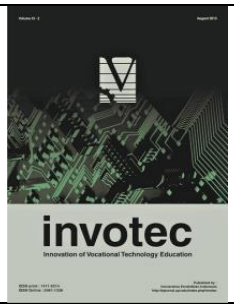
JURNAL UPI

Innovation of Vocational Technology Education

Available online at http://ejournal.upi.edu/index.php/invotec



Factors affecting students to continue study abroad

Nurfaridha Ariyani*, Didin Wahyudin
Electrical Engineering Education Study Program, Indonesian University of Education, Jl. Dr. Setiabudi No.229, Bandung City, West Java 40154, Indonesia

ARTICLE INFO

Article history:
Received: 30 January 2024
Received in revised form: 20 February 2024
Accepted: 29 February 2024
Available online: 29 February 2024

Keywords: influential factors; science mapping; student interest; study abroad; systematic literature review

Authors email: nurfaridhaariyani@upi.edu

ABSTRACT

Continuing to study abroad is currently an effective option for exploring deeper into the field of expertise. Enriching life experience, increasing competence, and self-cultivation emerged as the most prominent personal motivation. The aims of this study are (1) to find out the development of research study abroad during the last two decades; (2) to analyze the distribution map of study abroad publications based on co-authorship; (3) to analyze the distribution map of study abroad publications based on co-citation; (4) to analyze the distribution map of study abroad publications based on citations; (5) to analyze the distribution map of study abroad publications based on co-occurrence; and (6) to explore the factors that influence students to continue their studies abroad. The method used in this study is a mixed method of quantitative and qualitative methods. The results obtained are (1) publications on the topic of study abroad have increased on average over the last two decades; (2) collaboration between countries, authors, and sources based on co-authorship analysis; (3) collaboration between countries, authors, and organizations based on citation analysis; (4) collaboration between authors and sources based on co-citation analysis; (5) keyword relatedness based on co-occurrence analysis; and (6) several factors that influence study abroad participation such as quality of education, intrinsic motivation, cross-cultural competence, social motivation, and financial or grant program availability. The implication of this research is to provide insight into the level of interest and various factors that can influence students to continue their studies abroad so that later they can be taken into consideration by the students themselves.

1. Introduction

The need for quality Human Resources (HR) continues to increase along with human demand to have competencies that are also in line with the world's labor market (Sidhu & Kaur, 2011). Human resources consist of knowledge and expertise that are realized by its citizens, which are then applied to the development of all sectors of the country. University graduates who study well are expected to demonstrate learning outcomes such as knowledge, morals and ethics, critical, analytical and creative thinking; numerical and communication/information technology skills; good citizenship and responsibility and commitment to work (Uche, 2014). In the opinion of Boonpraset in Uche (2014),

this is a successful achievement of results that place graduates in the right position to enable the nation to achieve its development goals and give the country pride in the committee of nations. However, limitations in terms of the quality of higher education in the country are one of the inhibiting factors for achieving this goal (Uche, 2014).

On the other hand, there is an unequal phenomenon in the quality of universities around the world. The European Commission (2003) states that several universities in Europe have long been the ideal model universities and have been described for almost two centuries. The countries with higher education systems that have above-average performance in terms of research are Israel, Sweden, Switzerland, England, the Netherlands, Canada, Finland, Denmark, Australia, and the United States of America (Marginson & van der Wende, 2007). The results of publications reached 2.9 million in 2020, with more than 90% coming from universities in developed countries such as the United States, Germany, and the United Kingdom (National Science Board [NSB], 2020). Meanwhile, higher education institutions are encouraged to prepare their graduates for international contests, where there is a need to facilitate the mobility of highly qualified human resources, especially in the competitive global labor market for academic and scientific personnel (Sidhu & Kaur, 2011). This, of course, can be one of the inhibiting factors in creating competent and equitable human resources, where universities must be able to build superior human resources and innovate with results that are relevant to the world's needs for better progress of the country. Without better higher education, developing countries will find it increasingly difficult to benefit from a global knowledge-based economy (Salisbury et al., 2011). Likewise, the availability of qualified human resources who can master science and technology will greatly determine the country's ability to enter a global competition that demands high competitiveness.

Therefore, it triggers students to study and explore more fields of interest by studying abroad or commonly referred to as study abroad, to become more competitive in an increasingly globalized job market (Tompkins et al., 2017). Studying abroad is a global phenomenon in the field of education in the form of industrial developments in universities and is an effort to wider internationalization in universities and universities (Tarrant et al., 2014). In addition, Hoffa (in Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009) revealed that the study abroad program has been promoted as a way to gain new knowledge and skills, enhance self-development, and professionalism. Braskamp (in Tarrant et al., 2014) revealing the involvement of students' experiences in study abroad can promote holistic learning and development globally, which is the goal of almost all undergraduate colleges or universities. Passarelli and Kolb (in Jackson, J., & Oguro, 2018) argues that studying abroad, students will later get several benefits such as international education experiences, starting with intercultural interactions, engaging in reflective observations, getting to know abstract conceptualizations, and exploring new ideas in intercultural situations in the real world.

There has been progressing in research and development of methods in researching the factors that influence students to continue their studies abroad in the last five years. Among them are Whatley and Melissa's research (2017), which uses statistical methods with datasets as data that is collected and processed, with results in the form of a comparison between the effect of loans and grants on student interest in continuing their studies abroad (Whatley, 2017). Partlo, et al. (2018) found that students with a study abroad experience had significantly higher earnings in the labor market than those who did not participate, using a linear hierarchical (HLM) approach (Partlo & Ampaw, 2018). Furthermore, Hurst (2019) uses a qualitative method based on original data by distributing a questionnaire, which examines gender and racial disparities in study abroad participation (Hurst, 2019). Netz et al (2020) in his research used the instrumental variable (VI) or propensity score matching (PSM) approach and found that graduates from high social classes were more likely to participate in study abroad programs than graduates from low social classes (Netz & Grüttner, 2021).

Based on the previous explanation, there has been no research on the factors that influence students to continue their studies abroad using science mapping analysis and systematic literature review (SLR). The use of science mapping analysis aims to analyze trends and developments in publications on the topic of study abroad programs around the world. Meanwhile, the influencing factors can be explored using a systematic literature review (SLR) analysis. Therefore, in this study, the author will review the factors that influence students to continue their studies abroad and describe

the results of visualizing trends and developments in these publications using this analysis by reviewing several journals and discussing various aspects related to the topic researched. Based on the research background that has been described, the problems studied can be formulated as follows:

1. How has the development of publications on the topic of study abroad during the last two decades?
2. How is the distribution map of publications on study abroad based on co-authorship?
3. How is the distribution map of publications on study abroad based on citations?
4. How is the map for the distribution of publications on study abroad based on co-citation?
5. How is the distribution map of publications on study abroad based on co-occurrence?
6. How and what are the factors that influence students to continue their studies abroad?

This study uses data in the form of journal articles and or proceedings in English which are mined through the Scopus database and filtered based on the keywords study abroad, with an observation period based on data from 2000 to 2021, as well as to visualize the data using VOSviewer software in knowing the development of publications.

