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# A Bibliometric Study to Assess Research Fads in Library and Information Science in Malaysia during 2016–2021

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#### Abstract

This study was designed with the aim to evaluate the publication growth and research pattern of library and information science (LIS) in Malaysia from 2016-2021. The Scopus database was utilised as the main source for extracting retrospective data. An explicit fluctuation rather decreasing trend in the number of documents was observed. The year 2021 was identified as the most productive, while 2016 was identified as the high citation in LIS in Malaysia. Additionally, in order to provide scientific information, future studies should investigate pertinent research clusters to look for emerging patterns in LIS.

Keywords: Scopus; Library and Information Science; Bibliometric analysis; Malaysian researcher

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# 1.0 Introduction

Research has taken on a life of its own due to the importance it now holds in virtually every facet of the society. As a result, public interest in scientific research has been growing for some time (Mulligan, A. 2022). The amount and quality of research published since the advent of modern information and communication technology has also increased dramatically (United Nation, 2021). Evaluation of research productivity is seen as one of the analytical tools needed to keep research performance at a high level (Adhi Indra Hermanu, Diana Sari, Mery Citra Sondari & Muhammad Dimyati, 2022). Evaluation is also vital to decision-making and policy formulation (Mustafa, & Noorhidawati, 2020). As time passes, librarianship has been viewed as both a career and a scientific discipline. Library and Information Science (LIS) research shows how the field has changed over time. That is why it is critical that the research output of LIS be examined for its strengths and flaws. There are several scientometric studies that focus on measuring the scientific production and influence of various fields, countries and authors (Borgohain, D., Verma, M.K., & Daud, S.C., 2021).

The definition of bibliometrics is "the use of mathematical and statistical methods on all scientific literature, including books and other documents" (Pritchard, 1969). To put it another way, it is the use of mathematics and statistics to figure out how many times something has been published and how often. The word "bibliometrics" can be traced to its roots of the Latin terms "Biblio" and "metrics," which mean "the study of a bibliography using mathematics" (Thanuskodi, 2010). By examining the publications in an area or subject, bibliometric analysis is frequently used to assess the quality and quantity of that field or subject (Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M., 2021). Because it does not only concentrate on the standard components of research, the discipline of LIS is rapidly evolving (Han, X., 2020). According to Swain and Panda (2012), LIS researchers have always conducted bibliometric analyses to determine the

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scientific worth published literature in any discipline and throughout a specific time period. Numerous bibliometric techniques are employed in LIS to analyse published literature (Islam, & Roy, P. K., 2021)

The use of bibliometric approaches by developed countries to evaluate their scientific information has become more widespread, developing countries, such as Malaysia, has also come to view such assessments as a vital move. As scholarly publications keep publishing research results in numerous domains, such as Library and Information Science (LIS) research, such an assessment is necessary. Scientists and researchers around the world, particularly in developed countries, have long considered this kind of communication to be a major choice and obligation.

#### 2.0 Literature review

Ali, N., Shoaib, & Abdullah (2021) analyse the LIS research output of scholars with ties to the twenty-two (22) Arab League region and look at the state and trends of that research. The research output of the writers connected to Arab library groups was assessed using bibliometric techniques between 1951 and 2021. The findings of the study demonstrated that the number of publications has been growing, notably over the last four years. In the year 2020, the highest number of studies was published. Kuwait and Saudi Arabia, with five and four researchers, respectively, were placed as the top two countries for providing LIS research in the country-by-country analysis, while universities such as; Kuwait University, King Fahd University of Petroleum and Minerals and Imam Abdulrahman Bin Faisal University were the three (3) most productive institutions. Social media, bibliometrics, information-seeking behaviour, knowledge management, academic libraries and information literacy were among the academics' key research interests. The list of areas that called for additional focus included data science (research data management and link data) the digital library, library automation, library leadership, green librarianship, cloud computing and artificial intelligence. Additionally, it was found that the single-author pattern was the most common.

In a similar vein, 62 years of LIS in Pakistan (1957-2018) were examined by Siddique, N., Rehman, S. U., Khan, M. A., and Altaf (2021). Using four primary databases, a thorough bibliometric analysis was conducted on *Scopus, Web of Science, LISA, and Library, Information Science and Technology Abstracts*. A rising trend was found by the researchers. Library research is becoming more popular in Pakistan. The Department of Information Management of University of the Punjab has made significant contributions to the literature on LIS. Forty percent of the total publications were published by two Pakistani periodicals. Research publishing has been spearheaded by older, more prestigious universities like the University of Karachi and University of Punjab whereas Baluchistan and Khyber Pakhtunkhwa need more money and attention.

