to the stage studied: gray for early, yellow for recent, and blue for middle. The United States, the United Kingdom, and Australia have cooperated closely from an early stage, while China has emerged as a research power in this field in recent years. However, the connection between China and other countries is still limited.

Figure 5.

Transnational Cooperation Network of 39 Partner Countries with 2 Publications Pouring In Over Time (Source: Author's Own Compilation, Using VOSviewer)

Most published source

Table 2.

Top 10 Journals with the Highest Number of Articles on Information Competency for Students

Rank	Sources	Country	NP	TC	Scopus*	H-index	PY_start
1	Library Philosophy and Practice	United States	16	45	Q3	27	2014
2	Journal of information literacy	United Kingdom	11	28	Q3	16	2014
3	Reference services review	United Kingdom	10	174	Q1	43	1998
4	Behavioral and social sciences librarian	United States	6	65	Q4	18	2004
5	International journal of emerging technologies in learning	Austria	5	49	Q2	46	2016
6	New library world	United Kingdom	5	42	-	-	2010
7	Australian academic and research libraries	United Kingdom	4	42	Q2	32	2005
8	Eurasia journal of mathematics, science and technology education	Turkey	4	63	Q2	56	2016
9	Sustainability	Switzerland	4	56	Q2	169	2021
10	International information and library review	United Kingdom	4	29	Q2	32	2011

Abbreviations: NP: Number of publications; TC: Total citations from https://scopus.com on 14 August 2024; &
* Data collected from https://mjl.clarivate.com on 14 August 2024

Collection of published publications from 279 different sources, including journals, scientific conferences, and book chapters. The ten journals that published the most articles related to information competency research for students are presented in Table 2. These top journals published 69 studies (24.7% of the total) and were cited 593 times (equivalent to 23.0% of 2.582) total citations. Library Philosophy and Practice is the journal with the largest number of publications in this field (16 articles), followed by the Journal of Information Literacy (11 articles), and Reference Services Review is third (10 articles). The remaining sources published 4 to 6 publications. Among the ten journals, there are six journals in Q1 and Q2, showing the importance of information competency research for students.

Table 3.

10 Journals with the Highest Number of Citations on Students' Information Competency

Rank	Sources	Country	NP	TC	Scopus*	H-index
1	Reference services review	United Kingdom	10	174	Q1	43
2	Journal of documentation	United Kingdom	3	154	Q1	72
3	Journal of information science	United Kingdom	1	120	Q1	77
4	Library and information science research	United Kingdom	2	88	Q1	68
5	Computers and composition	United Kingdom	1	88	Q1	43
6	Computers in human behavior	United Kingdom	1	84	Q1	251
7	British journal of educational technology	United Kingdom	1	68	Q1	119
8	Behavioral and social sciences librarian	United States	6	65	Q4	18
9	Eurasia journal of mathematics, science and technology education	Turkey	4	63	Q2	56
10	Comunicar	Spain	2	59	Q1	56

Abbreviations: NP: Number of publications; TC: Total citations

Table 3 presents the ten journals with the highest number of citations in information competency research for students. These journals published 31 publications (equivalent to 11.1% of the total) and were cited 963 times (equivalent to 37.3% of the total). Table 3 shows that eight of the ten journals are in Q1 and have very high H-indexes, showing the importance of the research.

Most Influential Research

The first study was recorded in the Scopus database in 1998 for an information literacy study for teaching in 2000 (Ercegovac, 1998). However, it should be noted that this study is not significant as it only garnered nine citations at the time of investigation. In contrast, Table 6 provides information on the ten most frequently cited works from the 279 studies in the dataset. Table 6 includes additional details about the authors and publishers of the selected works. Of this list, ten were journal articles with 995 citations at the time of this study. Collectively, these ten works account for 38.5% of the total citations of the collection.

