

## Article

# Bibliometric Analysis of Global Research Trends on Higher Education Internationalization Using Scopus Database: Towards Sustainability of Higher Education Institutions

Nazifa Abd Ghani <sup>1,\*</sup>, Poh-Chuin Teo <sup>1,\*</sup>, Theresa C.F. Ho <sup>1</sup>, Ling Suan Choo <sup>2</sup>, Beni Widarman Yus Kelana <sup>1</sup>, Sabrinah Adam <sup>1</sup> and Mohd Khairuddin Ramliy <sup>1</sup>

<sup>1</sup> Azman Hashim International Business School, Universiti Teknologi Malaysia, Kuala Lumpur 54100, Malaysia; hctheresa@utm.my (T.C.F.H.); beni@utm.my (B.W.Y.K.); sabrinah@utm.my (S.A.); mohdkhairuddin@utm.my (M.K.R.)

<sup>2</sup> College of Business Administration, University of Bahrain, Sakhir P.O. Box 32038, Bahrain; csuan@uob.edu.bh

\* Correspondence: nazifa.ghani@gmail.com (N.A.G.); pohchuin@utm.my (P.-C.T.)

**Abstract:** Sustainability in education has continued to evolve, which in turn creates a research niche that is able to provide greater opportunities for interaction between Higher Education Institutions (HEIs) and their surroundings. Internationalization of higher education is one of the new forms of engagements in higher education for ensuring sustainability. This study seeks to understand the research in higher education internationalization on publication outcomes, co-authorships between authors and similar countries, and co-occurrences of author keywords. This can provide valuable opportunities in expanding collaborative networks to impart global perspectives into teaching, learning, and research development. For this purpose, a bibliometric analysis was carried out to identify a total of 1412 journal articles from between 1974 to 2020 using information taken from the Scopus database. The research wraps up similarities on the growth of research, with the United Kingdom, United States, Australia, China and Canada emerging as among the countries that publish the most. There is a growing popularity of the term ‘higher education internationalization’ as part of the global new trends of cross-cultural study in transnational education. Finally, this study calls for future research programs with a concern in developing the intercultural communication of graduate students for global competence skills towards sustainability of HEIs.

**Keywords:** sustainability; internationalization; higher education; co-authorship; co-occurrences of author keywords; bibliometric analysis; VOSviewer; Scopus database



**Citation:** Ghani, N.A.; Teo, P.-C.; Ho, T.C.F.; Choo, L.S.; Kelana, B.W.Y.; Adam, S.; Ramliy, M.K. Bibliometric Analysis of Global Research Trends on Higher Education Internationalization Using Scopus Database: Towards Sustainability of Higher Education Institutions. *Sustainability* **2022**, *14*, 8810. <https://doi.org/10.3390/su14148810>

Academic Editor: Alina Badulescu

Received: 10 June 2022

Accepted: 17 July 2022

Published: 19 July 2022

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## 1. Introduction

The world of education is facing challenges in the increasing requirement for student preparedness in economic, environmental, and social changes, for jobs demand that is still unknown, for technologies that are still undiscovered, and to solve social problems that are still unrevealed. The society is currently facing challenges, as formulated in the Sustainable United Nations (UN) 2030 Global goals for Sustainable Development (SDGs). In such a manner, internationalization in higher education must respond to these challenges and goals. There have been increased efforts for the past two decades by international policies to increase awareness and to integrate education into a global policy initiative. The aim will bring about a better sustainable future. For example, the introduction of The Future of Education and Skills 2030 project by the Organization for Economic Co-operation and Development (OECD) is aimed at assisting and ensuring countries to be able to produce future learners that are globally competent in today’s fast changing world. The importance of education for sustainability is increasingly becoming a major concern in navigating future-ready graduates through a complex and uncertain world. Higher Education Institutions (HEIs) play an important role in preparing the new generations

to continue living in a sustainable world. Education is paving the way in developing the attitudes, skills, knowledge and values needed by all the people in order to achieve sustainable societies [1,2].

Producing global competence graduates is found to be a must in these complex challenges of a highly interconnected world [3]. The impacts of globalization and shortage of graduates during the 21st century have become among the factors that urge the global community to search for new solutions to fulfill global needs. Nonetheless, the roles and core functions of educators around the world in the 21st century will continue to change and evolve according to market forces [4]. In this perspective, internationalization has been identified as one of the promising solutions for higher education systems to survive in this rapidly changing globalized world [4,5]. It covers a wide range of important approaches and methods to adopt for sustainability in internationalization of higher education. This provides valuable opportunities in expanding collaborative networks to impart global views and intercultural and international perspectives into teaching, learning, and research that can contribute development to the society.

Internationalization is seen as a concept and strategic agenda for HEIs, which is a new, broad, and diverse phenomenon [6]. As internationalization changes the world of higher education, globalization is changing the world of internationalization [7]. Internationalization of higher education is a process of integrating international, intercultural, and global dimensions into the teaching, research, and services functions of higher education [8]. In other words, the internationalization of HEIs is a process of integrating the institution and its stakeholders, such as staff and students, into a rapidly changing world of globalization [9]. It has become a key change agent in higher education, in developed countries as well as in most middle and low-income societies. Furthermore, HEIs play a critical role in producing skilled workers and are a major contributor to the development of projects and research. These are important forces that should be globally competitive regardless of institutions or countries [10]. Previous studies have suggested that research on the internationalization of higher education has made great progress in both quantity and quality [11]. Previous studies have found that internationalization in higher education improves academic quality, increases revenue sources, and is able to produce staff and graduates who are knowledgeable and cross-culturally sensitive.