With different aims, González-Alcaide, G. (2021) looked at how bibliometrics was used in his research. The researcher established an authorship network and compared it to papers that were recently circulated in journals devoted to LIS after generating a list of all pertinent records indexed between 1965 and 2019 in the WoS collection. More than 12 times as many papers have been published during the past 15 years in the field of metric studies, a trend that has expanded to all fields of knowledge. There are limited collaboration and citation linkages between Information System and Library Science and non- Information System and Library Science bibliometric research groups, and the research groups are spread out and atomized.

There were 699 papers analysed during 1994-2020 that appeared in Library & Information Science Research in a study done by Garg, K.C., Singh, R.K., (2022) that was obtained using Google Scholar. The research looked at where publications were published, as well as the institutions and authors that produced a large number of them. Citation per publication and the i-10 score were used as indices of the effect of countries, institutions, and authors in the study. Researchers looked at trends in growth and referenced papers to make their findings. According to the data analysis, most of the articles were published over the three-year period from 2015 to 2017. The 699 papers come from 51 different countries, according to the geographical distribution of output. Authors from the United States published the most papers, despite its relatively low CPP. As far as the schools were concerned, Florida State University (USA) was the best among the others. For comparison's sake, the best CPP score went to the University of Illinois at Urbana-Champaign. More than 74,000 citations were given to just 41 of the 1,389 papers analysed during the study period.

#### 2.1 Research Questions

This study was designed with the aim to evaluate the publication growth and research pattern of library and information science (LIS) in Malaysia from 2016–2021. The study has the following research questions:

- RQ1. How many LIS publications (output) indexed in Scopus were published each year between 2016 and 2021 in Malaysia?
- RQ2. Between 2016 to 2021, how many times were LIS publications indexed in Scopus and its impact on a yearly basis in Malaysia?
- RQ3. Which of the LIS articles indexed in the Scopus were highly cited between 2016 and 2021?
- RQ4. Which authors were the most prolific in the field of LIS between 2016 and 2021 in Malaysia?
- RQ5. Which were the most productive research institutions in the field of LIS between 2016 and 2021 in Malaysia?

#### 3.0 Methodology

The main goal of the research was to provide a bibliometric study of scholarly LIS publications written by Malaysians between 2016 and 2021. SCOPUS core collection, a well-known and reliable database widely utilised for scientometric analysis and scientific research, was used as the source of factual data for the survey-style study, which employed this methodology (Pranckute, R. (2021). It is being used as a thorough source of data for citations (Jeroen Baas, Michiel Schotten, Andrew Plume, Grégoire Côté, Reza Karimi, 2020). Scopus gives extensive information about an author's, journal's, subject's, and country's contribution (Herther, 2009). The chosen database has been

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extensively utilised for decades to evaluate the calibre of peer-reviewed articles on a global scale (Elsevier. (2019). The authors solely looked at LIS articles for this analysis. The survey counted scientific outputs such as journal articles, conference papers, reviews, and editorials. A report was created once these settings were configured in Scopus. The search phrase "Library Science" yielded a total of 69,351 results in Scopus between 2016 and 2021. After limiting the search results by document type, document period of 2016–2021, and geographic specification of Malaysia, the number of documents reduced to 647 (0.93 percent) of the total LIS documents. The updated results were entered into a computer for review. The researchers looked at how much research was done in Malaysia, how many papers were published each year, how many times those papers were cited, which LIS journals got the most citations, which research institutes did the most research, and who were the most prominent authors in the field of LIS.

# 4.0 Findings

#### 4.1 LIS publications (output) indexed in Scopus that were published between 2016 and 2021 in Malaysia

The researchers examined LIS documents that were published and the number of citations that were added to those papers each year from 2016 to 2021. The total number of articles produced by Malaysian authors is 647 within 6 years and the scholarly output growth is 40.5%. According to Fig. 1, 2016 was the most productive year in terms of the number of papers that was published. It also demonstrates that between 2016 and 2018, the range of research outputs that were published in the field of LIS was between 84 and 106. As a result of an increase in the publication growth rate that is greater than 20, the annual publication rate has increased to 170 during the course of the past three years, from 2019 to 2021.

### 4.2 LIS publications that were indexed in Scopus between 2016 and 2021, and the annual impact

In the context of citation numbers, out of 6188 within 6 years, 2016 was ranked as having the highest citation for LIS articles as seen in Fig. 1. Overall, citation growth fluctuated continuously from 2016 to 2021. The citation rate has declined significantly in the last three years (2019 to 2021) despite the number of publications tremendously increasing on the specified study period. However, Malaysian LIS authors did produce impactful articles within 6 years with FWCI at 1.66 or 66% world average.