The most cited article (n=137) in this dataset is an open-access study published in 2007, focusing on the information literacy of English teachers in the UK. This study conducted an extensive survey over three years to determine faculty perceptions of information competency and compare them with international standards. This article is considered a case study in this field. The article with the second highest number of citations is 120, mainly focusing on related topics such as improving information competency in teaching and information competency in higher education. The content of the article published in 2010 focuses on research on information competency in university teaching and is published in the information science journal. The article, which has the third highest number of citations, with 88 citations, was published in 2000 by an American scholar and focuses on understanding the use of the internet and libraries to improve the capacity of students and lecturers in education. The article with the fourth highest number of citations with 84 citations, published in 2017, focuses on the study of digital competence and academic proficiency at a university in Spain. The articles that follow all have less than 70 citations.

Table 4.

Top 10 Most Cited Articles

CR	*Document*	*First author's institution/ country*	*Source title*	*DT*	*TC*	*HIC**	*BC**	*MC**	*RC**	*OA*
1	A phenomenographic study of English faculty's conceptions of information literacy	University of Strathclyde, Glasgow/ United Kingdom	Journal of Documentation	AR	137	14	61	13	5	OA
2	Design of the IL-HUMASS survey on information literacy in higher education: A self-assessment approach	Universidad de Granada/Spain	Journal of Information Science	AR	120	12	53	24	3	Non
3	Investigating the practices of student researchers: patterns of use and criteria for use of internet and library sources	Oregon State University, Corvallis, OR/United States	Computers and Composition	AR	88	6	48	2	5	Non
4	Undergraduate students' perspectives on digital competence and academic literacy in a Spanish University	University of Seville, Faculty of Educational Sciences/Spain	Computers in Human Behavior	AR	84	9	34	4	3	OA
5	From strategic planning to meaningful learning: diverse perspectives on the development of web-based teaching and learning in higher education	University of Helsinki/Finland	British Journal of Educational Technology	AR	68	9	71	5	4	Non
6	Can ICT usage make a difference on student teachers' information literacy self-efficacy	Hacettepe University, Beytepe, Ankara/Turkey	Library and Information Science Research	AR	65	7	42	5	13	Non
7	Perspectives on the information and digital competence of Social Sciences students and faculty before and during lockdown due to Covid-19	Universitat Jaume I/ Spain	Profesional de la Informacion	AR	53	1	19	-	1	OA
8	Academic plagiarism among secondary and High School students: Differences in gender and procrastination	University of the Balearic Islands / Spain	Comunicar	AR	49	1	6	-	1	OA
9	Information literacy and Writing across the Curriculum: sharing the vision	School of Library and Information Science / United States	Reference Services Review	AR	43	10	40	1	-	Non
10	Digital game-based learning of information literacy: Effects of gameplay modes on university students' learning performance, motivation, self-efficacy and flow experiences	The Education University of Hong Kong, New Territories, Hong Kong SAR / Hong Kong / China	Australasian Journal of Educational Technology	AR	42	-	17	-	-	OA

Abbreviations: CR: Rank; DT: Document types; AR: Article; CP: Conference paper; TC: Total citations; HIC*: Highly influential citations; BC*: background citations; MC*: Methods citations; RC*: Results citations; OA: Open access; Non: Not-Open access; & * Information collected from Semantic Scholar (https://www.semanticscholar.org) on 14 August 2024

Table 4 presents citation counts for scientific publications based on their position in the article (Cohan et al., 2019) classifying citation intent into three distinct categories: background, methods used, and compared results. Citation data was obtained from Semantic Scholar (https://www.semanticscholar.org). However, it should be noted that the total number of citations for each category may differ from the number of citations listed in the TC column. Citations are limited to articles for which Semantic Scholar can access the full text (Pham Van et al., 2022). Thus, the above ten articles are statistically analyzed for the indicators TC: citations, HIC: Highly influential citations, BC: foundation citations, MC: method citations, and RC: results in citations.

The most influential articles in research citations address broad issues rather than a specific topic. These studies were researched during the period 2007-2021 with different research topics. The most influential studies are mainly published in scientific journals. This is consistent with the view that, in the social sciences, scientific journal articles are often more interesting than conference papers (Fairclough & Thelwall, 2015). This is a suggestion for researchers when searching for documents in the field of information competency for university lecturers. The above studies whose first authors are all from developed countries (United States, Spain, United Kingdom, Finland, Turkey, China) show the importance of the research. This is consistent with the analysis of the most published countries, where almost half of the publications came from these countries.

