Research Trends in Internet and Higher Education Journal: Blibiometric Analysis

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ABSTRACT

Articles in the field of education have been widely researched and published in various journals, both local and international. Journals compete with each other to produce the best publications and have a positive impact on the development of the science under study. The purpose of this study is to provide information through visualization of various aspects of research trends in the journal Internet and Higher Education. This study analyzes Internet and Higher Education journals from 2015 to 2022, identifying the publications in each year, the most prolific authors, the most researched topics, and how interest in the relationships between topics develops. Bibliographic data was collected from the Scopus database of the Internet and Higher Education journal with a total of 208 documents which were analyzed using a bibliometric or scientometric approach.

Keywords: Higher Education, bibliometric or scientometric approach

Introduction

Indicators of quality journals are journals that have been indexed by Scopus. Many authors from various countries refer to the Scimago Research Group and obtained it from Scopus Elsevier (Moed, Moya-anegon, & Guerrero-bote, 2021). Journal of Internet and Higher Education is a journal of high reputation because it is in the Q1 Scopus position with an H index of 99 which is a means of communication and needs to be a pilot study through the exploitation of information technology (Zhang, Huang, Porter, Zhang, & Lu, 2018). Journal of Internet and Higher Education is also a reference for researchers in the field of higher education in which they examine contemporary issues and future developments related to learning and teaching through the Internet such as pedagogical innovation through online and mixed learning; online learning interaction and collaboration; online learning community; institutional policies and strategies to encourage and support online learning and teaching; internationalization and cultural aspects of online classrooms; online ratings and feedback; faculty professional development for online learning; and approaches to online course development.

In recent years, the number of publications in various journals related to the study of learning through the internet and games has increased significantly (Schobel, Saqr, & Janson, 2021). It is becoming increasingly difficult for researchers to track relevant and quality literature to be used as a reference for research in their field (Zupic, 2015). Journal of Internet and Higher Education can be used as an alternative for researchers because it has a

variety of interesting, quality topics. These topics need to be visualized to make it easier for researchers to see trends that occur in highly reputable journals. The development of information technology through visualized statistical data analysis plays a very important role in presenting and describing the results of research that has been carried out in scientific journals. Visualization turns out to be a powerful approach for analyzing a wide variety of bibliometric networks (Eck & Waltman, 2014). Bibliometrics is a method of measuring the literature using a statistical approach that includes the application of quantitative analysis. Bibliometric analysis is also known as scientometric which is part of the research evaluation methodology, taken from various literature that have been produced (Ellegaard & Wallin, 2015).

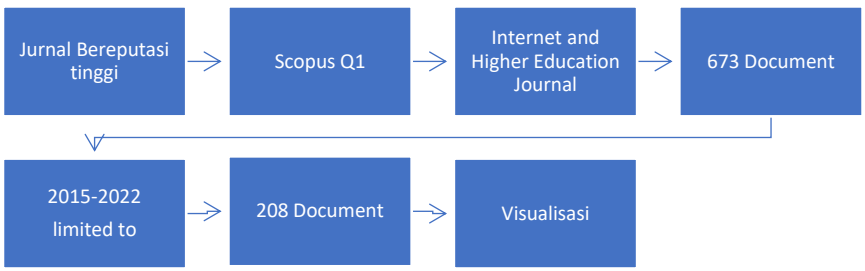
Bibliometric methods are increasingly being used by science mapping to measure research performance of institutions and researchers (Kocak, 2019). VOSviewer is a computer program developed for viewing bibliometric maps. VOSviewer pays special attention to the graphical representation of bibliometric maps (Jan & Ludo, 2010). This program is used to create author or journal maps based on co-citation data or to create keyword maps based on co-occurrence data (Eck & Waltman, 2009). The VOSviewer functionality is very useful for displaying large bibliometric maps in a way that is easy to interpret (Jan & Ludo, 2010). VOSviewer aims to avoid overlapping labels, and therefore labels are only visible for some terms (Eck & Waltman, 2017).

For this reason, the author wants to visualize and provide information from various aspects about research trends in Internet and Higher Education journals using the VOSviewer program, so that it can be used as input for researchers on any topics that need to be studied more deeply and which are interrelated so that they can be used as references for research published in various other journals.

Methods

The data analyzed come from the SCOPUS database source in the Internet and Higher Education journal. The reason is taken from SCOPUS because it is considered leading by the international scientific community and also as a reference for documents that have a high impact on scientific development (Martín-martín, Orduna-malea, & Thelwall, 2018). So the results of the analysis are more objective and accurate. The Scopus database also offers a much broader range of coverage than others (Powell & Peterson, 2017).