The field of study related to internationalization is fairly diversified [12–14]. Discussion in terms of the scope of internationalization of higher education is focused on (although not limited to) traditional study, taking international courses by virtual or face to face engagements, international partnerships, academic programs, research activities that emphasize international students' skills and thoughts, foreign language programs, and cross-cultural communications [15]. Seven broad themes on the issues of internationalization in higher education are mobility, knowledge transfer, cooperation, competition, national policy, substance of teaching, learning, institutional strategies, and mutual influences of higher education systems [11]. It can be stated that most of the core issues involving internationalization in higher education deal with matters related to institutions, people, and knowledge. Previous studies have suggested that research themes, domains, and approaches in pursuing higher education in internationalization are extensive in terms of global perspective. Although there are differences in context that may indicate differences of interest in research into higher education internationalization, the above-mentioned trends can be said to be globally recognized [11,16].

This study used the Web of Sciences (WoS) as a source of data mining. Scopus and WoS are the two most extensive databases on different scientific fields, and have a database of academic literature built on the same breadth and scale [17]. WoS is identified as the world's most trusted publisher-independent global citation database. Scopus, which was introduced by Elsevier Science in 2004, is increasingly becoming a good alternative [18]. Scopus has been recognized as the largest abstract and citation database of peer-reviewed literature, with extensive coverage of subjects and sufficient quality. It offers a broad coverage of disciplines that are relevant to higher education internationalization and

provides easy access to bibliographic data used by bibliometric software [19]. Although WoS offers similar capabilities in exporting data for bibliometric analysis, its coverage of educational disciplines is found to be less extensive when compared to Scopus [20]. Therefore, the reason for using Scopus is to cover many more topics that may not be available in WoS and may not have been discussed yet.

Although there has been growing attention paid to higher education internationalization, only a few studies have been dedicated to measuring and analyzing scientific publications in terms of global context. For example, research trends on higher education internationalization in the time period between 2013 and 2018 was mainly focused on Asian Regions [21,22]. On the other hand, research trends centered on the evolving concept of internationalization of higher education have been studied over a period of 19 years, beginning in 1997 [23]. Four major developmental waves have been identified, covering delineation of the field (1997–2001), institutionalization and internationalization management (2002–2006), internationalization outcomes: student needs and support structures (2007–2011), and moving from an institutional to transnational context of internationalization (2012–2016).

Interest in narrowing the research area in a more systematic direction through a meta-perspective has developed among scholars over the past decade. Based on a bibliometric approach, Kuzhabekova, Hendel, and Chapman [24], for example, analyzed a total of 2302 international education-related publications obtained from WoS. These researchers focused their analysis on the most frequently cited authors and looked at the co-authorship networks. Yemini and Sagie [25] presented information on the development of research in internationalization between 1980 to 2014. Common topics such as internationalization within domestic learning environments, student mobility, and national policies for internationalization are the three most mentioned themes.

The two analyses mentioned above illustrate perspectives in the field of internationalization in higher education. Studies by Kosmutzky and Krucken [26] and Kosmutzky and Putty [27] are more definite. For example, the studies developed by Kosmutzky and Krucken [26] are mostly centered on international comparative research, which is a relatively different field within higher education studies. They used eight leading journals to conduct both bibliometric and quantitative content analysis. The results of the study indicate the existence of a core–peripheral structure of comparisons between countries, such as the United States and the United Kingdom. The two countries mentioned are the countries that are most frequently compared. Meanwhile, the analysis made by Kosmutzky and Putty [27], through a systematic review and network analysis highlighting transnational education, identified six subthemes including quality assurance and regulations, student choice and mobility, and central scholarly contributions to each of the topics mentioned.

In 2013, Englander and Uzuner-Smith [28] supported the claim that scientific journals serve as an important medium in channeling any research findings within the relevant international scientific communities [29,30]. For that reason, detailed analysis of contributions published in leading journals allow the identification of research trends, subjects of interest, and prominent articles and contributors (e.g., Huisman [31]). This study is intended to establish bibliometric mapping of higher education internationalization research achievements. It can thus be further used to identify comprehensive developments and global trends, especially within the field of higher education internationalization during the period of 1974 to 2020.

Saubert and Cooper [32] analyzed 705 documents in their research about internationalization trends and publication patterns published between 1991 and 2017. Their results showed a significant increase in international education publications over a period of two decades, and concluded with recommendations to improve various international education research areas. Can and Hou [33] recently conducted an analysis about ‘international education’ and ‘global education’. A total of 241 Scopus-indexed documents were identified with the year of publication between 2013 to 2018. Similar to this study, Can and Hou [33] utilized bibliometric methods in their research work. They analyzed and identified current

issues, including mobility, transnational education, international students, acculturation, and international branch campuses. They reported that most of the publication outputs were authored in the UK, USA, Australia, China, and Canada. Analyses were focused on identifying influential journals, authors, and documents.

As noted above, this bibliometric study is intended to broaden and improve this prior research and as an attempt to cover more topics that may not have been discussed by Saubert and Cooper [32] or Can and Hou [33]. In this paper, our research objectives are as follows: (i) to examine the temporal distribution patterns of higher education in internationalization journal articles; (ii) to display contributions by leading authors, leading countries, and the most highly productive educational institutions; (iii) to determine countries based on most major applications; and (iv) to provide insight for future research directions. Furthermore, this study allows researchers, policy makers, educators and institutional leaders to be more innovative by recognizing the research trends in higher education internationalization. They are the ones who have the game-changing insights in discovering new potential and opportunities into the uncertain future of education.