Most Effective Author

Table 5.
Top 10 Researchers with Many Publications

CR	Author	Country	NP	TC
1	Pinto, M.	Spain	4	148
2	Karim, A. A.	Malaysia	3	6
3	Kazinets, V. A.	Russian Federation	3	19
4	Ledovskikh, I. A.	Russian Federation	3	19
5	Lupton, M.	Australia	3	77
6	Manabat, A. R.	Kazakhstan	3	13
7	Maybee, C.	The US	3	58
8	Oberg, D.	Canada	3	3
9	Sanches, T.	Portugal	3	1
10	Bilawar, P. B.	India	2	5

Abbreviations: CR: Rank; NP: Number of publications; TC: Total citations

The total number of authors participating in research on information capacity for lecturers recorded in the Scopus database is 598. Table 6 presents the ranking of the ten scholars with the most works, determined by the number of articles published. It is worth noting that a given scholar may leverage affiliations with multiple institutions, however, the data presented in Table 6 relate only to their most recent publications. Among these, two authors Kazinets, Victor A. and Ledovskikh, Irina A. from the Russian Federation collaborated to publish three publications from 2016 to 2018. The table above shows that authors Pinto, Maria from Spain have four publications and 148 citations with an average of 37 citations per article. In addition, there are eight authors with three publications: Karim, Aidah Abdul; Kazinets, Victor A.; Ledovskikh, Irina A.; Lupton, Mandy; Manabat, April R.; Maybee, Clarence; Oberg, D.; Sanchez, Tatiana. Among the authors in State 6, we can see two authors Kazinets, Victor A. and Ledovskikh, Irina A. of the Russian Federation have collaborated to publish three publications from 2016 to 2018 (according to Figure 6). Table 7 shows the 10 authors with the most citations, including three pairs of authors writing the same publication. Here, we see three authors: Boon, S.; Johnston, B. and Webber, S. from the UK, with an article published in 2007 but with 137 showable citations. This is a very influential study. And here are the three authors whose publications with the most citations are presented above. Two authors. Burton, V. T. and Chadwick S. A. from the United States with a publication published in 2000 but with 88 citations. Below are three Spanish authors with an article published in 2017 with 84 citations. Finally, author Lupton, M. from Australia with three articles with 77 citations.

Table 6.
Top 10 Researchers with Many Citations

CR	Author	Country	NP	TC
1	Pinto, M.	Spain	4	148
2	Karim, A. A.	Malaysia	3	6
3	Kazinets, V. A.	Russian Federation	3	19
4	Ledovskikh, I. A.	Russian Federation	3	19
5	Lupton, M.	Australia	3	77
6	Manabat, A. R.	Kazakhstan	3	13
7	Maybee, C.	The US	3	58
8	Oberg, D.	Canada	3	3
9	Sanches, T.	Portugal	3	1
10	Bilawar, P. B.	India	2	5