Data retrieved with search terms SOURCE-ID (16965) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015)) AND (LIMIT-TO (DOCTYPE , "ar")) with timeframe from 2015 to 2022 which was accessed in June 2022. From these keywords, 208 documents were saved in RIS and CSV format which included important information, such as title, author's name and affiliation, abstract, and keywords. Bibliometric analysis and knowledge mapping were performed with the Java VOSviewer 1.6.13 software which supports the construction and visualization of a network of bibliographic records. The process carried out can be described as follows:



Results And Discussion

Based on the results obtained from the SCOPUS analysis, the following picture is obtained.

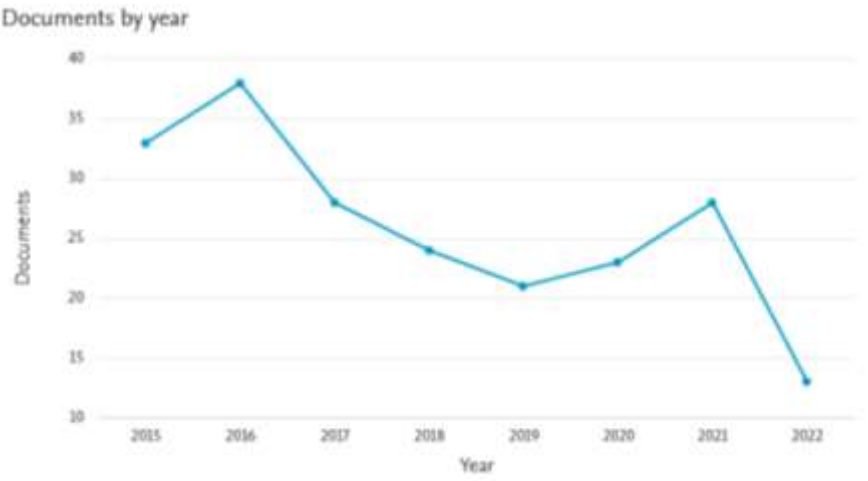


FIGURE 1. Number of documents by year

From figure 1, we can see the fluctuating number of articles in the journal Internet and Higher Education, starting from 2015 with 33 documents, increasing in 2016 to 38 documents, in 2017 to 2019 a significant decline to 21 documents then increasing again to 2021 with 28 documents. By 2022, we already have 13 documents, although the number of documents is still possible to grow.

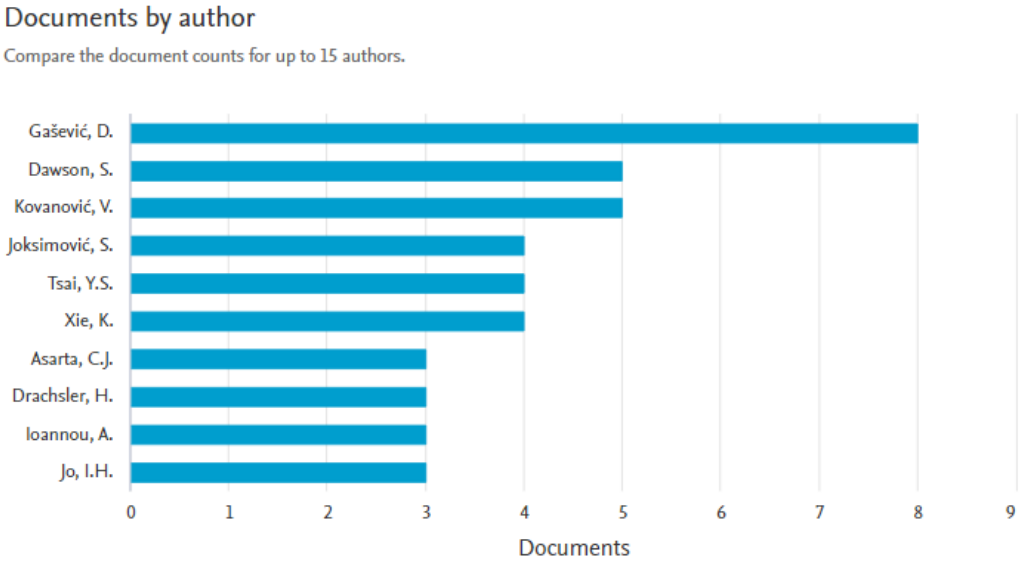


FIGURE 2. Number of documents by author

Looking at figure 2, we get 10 names of authors who contributed the most documents with various research topics, Gašević, D. with 8 documents, Dawson, S. with 5 documents, Kovanović, V. with 5

documents, Joksimović, S. with 4 document, Tsai, Y.S. with 4 documents, Xie, K. with 4 documents, Asarta, C.J. with 3 documents, Drachsler, H. with 3 documents, Ioannou, A. with 3 documents, Jo, I.H. with 3 documents.