## 2. Methods

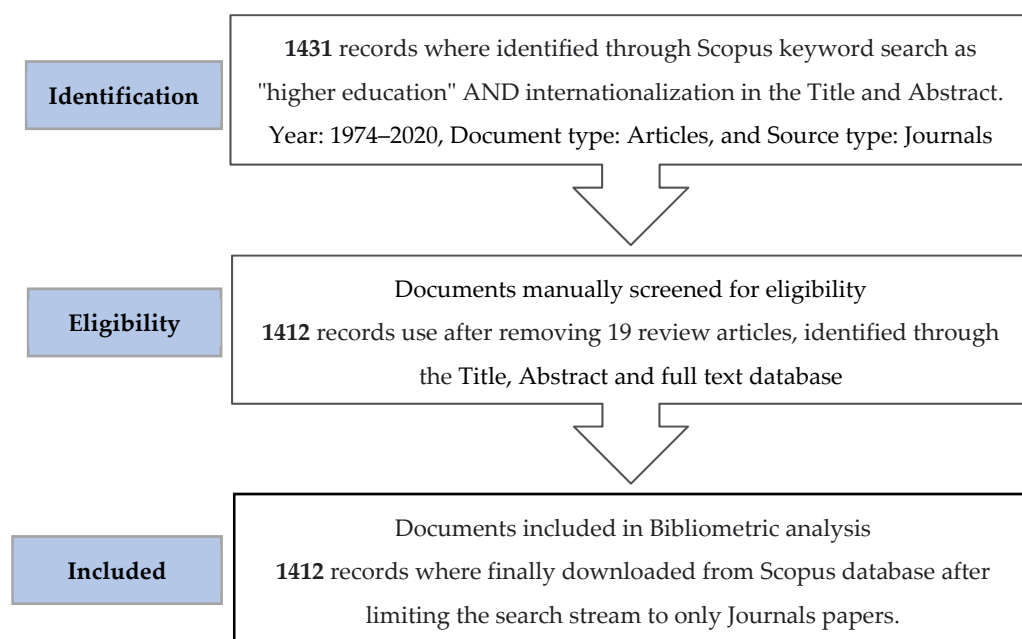
Bibliometrics is a statistical analysis tool used in understanding global research trends and provides interesting quantitative information in academic literature [34,35]. This type of approach distinguishes how bibliometric analysis differs from review papers that primarily want to focus on the latest progress, challenges, and future direction of a topic discussed. In fact, analysis of educational knowledge using bibliometric methods is still very much needed [36,37].

### 2.1. Data Source and Search Strategy

Data mining was conducted using the Scopus database between November 14 and 19, 2021. The main theme of this study is to select research articles that focused on the title and abstract that included “higher education” and internationalization. The oldest publications were dictated in 1974, while the most recent dates of publication were from 2020. The analysis was extended through 2020. This approach contrasts, for example, with Saubert and Cooper [32], who analyzed higher education internationalization research over a twenty-year period from 1991 to 2017. The search question string used was: TITLE-ABS (“higher education” AND internationalization) AND (LIMIT-TO (SRCTYPE, “j”)) AND (LIMIT -TO (DOCTYPE, “ar”)) AND (EXCLUDE (PUBYEAR, 2022) OR EXCLUDE (PUBYEAR, 2021)) AND (LIMIT-TO (LANGUAGE, “English”)). As a result, the output of this query string found as many as 1412 documents. Additional phrases were added in the query string, and there were potential review articles that were not relevant to our study. Articles that were stated as irrelevant contained terms such as review, revisit, progress, and advance in the title and abstract. After filtering all documents, through reading from abstract and full texts, it was found that 19 of them were review articles. A Scopus unique article identifier, EID, which identifies these review articles is added to the next search string so that any irrelevant articles will not be included in the next search result.

Information such as source, author, affiliation, subject area, country, and the type of document, which depends on the year and central theme search results, were analyzed. Bibliometric metrics were used to obtain the ranking purposes, such as total articles, CiteScore, total citations, and h-index.

The process of gathering, collection, and study elimination is summarized in Figure 1.



**Figure 1.** Flow chart describing collection of higher education internationalization publications from the Scopus index.

## 2.2. Database Creation

The bibliographic data describing the relevant features were downloaded and stored in an Excel file. The file contained ‘meta data’ commonly related to each article, such as author name(s), affiliations, article title, source keywords, abstracts, and other various citation data. At this stage, we prepared the data for analysis by developing a file called a thesaurus file. The file was created to filter the data during analysis in VOSviewer [38]. For conducting reliable analysis, the thesaurus file was used to ‘disambiguate’ similar terms during the analysis. For example, the data file obtained by Might had documents authored by the same scholar, but the names were in different variations. The same problem can occur with terms that have similar keywords, such as ‘policy’ and ‘policies’. The use of the Thesaurus file can enhance accuracy during the analysis through data cleaning by merging different variants of terms, author name(s), etc. [39].