Abbreviations: CR: Rank; NP: Number of publications; TC: Total citations

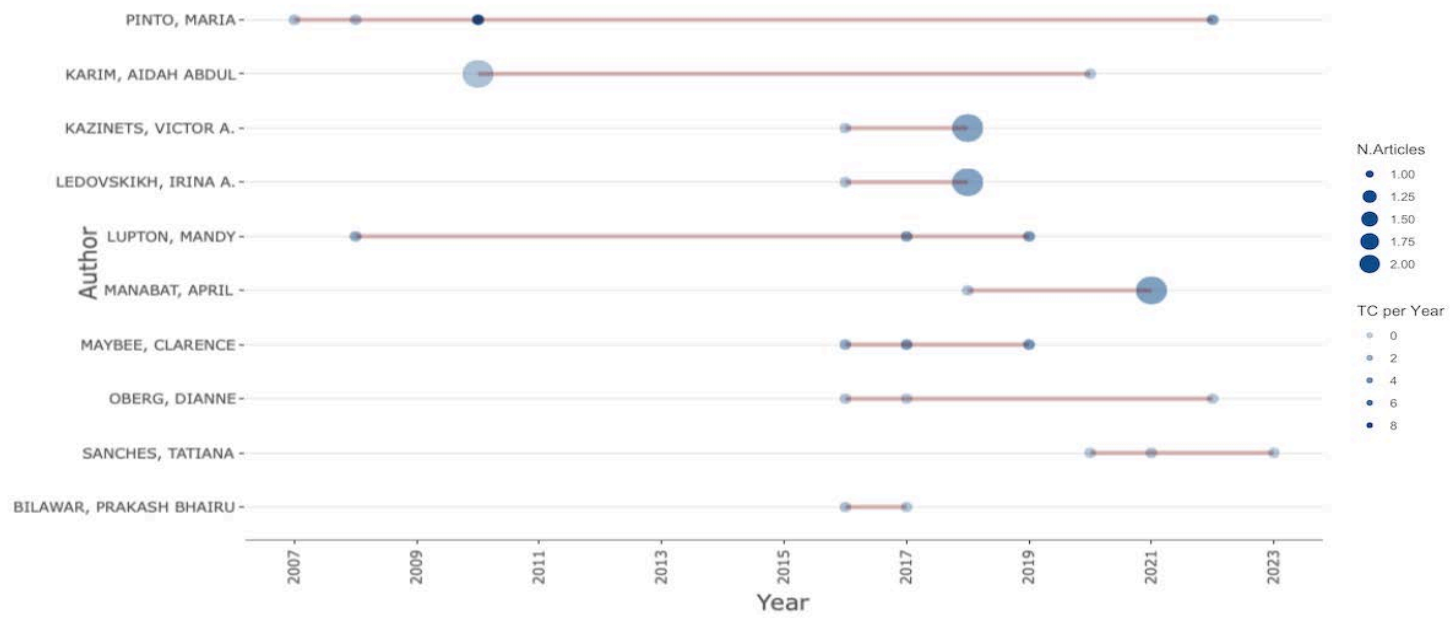

Figure 6.
Top 10 Leading Researchers by Year

Figure 6 shows the change in research activities of the top 10 scientists in terms of information capacity for lecturers. Notably, several researchers made significant contributions during the period 2007-2010, but there was a lull after that. However, from 2019 to 2022, they returned to this topic, showing sustained interest in this area of research. This confirms the importance of information capacity for lecturers in the modern educational context. Besides, the image also shows the appearance of several new researchers, focusing on the period 2016-2019, contributing to enriching the research picture on this topic.

Main Research Topic

With the keywords chosen by the author in the article, the author analyzes the main research contents of typical cases of information competency research for lecturers. The total number of keywords set by the authors is 773. The author combined synonyms, singular and plural keywords, and eliminated keywords that did not show research trends before analysis.

Figure 7 shows the co-occurrence network of 63 keywords, each appearing in at least three articles. The nodes in Figure 7 represent individual keywords, with the size of each node proportional to the frequency of the corresponding keyword. The keywords are classified into several distinct clusters, with the largest cluster (indicated in blue) focusing on information literacy research at the university level. In addition, there are also studies related to academic libraries, information technology capacity, information capacity... The blue cluster has the highest keyword concentration, consistent with previous research. has confirmed that information literacy and competencies are at the university level. Red cluster: research on academic issues, competencies, and information knowledge for teaching and learning in universities. Green cluster: research on information capacity, digital capacity, and communication capacity issues. Yellow cluster: research on lifelong learning issues, information skills, and information technology.