2. Materials and Method

The research design used in this study is a mixed research method with quantitative and qualitative approaches. The selection of quantitative methods in this study is based on the purpose of this study, which is to analyze trends and developments in publications on the topic of study abroad programs around the world using science mapping analysis. The purpose of using science mapping analysis in this research is to observe collaboration patterns, reveal trends in research topics, and find out an overview of related topics globally or within a wide range. Furthermore, a qualitative approach is used to examine the factors that influence students to continue their studies abroad with SLR analysis. The purpose of using SLR analysis in this study is to examine more deeply by targeting the focus of research on the factors that influence students to continue their studies abroad based on the findings of appropriate literature topics.

2.1. Data Collection

The data sources used in this research are in the form of journal articles and or proceedings in English which are mined through the Scopus database with publication limitations in the range of 2000 to 2021. In the data collection section, several related keywords have been found, namely.

(TITLE-ABS-KEY ("study abroad interest" OR "study overseas enthusiasm" OR "study overseas interest" OR "study abroad" OR "study overseas")) AND TITLE-ABS-KEY (universit* OR "higher education" OR institute* OR polytechnic OR college*) AND TITLE-ABS-KEY (influence OR affect OR impact))

After determining the relevant keywords, the next step is to determine the parameters that are prepared according to the needs of the data to be mined to guide the exclusion of articles so that the data filtering process is more stringent. Lastly, searching for data sources, where in the process, the data that can be collected must be in accordance with the search for key data and the criteria previously described. The data mapping software used in this study is VOSviewer, which was adopted to analyze and visualize the bibliometric network. Meanwhile, the data information used as a reference for mining data in this study included keywords, titles, abstracts, years, publication sources, language, document types, and so on, as illustrated in Figure 1. As a result, data obtained as many as 608 documents that were successfully mined.

Figure 1. Data Mining Information

2.2. Data Analysis

Science mapping aims to show how disciplines, fields, specializations, authors, keywords, or publications relate to each other by visualizing bibliometric networks and knowledge domain maps, as well as being a visual representation of the structure and dynamics of scientific knowledge. The science mapping approach consists of searching bibliometric literature and scientometric analysis, which can minimize subjectivity and bias in conducting review-based studies, as well as science mapping (Jin et al., 2019). After the data collection process, the data was processed using the data mapping software used in this study, namely VOSviewer, which was adopted to analyze and visualize the bibliometric network. This study adopted VOSviewer software to load a literature sample downloaded from Scopus, visualize, calculate, and analyze the influence of major journals, authors, publications, and countries in the research community with study abroad topics, as well as study the main research keywords and their relationships clarifying the flow of the analysis process of science mapping research, can be illustrated in Figure 2.

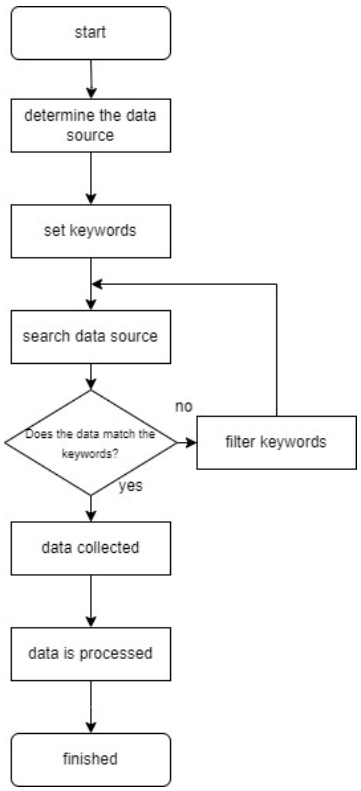


Figure 2 Flowchart of Research Procedures for Science Mapping Analysis

In addition, the collected data was also analyzed by SLR analysis using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. A systematic review was

carried out based on the narrative synthesis approach that Popay (in Brown et al., 2016) defines as an approach to the systematic review and synthesis of findings from major studies that rely on the use of words and text to summarize and explain the findings of the synthesis. While the purpose of using the PRISMA protocol is because PRISMA has items that are relevant for mixed-methods systematic reviews that include quantitative and qualitative studies and can be used for original systematic reviews, updated systematic reviews, or continuously updated systematic reviews (Page et al., 2021). The SLR research procedure is divided into three main phases, namely planning, conducting, and reporting, which the research flow can be seen in Figure 3.

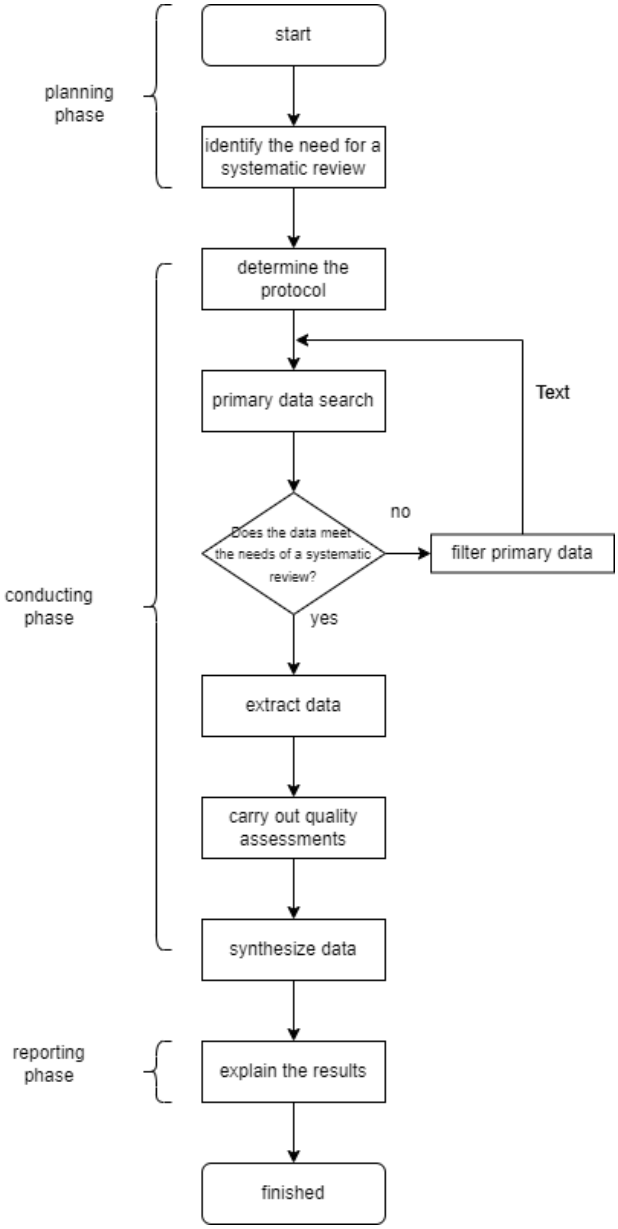


Figure 3 Flowchart of PRISMA SLR Analysis Research Procedure Flowchart

As proposed by Kitchenham (2009) that in, applying this analysis allows for a rigorous process in obtaining results based on research problems, research questions, inclusion and exclusion criteria, as well as appropriate analysis to guide article reduction and a more stringent data filtering process (Kitchenham et al., 2009). Research question questions determine the research design and determine what results can be expected, so it is important at the beginning of the research to formulate the research question correctly and explain the reasons for its formulation. Several general and specific inclusion and exclusion criteria need to be defined along with their parameters. The parameters prepared are adjusted for each research question item to guide the exclusion of articles so that the data filtering process is more stringent. Therefore, after the data is mined based on

keywords that match the topic of this research, the data needs to be filtered based on inclusion and exclusion criteria to then proceed with the data scanning process. The inclusion and exclusion criteria that have been set in this study can be seen in Table 1.