## 2.3. Bibliometric Maps

Citation, bibliographical, and author keywords of 1412 publications were exported to VOSviewer (version 1.6.7, Center for Science and Technology Studies, Leiden University, The Netherlands), which is a bibliometric mapping tool for constructing and visualizing bibliometric networks. The created maps contain items that are generated with VOSviewer. In this study, the items are the objects of interest, namely the keywords or countries of the authors involved. The possibility of a link that exists between items can be observed based on the results that appear from the map-based visualization. The link refers to the connection or the existence of a relationship between the connected items. Each relation between the links indicates the presence of a different strength represented by a positive numerical value. The higher the value, the stronger the connection between the links, whereas in the analysis of co-authorship, country-to-country link strength indicates the total numbers of publications co-authored between two affiliated countries. Meanwhile, the cumulative total link strength represents the total strength of a country’s co-authorship connections with other countries. Similarly, in the case of co-occurrence analysis, the strength of the author’s keyword association indicates the number of publications in which two keywords exist together. However, in order to better understand the detailed features of VOSviewers it is shown more clearly in the user’s manual [40].

### 2.3.1. Co-Authorship Analysis

In the analysis of the co-authorship, we included all 52 countries affiliated with the authors. The related countries were divided into nine clusters, of which each country had major countries of co-authorships, such as the United Kingdom, United States of America, Australia, Canada, China, Hong Kong, Japan, Malaysia, Turkey, India, and Spain.

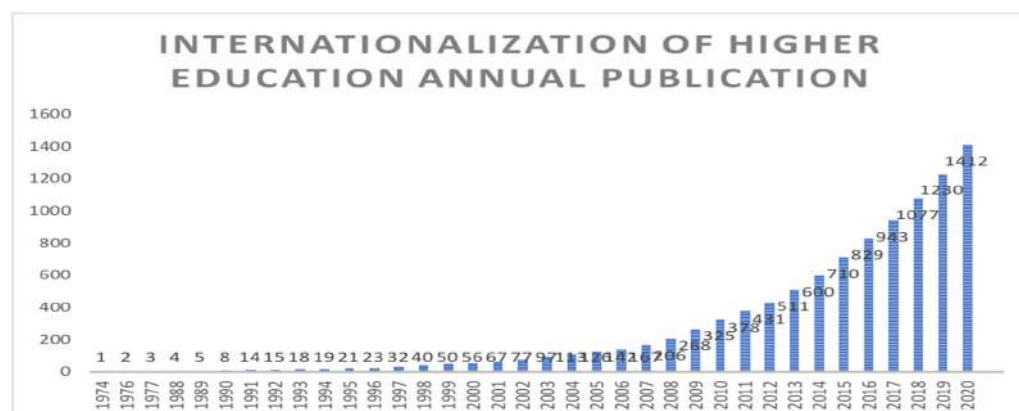
### 2.3.2. Co-Occurrence Analysis

The minimum number of keyword occurrences being analyzed was set to 5 in VOSviewer. In this study, the overlay visualization mode was to display the annual average publication year, number of occurrences, and keyword linking strength. In this case, the keywords' color indicates the average publication year in which the keyword had occurred. VOSviewer software was used to form visual representations or 'social network mapping' to visualize the relationship between document features located in the higher education internationalization knowledge base [38]. Co-word maps can be used to analyze various knowledge base relationships and to reveal the most frequent topics studied in the literature [19,38,41,42].

## 3. Results and Discussion

### 3.1. Research Interest in Publication Output and Growth

A total of 1412 research articles were published over a duration of 46 years, as shown in Figure 2. Notably, the oldest publication dates back to 1974. In the time between 1970–1980, the publications related to higher education internationalization research were few, then there was an increase in publications which started around the 1990s. Furthermore, beginning in 2009, there was a strong interest in higher education internationalization research. The number of publications doubled from that year. The Annual Rate of Growth (ARG) steadily increased, resulting in a substantial addition increase of the cumulative total publications. The ARG grew starting from 2015 up to 2020. For that reason, annual publication continued to rise. However, we found that most of the published articles are not freely accessible; users are only able to fully access the article after making a payment.



**Figure 2.** The annual and cumulative numbers of research articles on Higher Education Internationalization indexed in Scopus from 1974 until 2020.

The subjects of research on internationalization in higher education are vast. Most of the scholars and researchers involved in these studies come from different areas of the world. Analysis on this research area shows that the studies in higher education internationalization are primarily concerned with the study of society. This can be proven through the total publications that have been classified based on the following subject areas: Social Science (1265 articles); Business, Management and Accounting (180 articles); Art and Humanities (158 articles); Economics, Econometrics and Finance (55 articles); computer Science (40 articles); Engineering (38 articles); Phycology (27 articles); Energy (20 articles); and Decision Sciences (19 articles). Indeed, higher education internationalization is a

multidisciplinary area, which is even found in one of the publications under the Biochemistry subject area. In addition, the results show that articles used in this study have been published in ten different languages, with English the main language used in most of the published articles.

### 3.2. Preferred Journals

Our results showed that four different publishers were selected as the top ten most competitive and productive journals (Table 1). The top three journals were published by Taylor and Francis, Springer Nature, and SAGE. Taylor and Francis published the majority of the journals, with five in total. Meanwhile, a total of three journals were published by Springer Nature, and SAGE published one journal. Another leading publisher that was ranked in the top ten was Emerald Group Publishing, with one journal in total.

**Table 1.** The top ten most productive journals on HE internationalization research along with their most cited article.