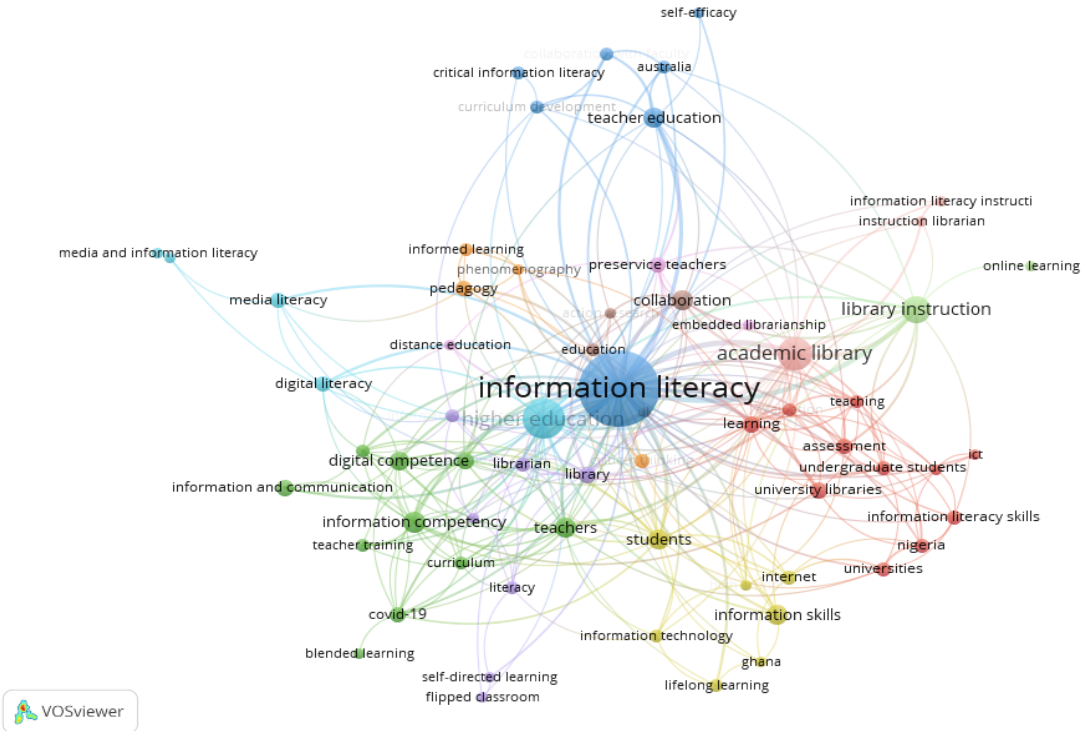

Figure 7.

Co-occurrence network of 63 Author Keywords Appearing Together in at Least Three Articles (Source: Author's Own Compilation, Using VOSviewer)

Figure 8 illustrates the network of keywords appearing in at least three research articles within a given period. The color of the keywords represents the time of publication: gray for traditional topics and yellow for new topics. The keyword "Information Literacy" stands out with its large size and blue color, showing that this is an important research topic in the period 2016-2018. Recently, keywords such as "digital literacy", "digital competence", "media literacy", "media and information literacy", and "information literacy skills" have received increasing attention, demonstrating the expansion of research. on information and communication.