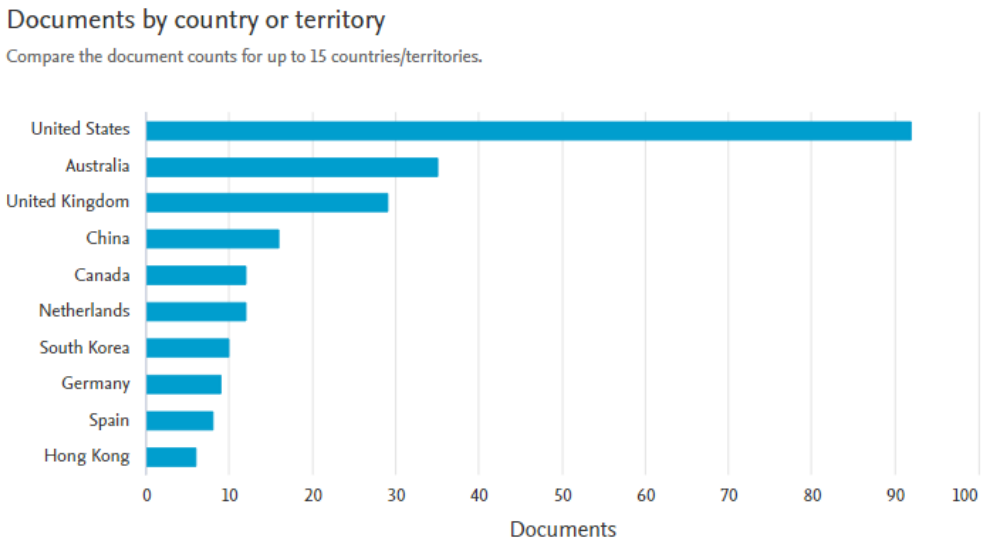


FIGURE 3. Number of documents by country

Looking at figure 3, we get 10 countries that contributed the most documents with various research topics, the United States with 92 documents, Australia with 35 documents, the United Kingdom with 29 documents, China with 16 documents, Canada with 12 documents, the Netherlands with 12 documents. , South Korea with 10 documents, Germany with 9 documents, Spain with 8 documents, Hong Kong with 6 documents. Indeed, from the perspective of certain disciplines the US is a country, with a greater investment in science and technology than others such as Argentina, Brazil and Chile (Rodriguez et al., 2022). To see the 15 largest ranking documents based on affiliation, the following table can be presented:

No	Affiliation	Number of Document
1	The University of Edinburgh	11
2	Monash University	9
3	University of South Australia	8
4	Indiana University Bloomington	6
5	Open Universiteit	6
6	Simon Fraser University	5
7	The Ohio State University	4
8	Brigham Young University	4
9	Purdue University	4
10	University of Florida	4

11	The Education University of Hong Kong	4
12	University of Delaware	4
13	Lancaster University	4
14	The University of Sydney	4
15	University of Nebraska–Lincoln	4

The results of the VOSviewer application are based on the type of Co-authorship and Full counting analysis, using the minimum number of documents of an author 2 and maximizing the Number of an author to be selected, then the results of the connected items presented are Overlay Visualization and Density Visualization such as figures 4 and 5:

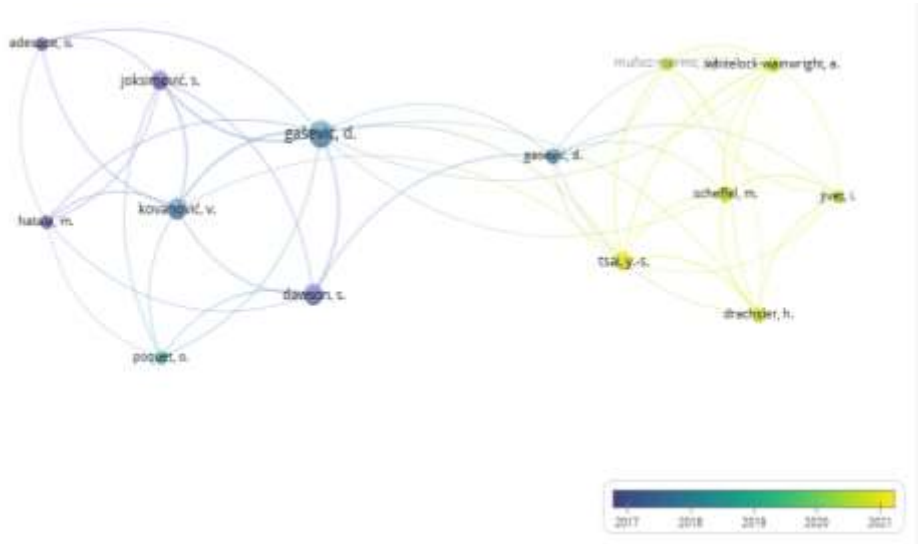


FIGURE 4. Overlay Visualization Berdasarkan Co-authorship

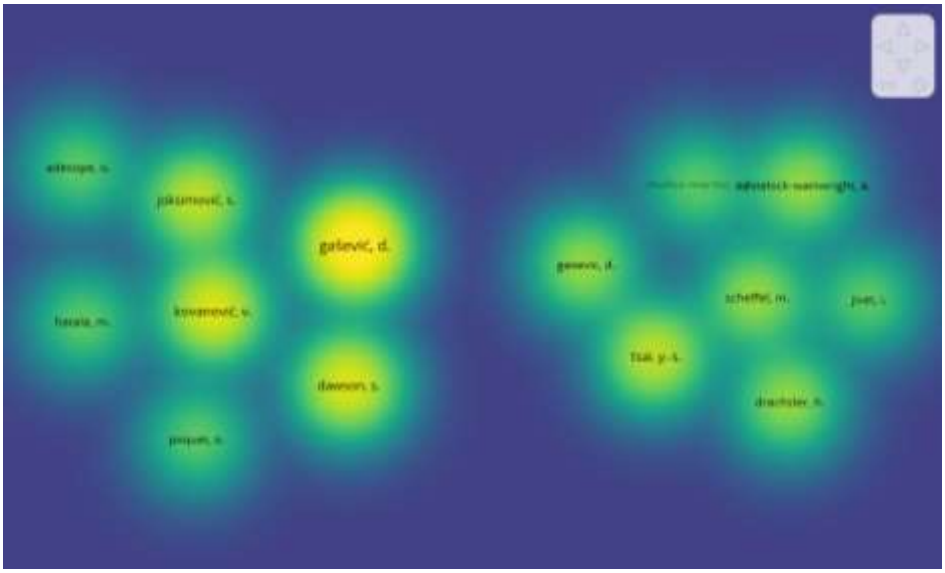


FIGURE 5. Density Visualization Berdasarkan Co-authorship

Based on figures 4 and 5, we can find the relationship between various studies based on research documents produced by researchers. Visible co-authorship networks reveal directions for collaboration and identify researchers. In figure 4, the closer the distance, and the larger the circle, the more frequent and stronger the relationship between researchers researching the topic. Based on figure 5. We can see that each point on the map has a color that depends on the density of items at that point. For example, the color yellow means that researchers conduct research on the topic more often than the color green or blue. Gašević, d. Most do research together than other researchers.

Based on the type of Co-occurrence and Full counting analysis, using the minimum number of occurrences of a keyword 5 and maximizing the number of keywords to be selected, the results of the connected items presented are Overlay Visualization and Density Visualization such as figures 6 and 7:

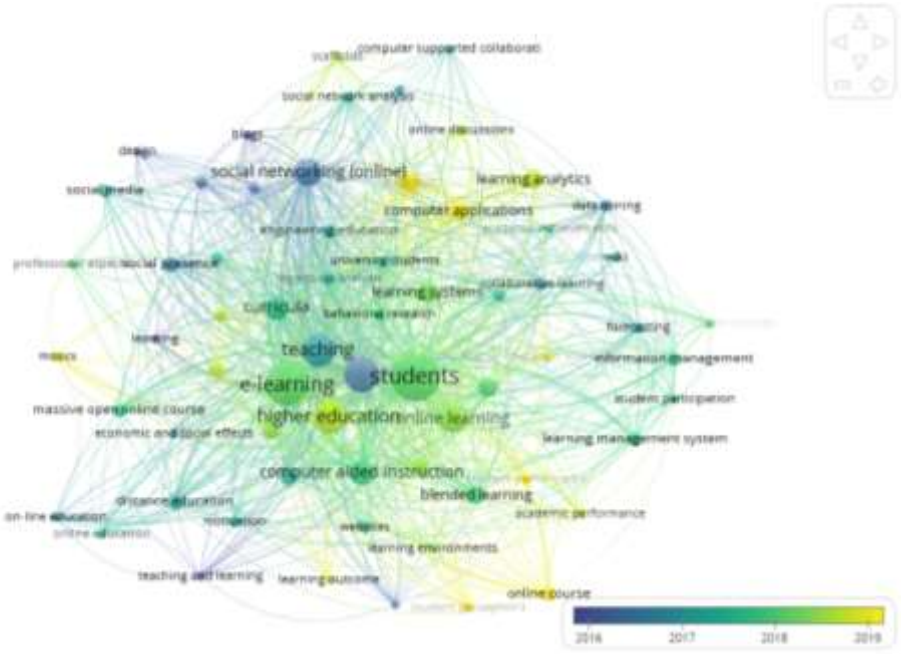


FIGURE 6. Overlay Visualization Berdasarkan Co-occurrence

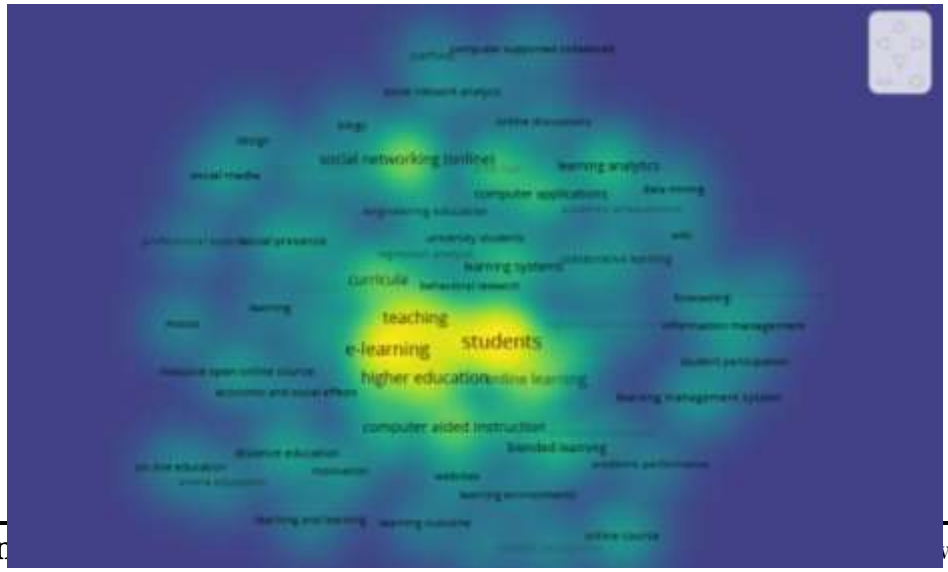


FIGURE 7. Density Visualization Berdasarkan Co-occurrence

Based on figures 6 and 7, we can see the display of related research topics. In figure 6, the closer the distance, the stronger the connection. The bigger the circle, the more the topic is researched. Based on figure 7, we can see that the appearance of each point on the map has a color that depends on the density of items at that point. Yellow color means more dense or frequently researched topics than green or blue. such as students with research (Cheng & Xie, 2021; Crook & Nixon, 2020; Heimbuch & Bodemer, 2016; Mcpartlan, Rutherford, Rodriguez, Shaffer, & Holton, 2021), e-learning with research (Boling et al., 2014; Jansson, Hrastinski, Stenbom, & Enoksson, 2021; Toven-lindsey, Rhoads, & Lozano, 2014), higher education with research (Jivet et al., 2020; Thai, Sheeran, & Cummings, 2018) followed by other studies. Display density is very useful for getting an overview or mapping topics that have not been studied much so that they are interesting to reveal.

Conclusion

Visualizing A Journal With A High Reputation Has Many Benefits For Researchers In Seeing Trends In What Topics Are Being Studied And Researched So That Trends Can Be Seen For More In-Depth Research. This Will Provide An Opportunity For Novice Researchers To Discuss The Same Topic And Its Scope To Have The Opportunity To Be Published In Various Journals Of Lower Categories. However, This Research Still Needs To Be Optimized, And Visualization Of Future Research Topics Needs To Consider More Than One Journal, For Example, The Discussion Of The Same Study From The Perspective Of Scopus Q1, Q2, Q3 Journals Or Web Of Science Indexed Journals So That More Information Related To Trends Will Be Obtained. Complete. It Is Also Necessary Not To Limit The Year Of Publication So That The Results Are More In-Depth. The Application Users Can Also Be Varied With Biblioshiny So That Better Results Are Obtained.

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