Journal	TP (%)	TC	Cite Score 2020	The Most Cited Article (Reference)	Times Cited	Publisher
1 Journal of Studies in International Education	114 (17.8)	5433	3.9	The internationalization of higher education: Motivations and realities	1239	SAGE
2 Higher Education	87 (2.7)	2416	6.3	Cross-border flows of students for higher education: Push-pull factors and motivations of mainland Chinese students in Hong Kong and Macau	299	Springer Nature
3 Studies in Higher education	30 (1.2)	490	6.8	Globalization, internationalization, multilingualism and linguistic strains in higher education	86	Taylor & Francis
4 Higher Education Policy	28 (3.6)	493	3.1	Internationalization policies: About new trends and contrasting paradigms	126	Springer Nature
5 European Journal of Higher Education	27 (9.3)	93	2.9	Internationalization at home: Time for review and development?	30	Taylor & Francis
6 Compare	23 (1.6)	461	2.9	Learning and growing in a 'foreign' context: Intercultural experiences of international students	206	Taylor & Francis
7 Globalization Societies and Education	21 (5.2)	346	2.9	Soft power and higher education: An examination of China's Confucius institutes	121	Taylor & Francis
8 Tertiary Education and Management	17 (2.3)	607	2.3	Globalization and the university: Myths and realities in an unequal world	422	Springer Nature
9 International Journal of Educational Management	15 (1.0)	228	2.1	The strategy of internationalization in universities: A quantitative evaluation of the intent and implementation in UK universities	55	Emerald
10 Journal of Higher Education Policy and Management	15 (2.0)	191	2.8	Ideologies of internationalization and the treatment of diversity within Japanese higher education	45	Taylor & Francis

Journal of Studies in International Education is the most productive and competitive journal with 114 articles, covering a percentage of 17.8% of the total publications, followed by Journal of Higher Education (87, 2.7%) and Journal of Studies in Higher Education (30, 1.2%). The journal Studies in Higher Education received the highest number of citations, with a total of 5433 citations. It is among the most cited articles, as one of its articles published in 2007 received a total of 1239 citations.

Referring to the report released by CiteScore 2020, two journals had a CiteScore of 6 and above, whereas the rest recorded a CiteScore of 2 and above. Journals that earned the highest and lowest CiteScore belonged to the Journal of Studies in Higher Education (6.8)

and the International Journal of Educational Management (2.1); being ranked ninth with a total of 15 articles in Scopus, the number of citations and CiteScore of the International Journal of Educational Management is relatively low when compared to other journals.

In addition, we believe that CiteScore has an important role in influencing authors and researchers in selecting the journals that match their most significant work. CiteScore from Elsevier-Scopus is an alternative to the Clarivate Analytics Impact Factor, a metric used in measuring journal impact based on the Scopus database citation results. However, we agree that CiteScore is not the only metric used in measuring the impact of a journal. Authors and researchers need to know the extent to which the journal is able to bring the work to the right audience and help in contributing towards the research field progress.

### 3.3. Preferred Leading Countries, Top Institutions and Global Partnership

Figure 3 reveals the top 15 most productive countries in research activities related to higher education internationalization worldwide. United Kingdom, United States, Australia, China, and Canada contribute about 50 percent of the total global publications. They are the countries that play a major key role in the higher education internationalization research progress. The United Kingdom is the leading country in the advancement of higher education internationalization research. It generates 248 publications in a total of 132 journals, covering 17.6 percent of the world's total publications. Meanwhile, the United States is the second most productive country, with a total percentage of 12 percent, followed by Australia with a total of 10.5 percent. However, a direct comparison among the leading countries could be a bias, as it does not show a large majority percentage. Although the Total Publications (TP) from Boston College are slightly lower than the UCL Institute of Education, it should be noted that the latter has 30 centers, and therefore a direct comparison might be considered as biased. Otherwise, Newcastle University can be considered as the most productive academic institution in the United Kingdom with ten publications.

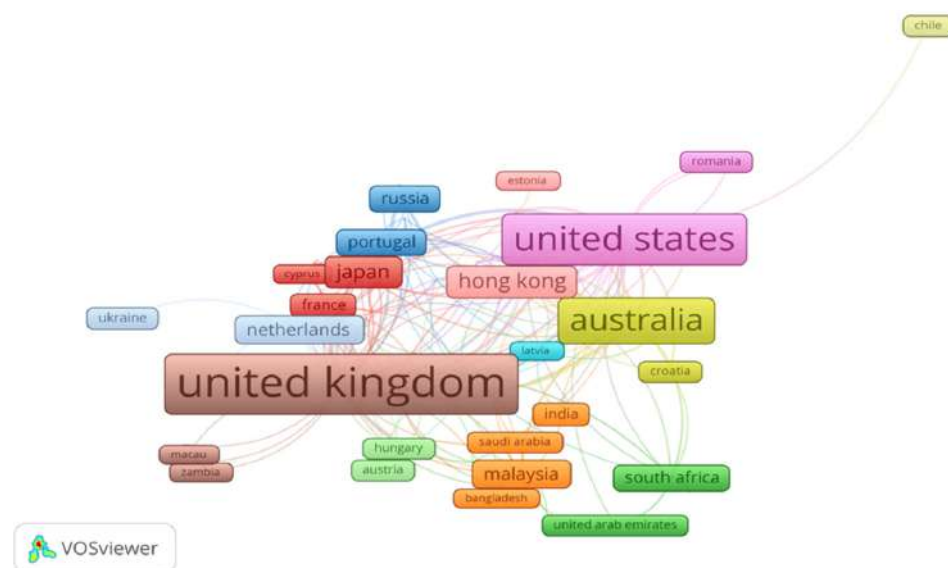


**Figure 3.** The Top 15 most productive countries and academic institutions in higher education internationalization publications.