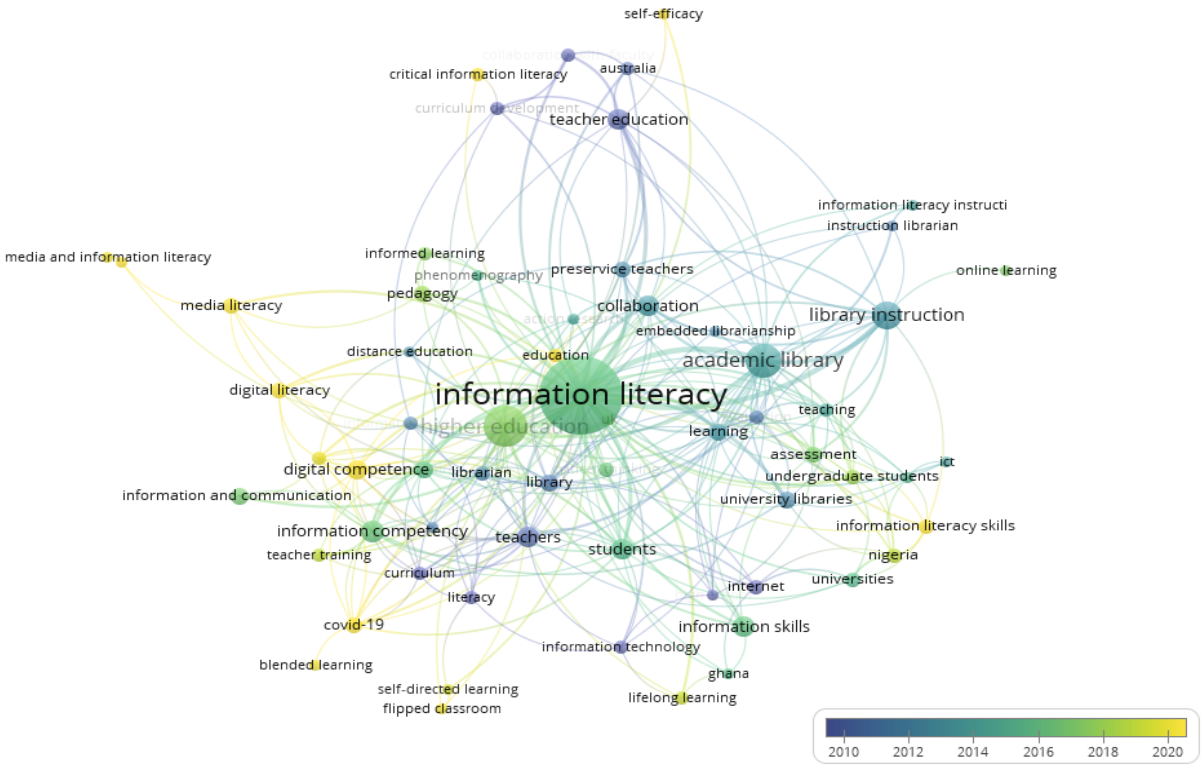

Figure 8.

Co-Occurrence Network of 63 Author Keywords Appearing Together in At Least Three Articles Over Time (Source: Author's Own Compilation, Using VOSviewer)

Figure 9 depicts the annual research trends in this field by identifying relevant keywords. A line represents the timeline of each keyword, and a bubble shows the keyword's highest frequency in a given year. The circle size is proportional to the number of publications containing the corresponding keyword (Pham Van et al., 2022). It can be seen that in 2017 the main keyword was information capacity and in 2021 the main keyword was understanding information capacity. In 2022, the main keywords are media knowledge, information, and communication technology, showing the research trends of scholars.