Tabel 1 inclusion and exclusion criteria

Criteria	Description
Inclusion	English
	Time: 2000 to 2021
	Empirical research published through international journals
	Related to the factors that influence students to continue their study abroad
	A study that discusses the factors that influence interest in studying abroad
	Studies that answer research questions
Exclusion	Articles are written in languages other than English
	Before 2000
	Proceedings, Book chapters, theses, short reports, non-empirical studies, non-peer-reviewed studies
	All disciplines other than the factors that influence students to continue their studies abroad

3. Results and Discussion

In this section, we will discuss the results of the analysis of the previously mined data. The results obtained several aspects based on the research question as follows:

3.1. The Progress of Study Abroad Publications Over the Last Two Decades

The development of study abroad publications during the last two decades, from 2000 to 2021, is shown in Figure 4. The number of publications during the first decade experienced a slow increase in which the average number of publications per year only reached single digits, and the annual increase only ranged from one to three publications. In 2009, for the first time, publications increased significantly, where publications on the topic of study abroad tripled compared to the previous year to 23 publications. Although the numbers are relatively small, this signifies a significant change in the study abroad population (Hackney et al., 2012). In addition, the number of institutions offering study abroad has increased. In 2006 more than 90 percent of all colleges and universities proposed study abroad programs (Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009). Higher education associations, as well as colleges and universities, are also willing to become participants in supporting economic reasons and for the parallel commodification of study abroad (Partlo & Ampaw, 2018).

In the middle of the second decade, there was also a significant increase in the number of publications, namely in 2015 and 2016, with 17 publications each increasing number publications. This phenomenon is caused by the emergence of several special programs of partner universities abroad that are attractive to students for a number of reasons so that the popularity of studying abroad has increased in major countries (Ahmad et al., 2016). Until the end of 2021, which means in the last two decades, the total publications reached 72 publications. This indicates that publications on studying abroad have an average increase of 0.26% per year. Thus, it can be concluded that interest in research on studying abroad is growing from year to year.

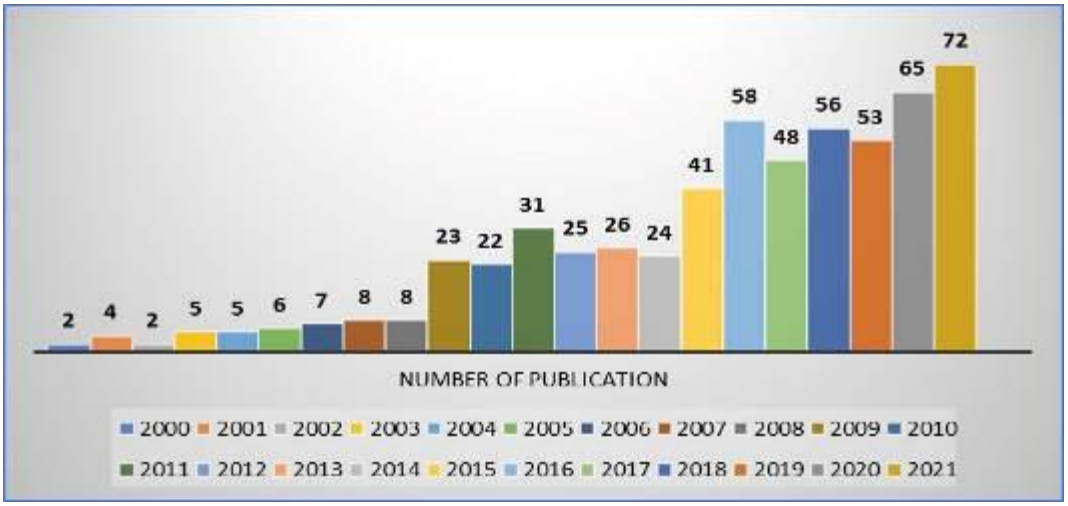


Figure 4. Development of Publications with Study Abroad Topics for Two Periods

3.2. Analysis of Science Mapping Study Abroad Based on Co-Authorship

3.2.1. Co-Authorship Study Abroad Unit of Analysis Based on Country

Co-authorship analysis refers to the affiliation relationship and shows the strength of the relationship between two or more documents. Contributions of different countries make it possible to link the knowledge and skills of their researchers and institutions (Herrera-Franco et al., 2021). Figure 5 shows the top eight countries according to the number of publications on studying abroad during the period 2000 to 2020. Figure 6 shows a map of the distribution of publications using bibliometric analysis by country with the highest publications on study abroad. The size of each node is proportional to the number of journals published by each country. At the same time, the line connecting each node shows the interconnection network of the strength of collaboration between countries.

The country with the most publications was the United States (318), followed by the United Kingdom (45), Australia (40), China (33), and Spain (25). One of the reasons why the United States has become the country with the most publications is that several significant national and institutional initiatives have been launched to overcome barriers to studying abroad and foster participation (Doyle et al., 2015). In addition, there are international student exchange programs that involve or bring international students to institutions in the United States to conduct research (Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009). Even though the United States is the country with the highest number of publications, these publications are not among the most recent, where the majority of publications were published in 2014. Meanwhile, several publications with the most recent year are India, with the year of publication around 2020.

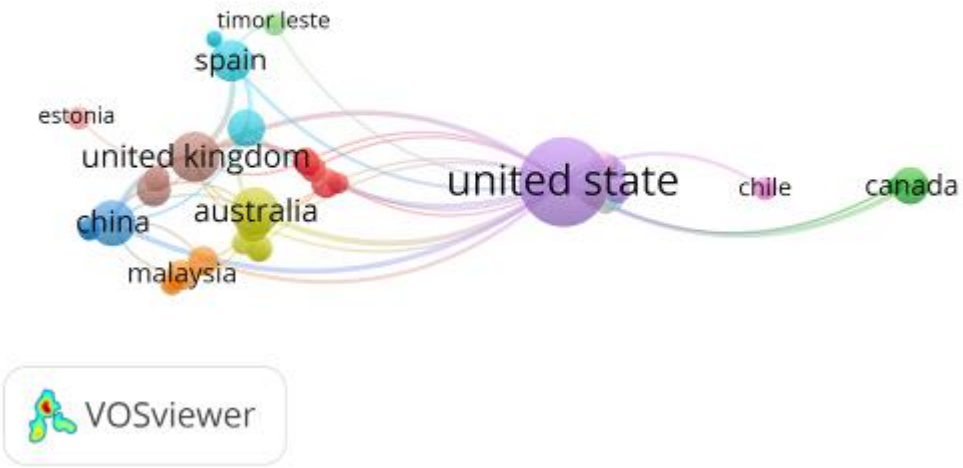


Figure 5 Co-Authorship Bibliometric Network Based on Country

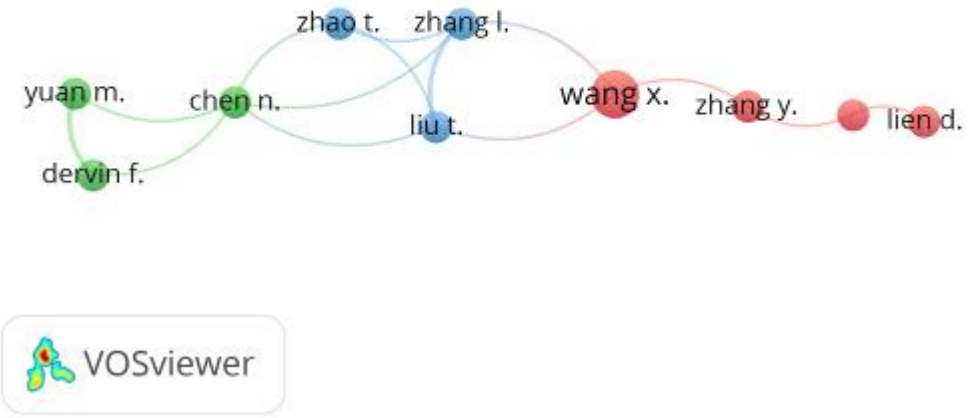


Figure 6 Distribution Map of Countries with the Highest Number of Publications Based on Co-Authorship Analysis