Figure 4 shows a visualization display generated through VOSviewer that highlights the country or territory distribution by area. The closer the distance, the stronger the connection between the countries, suggesting that these countries have strong intra-country collaboration. Figure 3 shows co-authorship by 87 countries categorized within 23 clusters (color coded), with a total of 241 links and a total link strength of 378. The United King-



dom is the most productive country, with the largest association plus 160 co-authorships connected to 15 countries or territories. This is followed by the United States (36 links), Australia (24 links), China (15 links), Canada (11 links), and others. There are about ten countries that do not have any connection in international publications. However, researchers from Chile and Argentina are associated with only one country. The advantages of international collaborative collaboration are not only related to networking, exchanging knowledge, access to different expertise, and assimilating a different culture, they can help raise international awareness that benefits the universities and research. In addition, outputs of the United States of America and other key countries are deliberately included to compare with United Kingdom's outputs on higher education internationalization.



**Figure 4.** A screenshot of a bibliometric map created based on co-authorship with network visualization mode. The visibility of the outputs is represented by the sizes of the network in the shape of a rectangular frame. To open the map in VOSviewer, the following link can be used: <https://bit.ly/3FuZ3s9> (accessed on 28 December 2021).

### 3.4. Leading Authors

Table 2 shows the 15 most prominent authors in the research area of higher education internationalization. The distribution based on the respective countries are as follows: Hong Kong (three authors), Germany (two authors), Israel (one author), Canada (one author), United States (one author), Japan (one author), Spain (one author), China (one author), Portugal (one author), Australia (one author), Belgium (one author), and the United Kingdom (one author). The early publications ranged from 1997–2018, in which 13 authors led publication and two authors played the role of co-author. It should be noted that the sequence of authorships is usually not based on specific rules. However, the position of the last author may traditionally be reserved for the supervisor or principal investigator. In addition, it can be identified that research fields such as sociology, international higher education, and higher education policy are the fields that are the focus of higher education internationalization research.

**Table 2.** List of the most prolific authors in higher education internationalization research area.

Authors	Scopus Author ID	Year of 1st Publication	TP	h-Index	TC	Current Affiliation	Country
1 Yemini, M.	8667142200	2014	12	21	121	School of Education, Tel Aviv University	Israel
2 Knight, J.	20436084500	1997	7	19	2183	Dept. of Leadership Higher and Adult Education, University of Toronto	Canada
3 Mok, K.H.	57218527064	2007	7	29	191	Faculty of Social Sciences, Lingnan University	Hong Kong
4 Teichler, U.	6602792234	1998	7	126	443	International Centre for Higher Education Research, Kassel University	Germany
5 Yang, R.	55310822500	2000	7	15	291	Faculty of Education, the University of Hong Kong	Hong Kong
6 Altbach, P.G.	16418407500	2001	6	23	1729	University at Buffalo, the State University of New York	United States
7 Huang, F.	8583197300	2003	6	12	254	Research Institute for Higher Education, Hiroshima University	Japan
8 Lasagabaster, D.	25825336800	2011	6	24	234	Department of English and German Studies, Universidad Del Pais Vasco	Spain
9 Lo, W.Y.W	35085280600	2009	6	10	66	Asian and Policy Studies, the Education University of Hong Kong	China
10 Pinto, S.	56946340900	2018	6	4	5	Department of Education, University of Aveiro	Portugal
11 Whitsed, C.	37089593600	2011	6	9	77	School of Education, Humanities, Curtin University, Perth	Australia
12 Horta, H.	24341274900	2010	5	21	84	Faculty of Education, the University of Hong Kong	Hong Kong
13 Huisman, J.	24176837100	2003	5	28	137	Department of Sociology, Ghent University	Belgium
14 Bedenlier, S.	56938886800	2015	4	8	41	Innovation in Learning Institute, University of Erlangen-Nuremberg	Germany
15 Brooks, R.	7402358771	2009	4	26	105	Department of sociology, University of Surrey, Guildford	United Kingdom