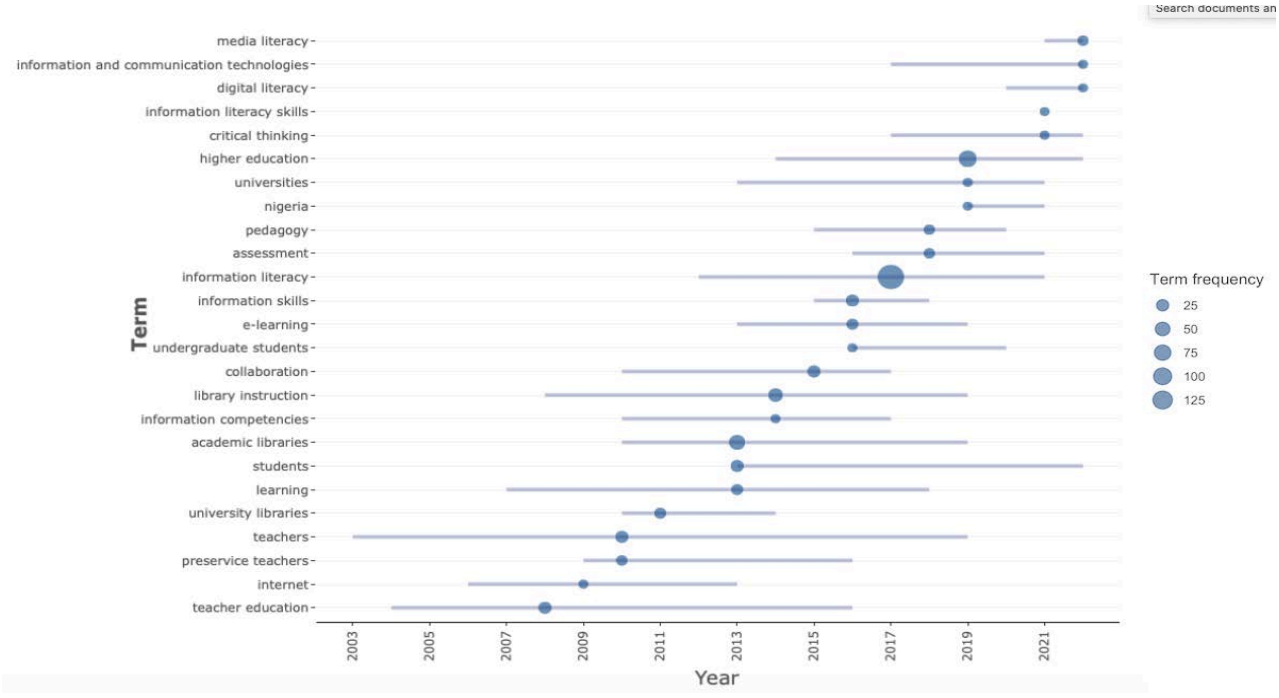

Figure 9.

Publication Collection Trend Topics by Author's Keywords (Source: Author's Own Compilation, Using Biblioshiny)

Figure 10 visualizes the central role of "information capacity" in this research field. This keyword appears with greater frequency than other keywords, confirming the importance of this topic in the research community. Related terms, shown in different colors and connected to "information capacity", show the close connection between these concepts. This demonstrates that researchers often combine "information competency" with other concepts to delve into more complex issues in the field. This result is completely consistent with the network analysis and topic trends presented in the previous figures (Figure 7 and Figure 9), reinforcing the importance of "information capacity" in research. rescue.

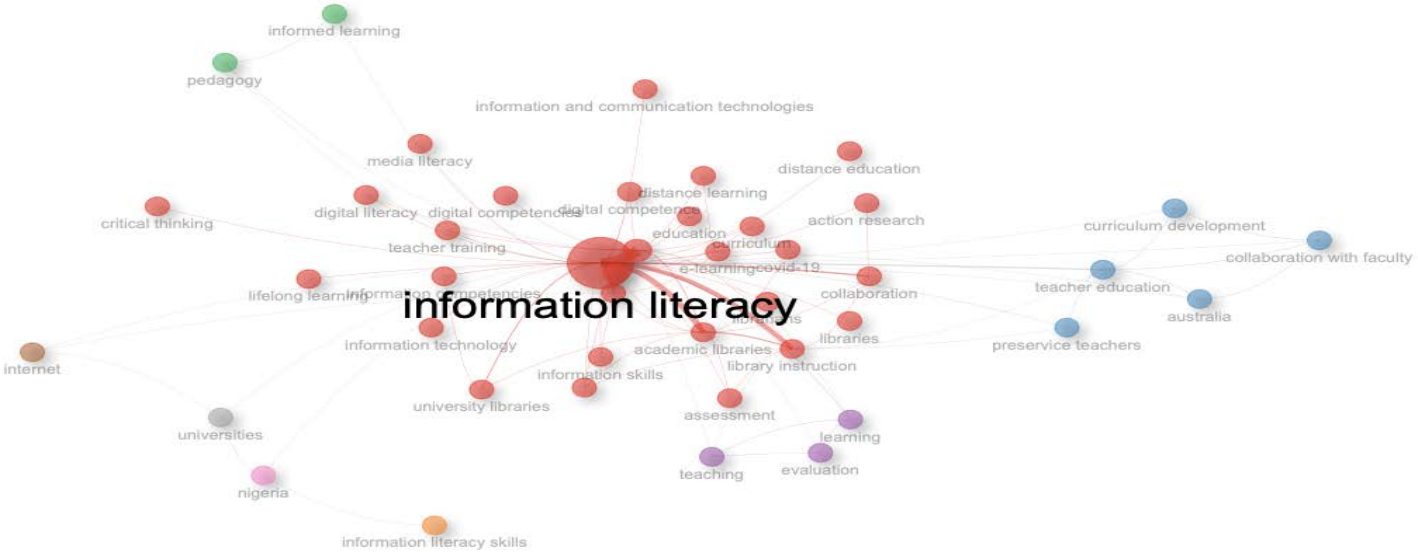

Figure 10.
Author's Keyword Appearance Network (Source: Author's Own Compilation, Using Biblioshiny)

Discussion

From a practical standpoint, information literacy has proven to be a crucial factor in enhancing teaching and learning effectiveness for both faculty and students. Since the seminal works published in 1998, the body of literature about information literacy for university lecturers has steadily expanded, culminating in a peak of 72 publications in 2022. This sustained growth underscores the increasing adoption of information literacy practices among university faculty in recent years. By employing information literacy strategies, faculty members can significantly improve the quality of their instruction (Hammons, 2020).