3.2.2. Unit of analysis Co-Authorship Study Abroad Based on Organizations

In the institutional or organizational section, from 986 organizations, 30 organizations were found, with each organization publishing a minimum of two documents, which can be analyzed based on Figure 7 and Figure 8, where the University of St. Thomas, Houston is the organization that contributes the most to research on study abroad with four publications, followed by Bucknell University (3), and other organizations with the same number of publications, namely two publications in each organization. One of the organizations domiciled in the United States and the first in a series of independent nonprofit organizations is the Institute of International Education (IIE). IIE is a national non-governmental organization that plays an important role in promoting study abroad (Jamieson-drake, 2014). The IIE founders “believed that the United States could not achieve lasting peace without greater understanding between nations—and that international educational exchanges form the strongest basis for fostering such understanding” (Twombly, S. B., Salisbury, M.

H., Tumanut, S. D., & Klute, 2009). In addition, the Lincoln Commission helps to inform higher education organizations about international education and studying abroad. The American Council on Education (ACE) has sponsored a series of programs and publications to promote internationalization in higher education institutions and emphasized that investment institutions should support study abroad participation (Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009).

One of the organizations with a fairly past publication year is the Worcester Polytechnic Institute, where the majority of publications were published in 2010. Meanwhile, several organizations with the most recent publication year are Ohio University and the European Commission, Spain, with a publication year around 2020. Cooperation between researchers with institutions around the world demonstrates the strong network of collaborations that have been formed. Therefore, publication mapping also determines international scientific and technological exchange and cooperation (Hou, D., Bi, X., Mao, Z., Fan, Y., Hu, X., & Li, 2019).

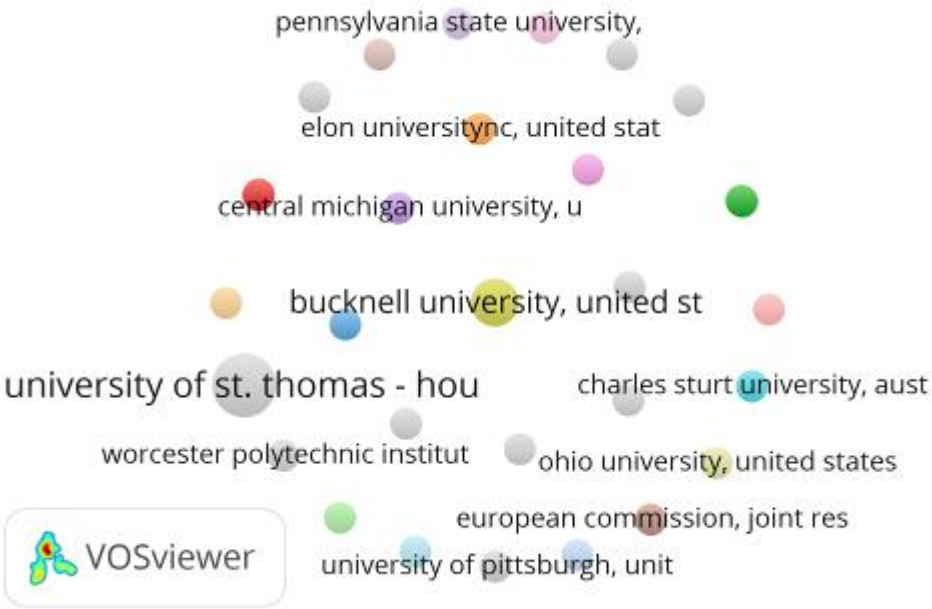


Figure 7 Co-Authorship Bibliometric Network Based on Organizations

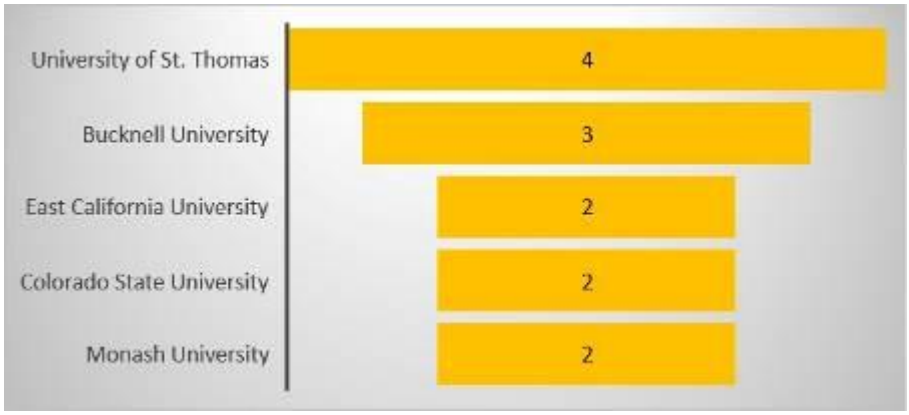


Figure 8 Five Organizations with the Highest Number of Publications Based on Co-Authorship Analysis

3.2.3. Unit of analysis Co-Authorship Study Abroad Based on Authorship

The application of bibliometric analysis using VOSviewer is carried out by using a similarity measure called the strength of association to analyze data related to joint citations (Herrera-Franco et al., 2021). In the unit of analysis, authorship analyzes social interactions or relationships between authors of publications. Based on published data that has been collected, 1,321 authors have written

on the topic of studying abroad, with 95 of them presenting at least two publications. The ten publications of the most collaborating authors are shown in Figure 10, where the three authors with the highest number of publications have the same number of publications, namely four publications. Twombly produced several publications on studying abroad based on the experiences of women studying abroad in their daily activities and surroundings. Salisbury publications are produced based on several years of experience by exploring literature so that students can gain an understanding of cross-cultural learning, as well as produce several types of research on studying abroad (Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009).

One of the authors with a fairly past publication year is Lien D., where publication was published in 2016. For several authors, such as Zhang L., Liu T., and Wang X., year period 2017-2018. Meanwhile, in the period 2018-2020, there were several publications by the authors Chen N., Zhao T., and Zhang Y. As for some authors with the latest year's publications, namely Yuan M. and Dervin F. with the year of publication around 2021. Figure 9 shows a network of publication maps on study abroad based on connected authors. At the same time, the lines connecting the nodes indicate the strength of the affiliation or collaboration relationship between the authors of the publication.