Fig. 1: Yearly LIS Publication and Citation

### 4.3 LIS articles indexed in Scopus that were highly cited between 2016 and 2021

The Top 10 Library and Information Science publications written by LIS authors and published in Scopus journals from Malaysia are listed in Table 2 in which the findings show that the research article "*The role of big data in smart city*" by Hashem, I.A.T., Chang, V., Anuar, N.B., Adewole, K., Yaqoob, I., Gani, A., Ahmed, E., and Chiroma, H. (2016), published in the International Journal of Information Management, was the most highly cited article with 548 citations followed by "*Smartphones usage in the classrooms: Learning aid or interference?*" an article written by Anshari, M., Almunawar, M.N., Shahrill, M., Wicaksono, D.K. and Huda, M. (2017) published in Education and Information Technologies was ranked 2nd as the most highly cited article with 199 citations. Impressively, an article entitled "Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs" (2020) published in Scientific data journal received 5 citations after a year of being published.

### 4.4. Which authors were the most prolific in the field of LIS between 2016 and 2021 in Malaysia?

Table 1 lists the top ten most prolific authors, defined as those who have published the most papers in LIS journals. According to the findings, Abrizah and Kiran from the University of Malaya generated 28 and 12 articles respectively and can be called the most prolific LIS authors in Malaysia. Interestingly, four of the top ten most prolific authors were dominated by UM scholars. These findings show that UM authors dominate the LIS research field. In the Top 10 LIS authors list, only one author from UiTM made it to the third spot.

Table 1. Top 10 Most Prolific Authors in The Field of Library and Information Science								
Name	Scholarly Output	Most recent publication	Citations	Citations per Publication	Field-Weighted Citation Impact	h-index		
Abrizah, A.	28	2021	138	4.9	1.02	19		
Kaur, Kiran	12	2021	149	12.4	1.25	15		
Masrek, Mohamad Noorman	10	2021	51	5.1	0.56	11		
Mohd Noah, Shahrul Azman	10	2021	88	8.8	1.43	19		
Ramayah, T.	10	2021	185	18.5	2.82	50		
Nilashi, Mehrbakhsh	9	2020	99	11	2.23	38		
Noorhidawati, A.	9	2021	35	3.9	0.56	4		
Wahab, Habibah	9	2021	51	5.7	1.04	18		
Ravana, Sri Devi	8	2020	39	4.9	0.56	10		
Al-Samarraie, Hosam	8	2021	95	11.9	1.38	17		

Table 2. Top 10 Highly Cited Library And Information Science Articles In The Scopus

Title	Authors	Number of Authors	Year	Scopus Source title	Citations	Field- Weighted Citation Impact
The role of big data in smart city	Hashem, I.A.T.  Chang, V.  Anuar, N.B.  Adewole, K.  Yaqoob, I.  Gani, A.  Ahmed, E.  Chiroma, H.	8	2016	International Journal of Information Management	548	28.56
Smartphones usage in the classrooms: Learning aid or interference?	Anshari, M.  Almunawar, M.N.  Shahrill, M.  Wicaksono, D.K.  Huda, M.	5	2017	Education and Information Technologies	199	26.72
Big data: From beginning to future	Yaqoob, I.  Hashem, I.A.T.  Gani, A.  Mokhtar, S.  Ahmed, E.  Anuar, N.B.  Vasilakos, A.V.	7	2016	International Journal of Information Management	186	8.91
Big data reduction framework for value creation in sustainable enterprises	Rehman, M.H.U.  Chang, V.  Batool, A.  Wah, T.Y.	4	2016	International Journal of Information Management	147	9.05
Understanding social commerce: A systematic literature review and directions for further research	Busalim, A.H.  Hussin, A.R.C.	2	2016	International Journal of Information Management	141	7.83
Real-time big data processing for anomaly detection: A Survey	Ariyaluran Habeeb, R.A.  Nasaruddin, F.  Gani, A.  Targio Hashem, I.A.  Ahmed, E.  Imran, M.	6	2019	International Journal of Information Management	139	10.06
Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs	Wong, LW.  Leong, LY.  Hew, JJ.  Tan, G.WH.  Ooi, KB.	5	2020	International Journal of Information Management	120	22.6
The impact of knowledge management processes on information systems: A systematic review	Al-Emran, M.  Mezhuyev, V.  Kamaludin, A.  Shaalan, K.	4	2018	International Journal of Information Management	95	7.76
The influence of learning value on learning management system use: An extension of UTAUT2	Ain, N.  Kaur, K.  Waheed, M.	3	2016	Information Development	94	6.15
Major trends in knowledge management research: a bibliometric study	Akhavan, P.  Ebrahim, N.A.  Fetrati, M.A.  Pezeshkan, A.	4	2016	Scientometrics	93	10.28