In terms of scholarly output, the United States emerges as the leading country with 72 publications, followed by Spain with 21 and China with 20. The significant surge in publications between 2019 and 2022 can be attributed, in part, to the COVID-19 pandemic, which necessitated a global shift from traditional face-to-face instruction to remote or hybrid learning modalities. Within this context, information literacy has assumed an even more critical role in higher education (Bury, 2024).

A geographical analysis reveals a significant concentration of authors from developed nations, particularly Spain. Notably, Malaysia has emerged as a promising country with a growing number of recent studies. The United States, a pioneer in information literacy research, maintains its position as the leading country in this field. In recent years, China has witnessed a substantial increase in the number of studies focused on information literacy for university lecturers.

The majority of publications on information literacy originate from sources based in developed countries, with the United States and the United Kingdom being particularly prominent. These sources exhibit high H-indices, signifying the significant impact of the research conducted in these countries.

The thematic analysis reveals two predominant research foci within the field of information literacy: "information literacy in higher education" and "academic libraries." This finding aligns seamlessly with the previous analysis of publication sources and citations, further solidifying the notion that research activities in information literacy

primarily concentrate on its application and development within the higher education context. A keyword analysis underscores the multifaceted nature of information literacy research, encompassing a broad spectrum of topics, from system construction to practical implementation. This diversity highlights the pivotal role of information literacy in higher education.

Conclusions and Recommendations

Conclusions

The study described global research trends in information competencies for university lecturers between 1998 and 2023. By analyzing detailed data from the Scopus database and applying techniques Research bibliometrics has shown the distribution and trends of keywords, identified influential researchers along with collaboration between researchers, and identified countries and journals with high influence. The results show that open data is becoming more and more popular over time and developed countries are still the ones with the highest number of articles and citations, typically: the United States, Spain, and China. China, Australia, Russia... Authors from the same country and agency cooperate to share knowledge. Regarding journals, it can be seen that there are many leading journals with many articles showing the interest of scholars in researching information competency for lecturers. Keywords: It can be seen that the keywords about information competency, digital competency, information skills, digital skills, and information technology skills are researched by the authors. Research results show a significant growth in the quantity and quality of research works in the period 2021-2022.

Research has shown that the level of information competency of university lecturers is still limited, especially in the application of information technology in teaching. Factors such as age, major, and facilities have a significant influence on this capacity. To improve the information capacity of lecturers, there needs to be a strong investment in training, equipping modern facilities, and building a working environment that encourages innovation. The research results provide a worldwide overview of information competency research for lecturers.

Limitations

This study has some limitations. First, using only bibliometric data from the Scopus database may result in a limited representation of publications in information literacy research for faculty. Second, although the author manually filtered irrelevant articles in different Scopus categories, the filtering process may need further improvement, which may lead to omissions. Third, certain key information, such as author names and institutional affiliations, should be standardized in the Scopus database. Since manual editing is not feasible, this limitation may affect our results in terms of the accuracy of our analysis depending on the quality of the input information imported from the database Scopus data. Fourth, some types of analysis, such as statistics based on the gender of scholars, were not possible in this study due to the technical limitations of the Biblioshiny and VOSviewer tools.

Ethics Committee Approval: The author stated that ethical permission was not required for the study because humans and animals were not used. However, ethical guidelines were followed throughout the study.
Informed Consent: No living beings requiring informed consent were involved in this study.
Peer-review: Externally peer-reviewed.
Conflict of Interest: The author has sufficiently contributed to the study and agreed with the results and conclusions.
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