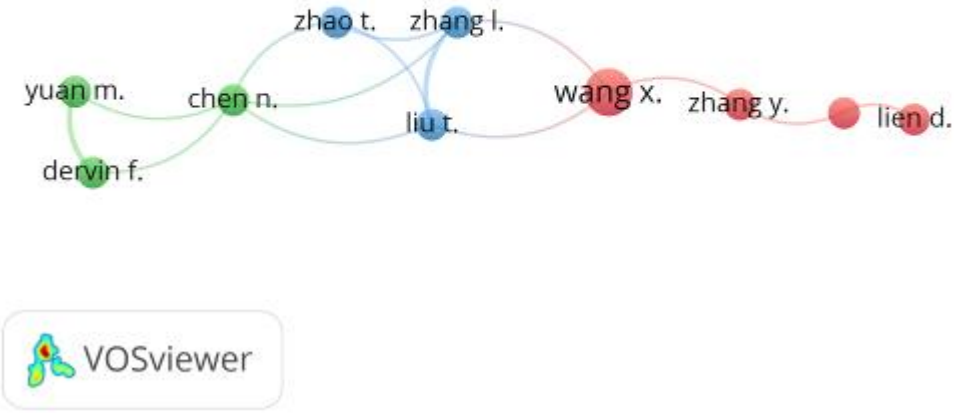


Figure 9 Co-Authorship Bibliometric Network Based on Authorship

Figure 10 Ten Authors with the Highest Number of Publications Based on Co-Authorship Analysis

3.3. Analysis of Science Mapping Study Abroad Based on Citation

3.3.1. Citation Study Abroad Unit of Analysis Based on Author

In this section, the publications of other authors cited by other authors with the most number of cited are analyzed. Citation analysis measures the citation connection between two published documents so as to produce the impact of publications that are judged to be of quality based on the number of citations. VOSviewer maps the minimum number of publications specified by the same source (threshold) for inclusion in the criteria. The citation reference constraint becomes important in extracting meaningful clusters from the cluster visualization layout that will be displayed by VOSviewer (Paltrinieri et al., 2019). Figure 11 shows a publication map resulting from the analysis of citation data based on the author's publications that are most frequently cited in other publications. From the data that has been analyzed, the results are five clusters with 22 items and 50 links, where the red cluster is the cluster with the most items consisting of eight authors, including Pascarella, Salisbury, and Di Pietro. Each cluster shows each author's association with publications exploring similar research subjects. In addition, the clusters are close together and clustered, which shows that in the cluster, there is a high probability of being cited in the same situation. At the same time, the line or link indicates the strength of publications cited by other authors.

Figure 12 shows the top ten authors whose publications have been cited by other publications, including Pascarella (472), Salisbury (312), Paulsen (243), Bodycott (186), and Moss (136). Pascarella discusses publications on intercultural competence, interest in learning, gender gaps, and factors that influence the intention to study abroad. Several other authors who cite Pascarella's publications include P. Terenzini, Amaury Nora, George D. Kuh, and Gregory C. Furthermore, although Pascarella is one of the authors whose publications are most frequently cited, this publication is not included in the most recent publications in which year of publication is around 2012. Authors such as Fry G. W., Di Pietro, Song J, and Baker W. have published articles ranging from 2016 to 2018. Olbina S. and Lee J. are among the authors whose publications have been cited by other publications, with the most recent year of publication being 2020.

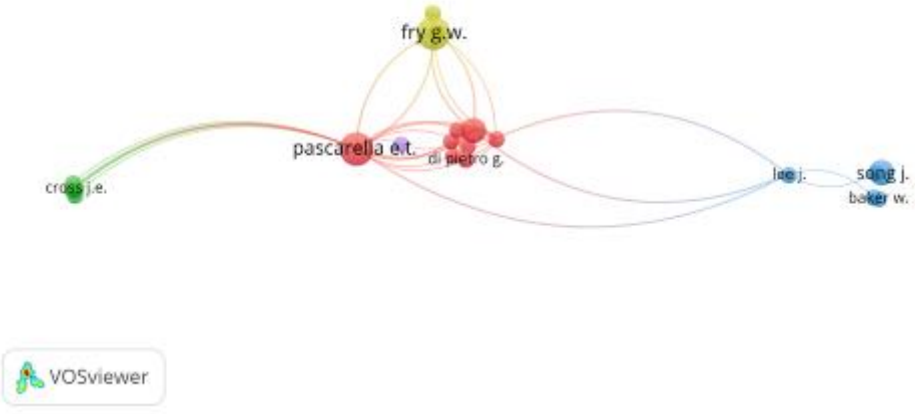


Figure 11 Bibliometric Citation Network Based on Author

Figure 12 The Ten Authors with the Most Frequently Cited Publications Based on Citation Analysis

3.3.2. Unit of analysis for Citation Study Abroad Based on Countries

Based on the published data that has been compiled, there are 77 countries with publications on the topic of study abroad, in which each country presents at least one document. The difference between the number of citations and publications in each country can be seen. From Figure 14, it can be seen that the countries with the highest number of publications cited by other publications are the United States (3,648), followed by Australia (986), England (624), Hong Kong (362), and Spain (255). In addition, the results were obtained in the form of 23 clusters with a total of 46 items and 99 links. Links or lines indicate the strength of publications cited by publications from other countries, while grouping by cluster shows the relationship between countries with the subject of the same research publication or in the same field. Furthermore, in Figure 13, it has been illustrated how cluster groupings can be distinguished by color. Five clusters with the most items, including the red cluster with six items consisting of Australia, Croatia, Czech Republic, Indonesia, Iran, and Thailand. Some countries with publication years that are quite past are the United States, Ireland, and Australia, where these publications were published around 2014. Meanwhile, several countries with publications cited by other publications in the most recent year are Peru, Slovenia, and India, with the year of publication around 2020. Based on this explanation, it can be concluded that publications originating from the United States of America are a country with many quality publications because they are a reference source for many other publications in other countries.