#### 4.5 The most productive research institutions in the field of LIS between 2016 and 2021 in Malaysia

Many institutions have undertaken research output analyses in the field of LIS, for example, Ivanovi and Ho (2016) studied highly cited LIS journals. Their research revealed that UM was the most prolific LIS university. Similarly, according to our analysis, authors from UM published the most articles in Scopus-indexed journals (28.28 percent or 183). USM was the second most productive institution, with 71 (11%) articles produced by their writers. UTM authors produced 65 (10%) articles and were rated third while UiTM was ranked as 4<sup>th</sup> with 57 articles. These findings show that universities in the RU made the most extensive contributions to LIS research (see Table 3).

Institution	Sector	Scholarly Output	Scholarly Output (growth %)	Citations	Authors	Authors (growth %)	Field-Weighted Citation Impact
University of Malaya	academic	183	-28.6	2565	198	-35.5	1.83
Universiti Sains Malaysia	academic	71	600	577	85	214.3	1.7
Universiti Teknologi Malaysia	academic	65	36.4	933	89	30	2.38
Universiti Teknologi MARA	academic	57	60	267	62	160	0.96
Universiti Kebangsaan Malaysia	academic	55	140	357	76	275	1.11
Multimedia University	academic	34	28.6	220	44	30	1.37
Universiti Putra Malaysia	academic	31	33.3	210	61	50	1.09
University Utara Malaysia International Islamic University	academic	30	400	34	39	800	0.36
Malaysia	academic	29	33.3	165	37	75	0.9
University Malaysia Pahang	academic	21	100	403	32	0	4.32

# 5.0 Discussions and Conclusion

Between 2016 and 2021, 647 papers were published in the journal Library & Information Science Research (LISR). These papers were the focus of the study. Several significant patterns in LIS publication in Malaysia have been identified by the bibliometric study of LIS articles released in the recent six years. These insights broaden our understanding of the subject of library and information science. The following are some of the points raised throughout the debate of these findings. There was no substantial difference between 2003–2013 and 2016–2021 in terms of the number of LIS papers produced. However, between 2019 and 2021, there was a significant increase in the number of LIS papers produced, with the total number of publications approaching 170. In this context, the annual publishing growth rate in 2020 was over 170. It suggests that research publishing is becoming more popular among LIS colleagues, which is a positive sign. The year 2017 produced the least number of publications between 2016 and 2021. In terms of the number of citations for LIS papers, there has been some fluctuation over the years. Additionally, it implies that publications published in LIS journals ought to receive widespread recognition or promotion from the LIS community.

Approximately half of all LIS papers were published by UM authors, making it the most productive research institution in the field of LIS. Similarly, when it comes to the most productive research institution in the field of LIS, UM once again ranked in the top ten. According to studies by Karno M.R., Omar S.S., Buntat Y. and Sharuddin N. (2016) and Jabeen et al. (2016), UM scholars wrote the vast majority of overall LIS articles between 2006 and 2015. A large number of LIS postgraduate students may be the reason for this high research productivity. Aside from that, the LIS programme at UM has a long history, which contributes to its high research productivity.

Interestingly, four of the top ten most prolific authors were UM scholars. These findings demonstrate that the LIS research field is dominated by UM and other RU writers. Abrizah and Kiran from the University of Malaya are the most prolific LIS authors in Malaysia, with 28 and 12 papers, respectively. Similarly, Garg, K., Kumar, N. and Geeta, G. (2019) found that A. Abrizah is the most prolific author of the MJLIS Journal, having contributed 10 research articles out of 110 in the journal and ranked first. The most highly cited article was "The Role of Big Data in Smart Cities", and Education and Information Technologies was named the most productive journal.

The Scopus database was used to extract data on LIS publications and citations from 2016 to 2021. There is a possibility that some documents or other bibliographic details were overlooked or missed. A future study that observes subject categories while also calculating their citation impact is recommended for researchers. The contents of the journal could be used to trace the historical development of LIS subjects. This information may be useful to researchers and research institutions in developing a good vision for this research field in the coming years. Furthermore, it may be useful for library managers, decision-makers, and ASEAN governments in producing high-quality and impactful papers in LIS.

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# Paper Contribution to Related Field of Study

This research paper contributes to the field of Library and Information Science.

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