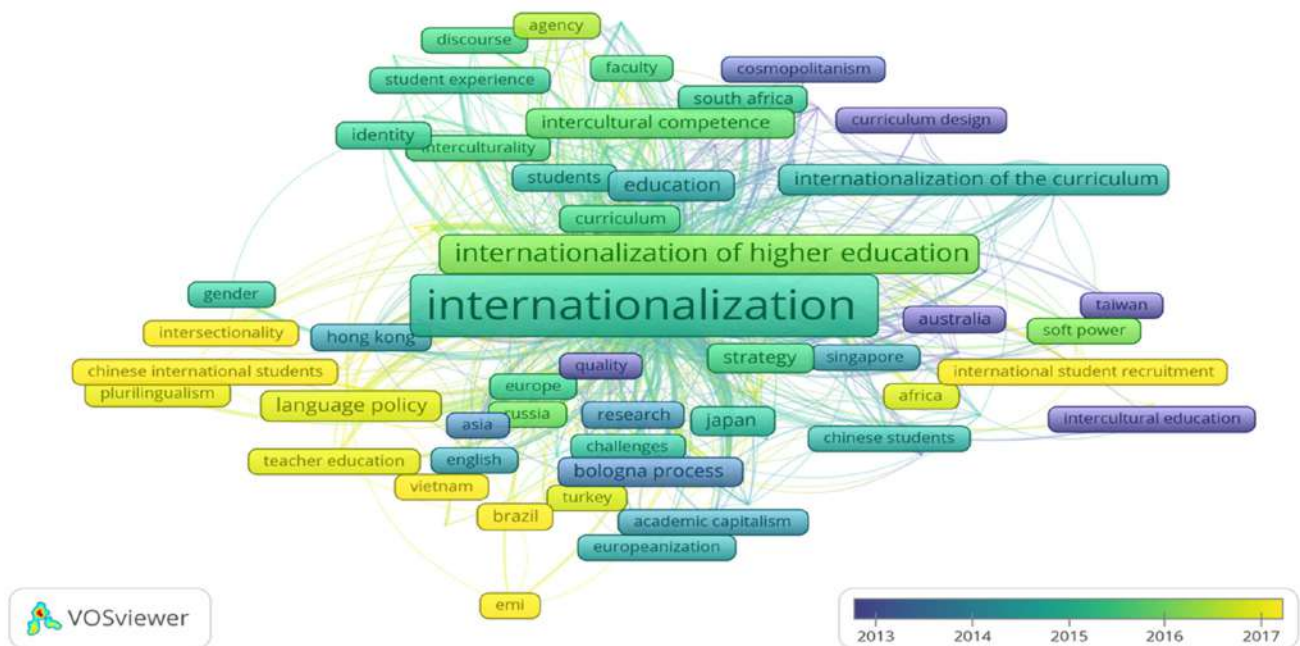
Referring to the list, there were three authors with their earliest publications in 2014, 2015, and 2018. In addition, it can be noted that the total publications among the listed 15 authors are numerous when compared to other research areas. These mentioned situations may be due to the fact that internationalization in higher education is relatively new as a concept and strategic agenda for higher education [6]. Miri Yemini from Israel has led the list with a record of 12 publications related to higher education internationalization research, 21 h-index, and 121 total citations since 2014. Jane Knight and Ka Ho Mok are the second and third top authors, and are associated with University of Toronto, Canada and Lingnan University, Hong Kong. Meanwhile, authors from Hong Kong, Faculty of Education, University of Hong Kong are ranked fifth (Rui Yang) and 12th (Hugo Horta). Other than that, it needs to be known that Table 1, which refers to the most cited articles, is not necessarily related to the authors listed in Table 2.

### 3.5. Author Keyword

A total of 142 keywords met the threshold by reaching the minimum requirement of five occurrences after re-labeling the synonymic single words and congeneric phrases for the mapping in VOS viewer.

### 3.5.1. Terminology and Concept

Our results show that, with total occurrences of 539 and 130 links to other keywords, ‘internationalization’ is the most highly frequent keyword identified by VOSviewer, followed by ‘higher education’ and ‘globalization’, as shown in Figure 5. ‘Internationalization of higher education’ is the fourth most frequently identified keyword, with 112 occurrences and 66 links to other keywords. The map reveals that there are other general terms used such as ‘international education’ (32 occurrences, 61 links), ‘globalization, international higher education’ (8 occurrences, 28 links) and ‘multicultural education’ (5 occurrences, 10 links). HE internationalization is seen to co-exist with conceptual keywords that include ‘transnational of higher education’ (24 occurrences, 49 links) and ‘cross-border education’ (5 occurrences, 13 links).



**Figure 5.** A screenshot of a co-occurrence map for author keywords with overlay visualization mode. We selected a threshold of five occurrences, which left 142 keywords. This map revealed many subtopics related to HE internationalization research. The following URL can be used to open in VOSviewer: <https://bit.ly/32Rswy7> (accessed on 28 December 2021).

In addition, we have found that there are several attributes, elements, and processes used in characterizing HE internationalization. Examples of mechanisms related to HE internationalization are associated with internationalization of the curriculum (28 occurrences), student mobility (28 occurrences), internationalization at home (15 occurrences), ‘academic mobility’ (15 occurrences, 26 links), internationalization of teaching (6 occurrences), and international branch campus (5 occurrences, 11 links).

### 3.5.2. Terminology and Concept

As education 4.0 evolves with the times and educational institutions seek to meet business demands by changing curricula and teaching methods, internationalization strategy is often accessed. The keyword of ‘strategy’ is repeated 20 times. In higher education internationalization research, intercultural competence, students’ requirements, quality assurance, management, international cooperation, accreditation, and sustainable development are among the key areas.

In comparing the many dimensions of internationalization strategy, ‘student mobility’ is the most highlighted keyword, with 28 occurrences. Furthermore, it can be seen that the keyword ‘international student’, with 72 occurrences, indicates a strong connection related with ‘student mobility’. Adopting the practices of ‘student mobility’ is one of the key

strategies in higher education internationalization. This will improve the quality level of the education system by providing readiness to graduate with the international profile and global intercultural skills required by the new century. Meanwhile, 'academic capitalism', with six occurrences, is the least used as one of the strategies in the internationalization of higher education. The term has been further discussed in international cooperation.

Other than that, most of the institutions internationalize through the approach of integrating international dimensions via recruitment of international students and internationalization of the curriculum and program. The studies about the Bologna process are valuable in the adoption of new approaches in higher education internationalization [43]. In addition, keywords associated with 'culture' are repeated 89 times, such as intercultural competence, multiculturalism, intercultural, intercultural communication, cultural diversity, intercultural learning, multicultural education, interculturality, and intercultural education. Other research related to higher education internationalization is primarily towards the topic of 'policy'. Keywords containing 'policy' are encountered as many as 45 times, and the studies are related to 'language policy' and 'higher education policy'.