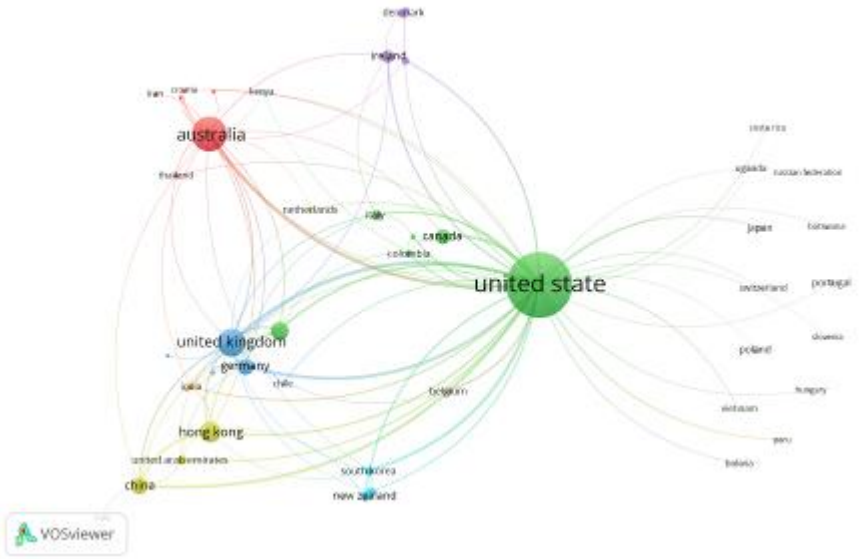


Figure 13 Bibliometric Citation Network Based on Country

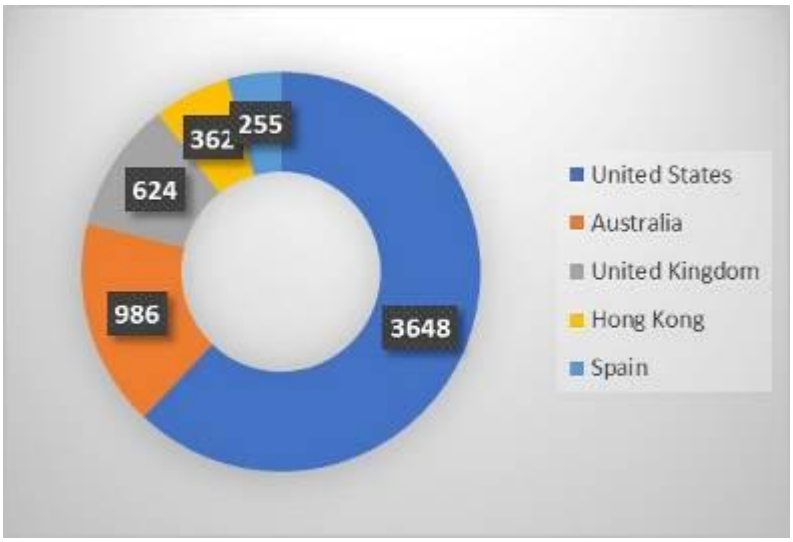


Figure 14 Five Countries with Most Cited Publications Based on Citation Analysis

3.3.3. Unit of analysis Citation Study Abroad Based on Sources

Based on the data set that has been processed was obtained from 371 sources, with 83 sources of which have at least two documents. Figure 15 presents an illustration of a co-citation network based on sources cited by other publications. The result is 12 clusters with 52 items and 105 links. Links or lines indicate the strength of publications cited by publications from other sources, while grouping by cluster shows the relationship between sources and the subject of the same research publication or is in the same field. The red cluster is the cluster with the most items, namely eight items, some of which are sources from Foreign Language Annals, European Journal of Training and Development, and Language and Intercultural Communication. The journal sources with publications that are most frequently cited are other publications, namely the International Journal of Intercultural Relations, which are marked with the largest node size. While Figure 16 shows the five sources that are most frequently cited by other publications. The International Journal of Intercultural Relations was the source most frequently cited by other publications, with the number of publications cited by other publications being 952 citations, followed by the Journal of Studies in International Education (553), with the number of publications cited by other publications, namely 952 citations, and followed by the Journal of Studies in International Education (553).

Several sources, such as Higher Education, International Journal of Intercultural Relations, and Foreign Language Annals, are sources with a fairly past publication year, which was published

around 2010. Then Research in Higher Education and Journal of International Students are several sources with a publication year in the mid-second period. Meanwhile, several sources with the latest year's publications are Asian Education and Development Studies, International Journal of Educational Development, and European Journal of Training and Development, with publication year around 2020.

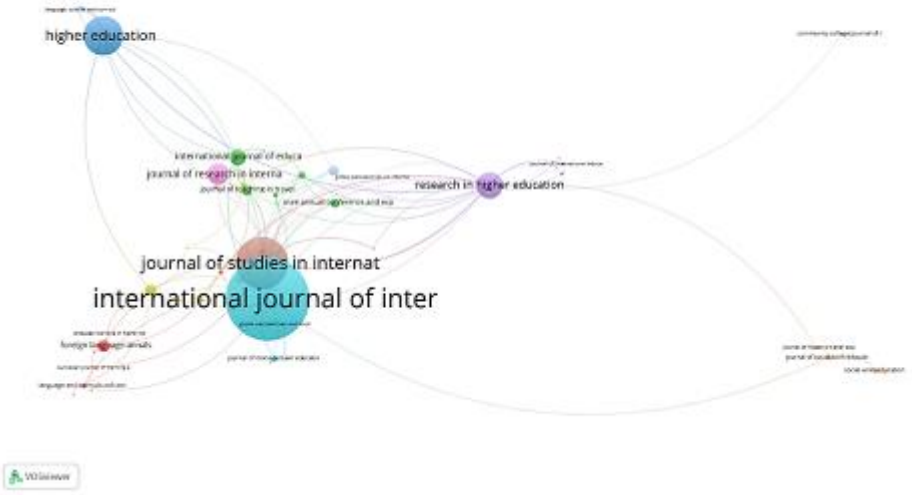


Figure 15 Bibliometric Citation Network By Sources

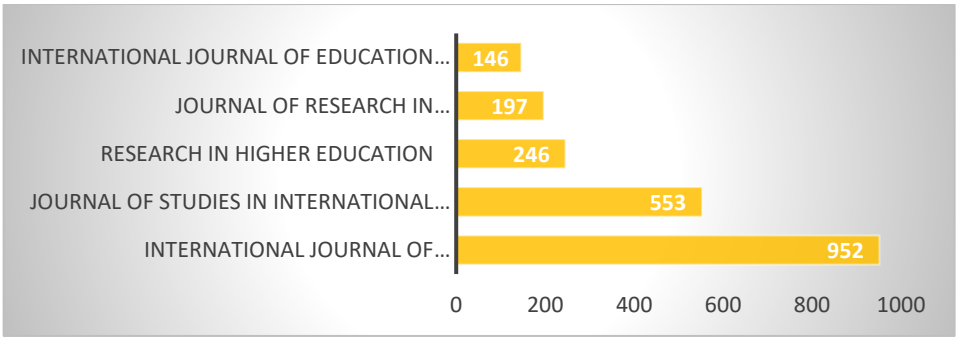


Figure 16 Five Publishers with the Most Frequently Cited Publications Other Publications Based on Citation Analysis

3.4. Analysis of Science Mapping Study Abroad Based on Co-Citation

3.4.1. Unit of analysis Co-Citation Study Abroad Based on Cited-Authors

This section identifies the most cited publications (co-citation analysis). Co-citation is a method used to establish the similarity of the subject between two documents. The two documents are said to be co-cited when they appear in the reference list of the third document. If publications A and B are both cited by publication C, it can be said that the three publications are related, even though they do not quote each other directly. If publications A and B are cited by many other publications, then all of those publications have a stronger relationship because the more publications cited, the stronger the relationship. Co-citation frequency is defined as the frequency with which two documents are quoted together (Small, 1973). In this part of the analysis, the number of authors who have been collected is 21,438 authors. Figure 15 shows the five authors with the highest cited

publications, including Paige R. M. (129), Pascarella E. T. (121), Teichler U. (103), Knight J. (99), and Dornyei Z. (82). Meanwhile, Figure 16 shows a map of publications resulting from the analysis of published data quoted by the author. The line indicates the strength of the citation between the author's publications. Proceedings in the green cluster also show a strong pattern of the most cited publications dominated by Teichler U. and Knight J., and the location of the two authors close to each other indicates a pattern of related citations in the same cluster. In both networks, the linkages are indicated by distances and lines. In general, the closer two authors are to each other, the stronger they are in terms of co-citing links. In addition to the green cluster, there are also other clusters, namely the red cluster as the cluster with the highest number of items, namely 20 authors, and Pascarella E. T. as the author who dominates the red cluster. As for this part of the analysis, a total of five clusters were obtained, with the order of clusters with the highest number of items being the red cluster (20), the green cluster (17), the blue cluster (16), the yellow cluster (15), and the purple cluster (10).

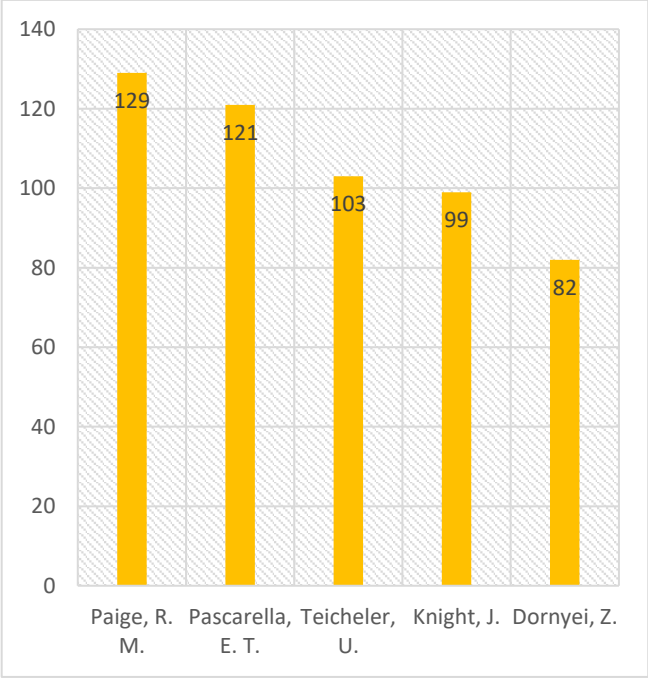


Figure 17 Five Authors with the Highest Citation Publications Based on Co-Citation Analysis

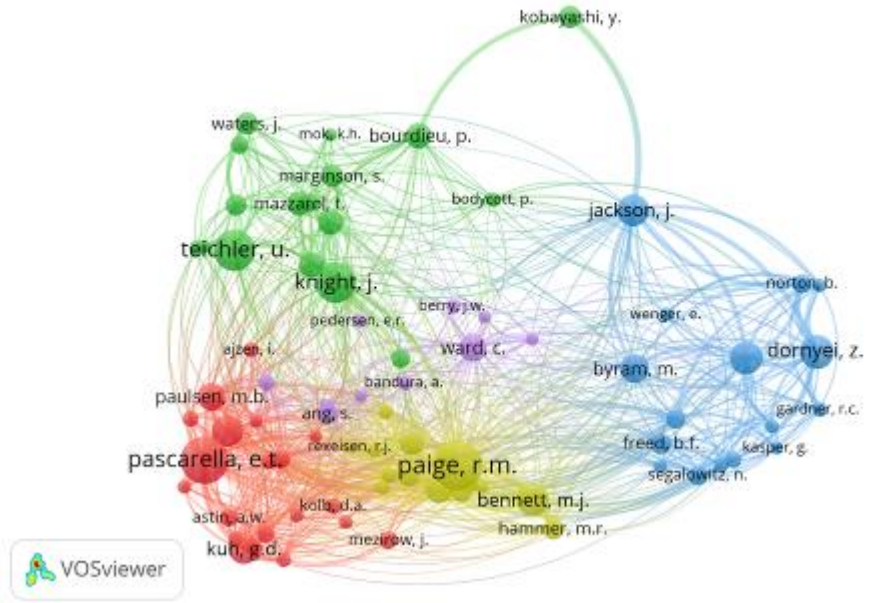


Figure 18 Co-Citation Bibliometric Network Based on Cited-Authors

3.4.2. Unit of analysis Co-Citation Study Abroad Based on City-Sources

The analysis in this section cites publications, and this network contains mostly proceedings. Figure 20 shows the five sources with the highest cited publications, including the Journal of Studies in International Education (525), International Journal of Intercultural Relations (369), Frontiers: The Interdisciplinary Journal of Study Abroad (367), Higher Education (270), and Foreign Language Annals (151). Figure 19 shows a map of publications resulting from the analysis of published data that is citation based on sources. Furthermore, in this analysis section, a total of six clusters were obtained, with the order of clusters with the highest number of items being red clusters (26), green clusters (23), blue clusters (13), yellow clusters (10), purple clusters (2) and light blue cluster (1). The line shows the strength of citations between publication sources. Proceedings in the green cluster also show a pattern of the most widely cited publications being dominated by the Journal of Studies in International Education and Higher Education, and the location of the two sources close to each other, which shows a pattern of related citations in the same cluster. In both networks, the linkages are indicated by distances and lines. In general, the closer two sources are to each other, the stronger they are in terms of co-citing links. In addition to the green cluster, there are also other clusters, namely the red cluster as the cluster with the highest number of items, namely 26 sources, and the International Journal of Intercultural Relations as the dominant source in the red cluster.