Higher education systems undergo significant changes in response to global trends, disrupted by technological innovation. This is evidenced by what has been found, based on keywords such as 'innovation' and 'transformation'. In navigating a world of disruption, the changing landscape in higher education transformation is primarily based on these following significant trends, namely, massification, diversification, marketization, and internationalization [44]. The keywords 'internationalization', 'diversity', and 'marketization' are used 539, 14, and 12 times, respectively. Progress on globalization and international higher education incorporating intercultural relations in higher education internationalization research can be seen by certain keywords, such as 'intercultural competence' (occurrences: 20, avg. publication year: 2015.70), followed by 'multilingualism' (22 occurrences; 2016.27). Other related keywords are 'multiculturalism' (occurrences 22; 2016.27) and 'language ideologies' five5 occurrences; 2017.40).

Furthermore, keywords addressing issues of higher education internationalization from the impact of globalization were noticed. For instance, 'challenges' is repeated eight times. The process of integrating international dimensions such as the internationalization of curriculum as well as international student recruitment lead to several unfolded challenges. These need adjustment to local needs in order to avoid knowledge mismatches between acquired competence and local needs. In addition, mobility of people through activities such as recruiting international students and lecturers causes migration to happen from one country to another. The migration of talent across borders, affects education quality to such countries, resulting in a brain drain phenomenon. This situation will be more affected if students who study abroad choose to live and work abroad, which mostly happens in developing countries. Up to this point, as the process of integrating the global dimensions into higher education functions seems complex, the use of 'English-medium instruction' (29 occurrences) as a way to internationalize is found to be widely practiced.

In higher education internationalization, the development of internationalized curricula or other internationalization branches, such as academic mobility, international cooperation, and study abroad, are not a means to the end in itself. Rather, they are the beginning towards the process of internationalization, especially in developing the appropriate competencies among the university stakeholders. In addition, a higher level of intercultural intelligence and international experience are the vital elements needed in managing and steering the internationalization of operational requirement. The keywords 'management' and 'leadership' were used thirteen times and six times, respectively. We found that keywords such as 'sustainability' (nine occurrences) and 'sustainable development' (five occurrences) are important in ensuring the continuity of internationalization and to provide the most relevant education for future generations.

#### 4. Conclusions

This study has presented an overview of higher education internationalization research trends based on 1412 publications retrieved from the Scopus database. The VOSviewer software enabled scrutiny of influential journals and newly emerging themes and concepts from 1974 to 2020. Higher education internationalization research has shown positive progress in its research growth, with an increasing number of publications over the last ten years, and is expected to continually rise as HEIs must embrace the sustainability of education within the 21st century educational space. To this end, we have discovered the countries/academic institutions that contribute the greatest number of publications (e.g., United Kingdom, United States and Australia). They exhibit strong international collaborations, thus opening up opportunities in diversifying the perspective and experience of internationalization. Several major areas that had been explored by many researchers in recent times are being discussed, such as globalization and international higher education incorporated intercultural relations. Indeed, most of the issues related to the higher education of internationalization are often associated with institutions, people, and knowledge. There are seven broad themes identified on the issues of higher education internationalization, such as mobility, knowledge transfer, cooperation, competition, national policy, substance of teaching, learning and institutional strategies, and mutual influences of higher education. Centered on the seven key broad thematic issues identified in the study, several new areas have been recently explored in higher education internationalization research, such as language ideologies of English-medium instruction, multilingualism, and soft power in international education. These can be potential hot topics for future studies by evidence of average publication year, a relatively high number of average citations, and a high average normalized citation.

The results of this study suggest several implications. First of all, this study only focuses on English language publications. The findings include that the capacity to conduct research on higher education internationalization is not very distributed worldwide, with much research concentrated mostly in developed countries (see Figure 4). In fact, it is consistent with the findings reported in recent bibliometric research in higher education development. Almost half of the output of research on higher education internationalization is contributed by developed countries, although there is an increasing rate of interest in research on higher education internationalization worldwide [33]. Immediate priority should be made beyond traditional academic research centers in increasing the density of higher education of internationalization research. More precisely, this implies that there is a need to establish a formal research funding program. This will further stimulate the development of higher education of internationalization research, especially in developing countries. Interestingly, there has been an increasing pattern of growth over the past decades in the higher education internationalization research area authored by scholars from developing countries (e.g., China, Malaysia, Brazil, Mexico, and South Africa). Therefore, a positive response is expected among higher education internationalization scholars. They have to respond to internationalization efforts in order to stimulate interest, increase capacity, and support empirical studies on this research area, in particular in developing countries.

Second, the delimitation of this study on 'higher education internationalization' has led to findings which complement and extend the previously mentioned scholars' work [33]. The findings of this study are based on a list of major journals, documents, and empirically validated authors which shape the discourse of this scope. The results of our analysis can provide practical use to scholars who are in this field of study. In addition, the findings of the key scholars and major documents collected provide an opportunity for points of entry, especially for new scholars. In addition, this study helps in speeding up the findings on key conceptual themes and empirical research.

Finally, this study has further strengthened the growing recognition that internationalization of education can play in achieving global sustainable development. It can be seen that the evident growth course of the higher education internationalization research and its cross-disciplinary research relate the reliability and quality of scholars involved in this

research topic. Together, these trends are able to shape an emergent interdisciplinary field of scholarship, with the hope of having an impact on policy and practice in the coming years.

**Author Contributions:** N.A.G. and P.-C.T.; methodology, N.A.G., P.-C.T. and T.C.F.H.; media, N.A.G., S.A. and M.K.R.; software, N.A.G., B.W.Y.K. and L.S.C.; writing—review and editing, N.A.G. and P.-C.T.; scientific supervision, P.-C.T.; project administration, N.A.G. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Data was obtained from SCOPUS data base (with permission).

**Conflicts of Interest:** The authors declare no conflict of interest.

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