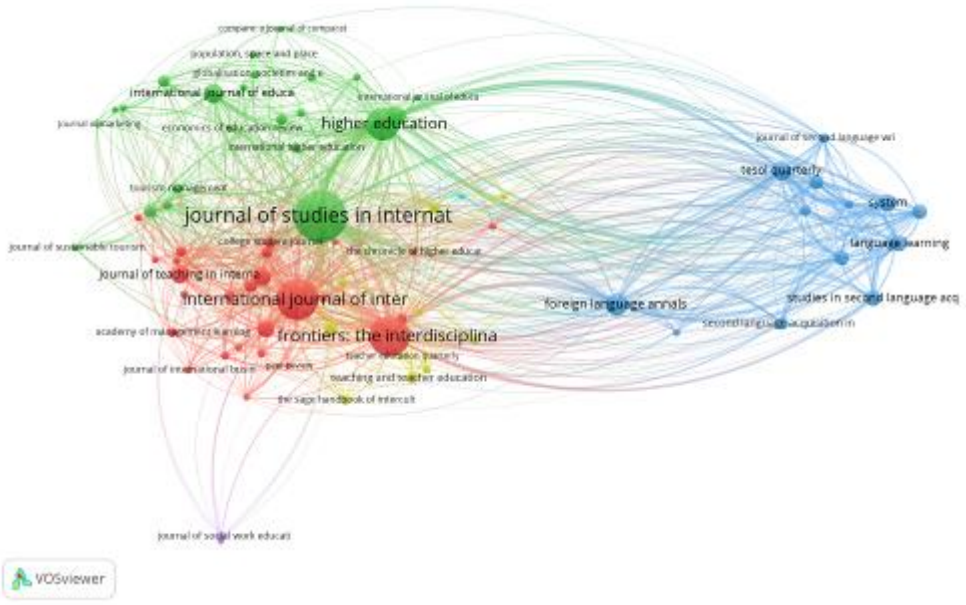


Figure 19 Co-Citation Bibliometric Network Based on Cited-Sources

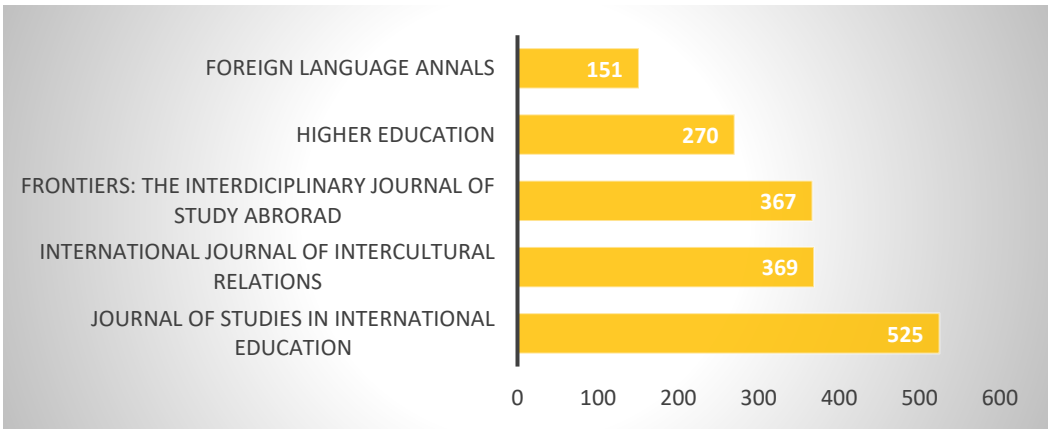


Figure 20 Five Publishers with the Highest Number of Publications Based on Co-Citation Analysis

3.5. Analysis of Co-Occurrence Study Abroad Based on Keywords

The co-occurrence analysis unit analyzes keywords and their connections by forming a network where the most frequently occurring ones are displayed and allows to examine of keyword concepts and grouped topics. The number of keywords that have been collected is 2,311 keywords. Figure 21 shows the results of data analysis based on keywords that appear most often in publications. The results obtained 11 clusters and five clusters with the most items, namely studies on study abroad (red cluster), universities (green cluster), education (blue cluster), international cooperation (yellow cluster), and internationalization (purple cluster).

The line connecting each node shows the interconnection network of the strength of collaboration between keywords. In the green cluster, there are keywords with the most frequent repetition frequency, namely, study abroad. Each cluster shows the relationship between each keyword in publications exploring similar topics. Figure 22 shows the order of occurrence of keywords from the most, namely study abroad with 214 occurrences, followed by higher education (58), international student (54), internationalization (32), and international education (26). Some keywords such as student, college student, universities, and higher education institutions are not the most recent; where the majority of publications with these keywords were published in 2012. As for the keywords with the most recent occurrences, namely short-term study abroad, international student mobility, and factor analysis with the year of emergence around 2018.

Research on study abroad related to the fields of education and engineering includes research on the subject of engineering education and engineering solutions. Based on e 23 and Figure 24, the two research subjects are in the blue cluster, which is defined as the two research subjects having a close relationship. Figure 23 shows that the research subject of engineering education is closely related to several other research subjects represented by lines connecting other nodes, such as international experience, university students, undergraduate research, international education, and educational computing. Furthermore, the subject of engineering solutions research can be seen in Figure 24, where the subject has links with other research subjects, including societies and institutions, students, education, international students, international cooperation, and intercultural competence.

Several publications that raised the subject of engineering solutions, among others, discussed the interest of engineering students and the development of awareness of international experience towards short-term international programs, the vision that international education is very important for the future of the profession, and the influence of student intercultural competence on engineering courses abroad. Furthermore, publications related to the subject of engineering education, some of which discuss the influence of study abroad on engineering education can increase new skills in their field, strategies developed to increase the interest of engineering students for international experiences, and study abroad opportunities for their careers as additional international activities.

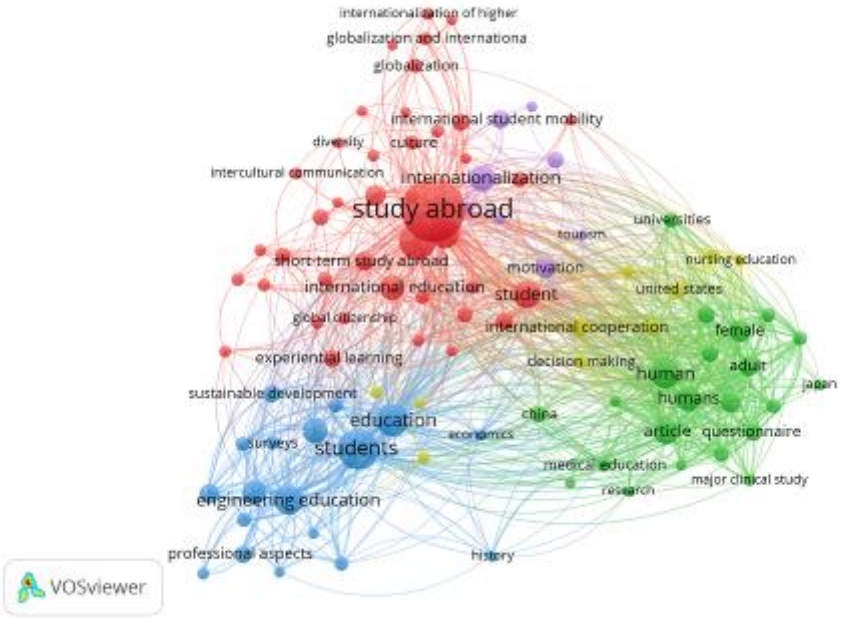
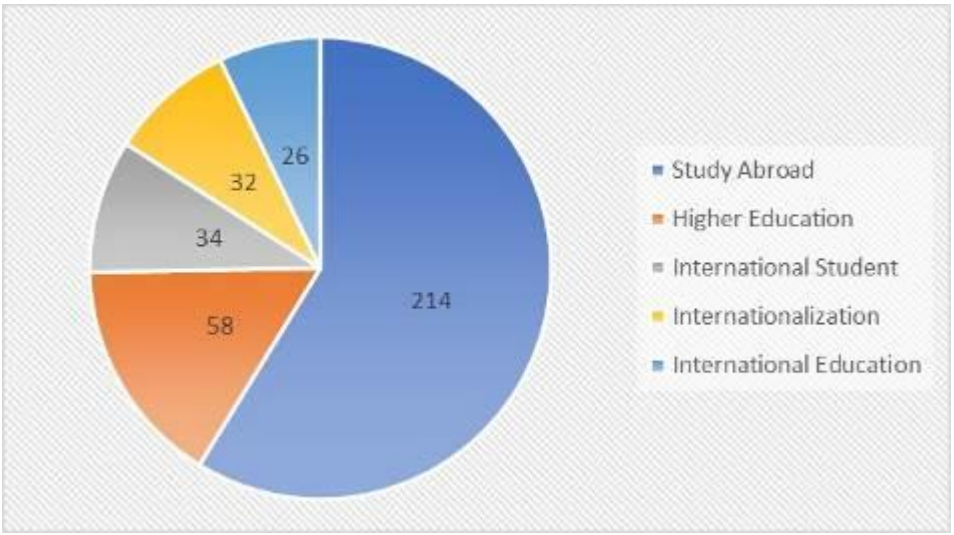


Figure 21 Co-Occurrence Bibliometric Network Based on Keyword



Figurer 22 Five Keywords with the Highest Number of Uses Based on Co-Occurrence Analysis

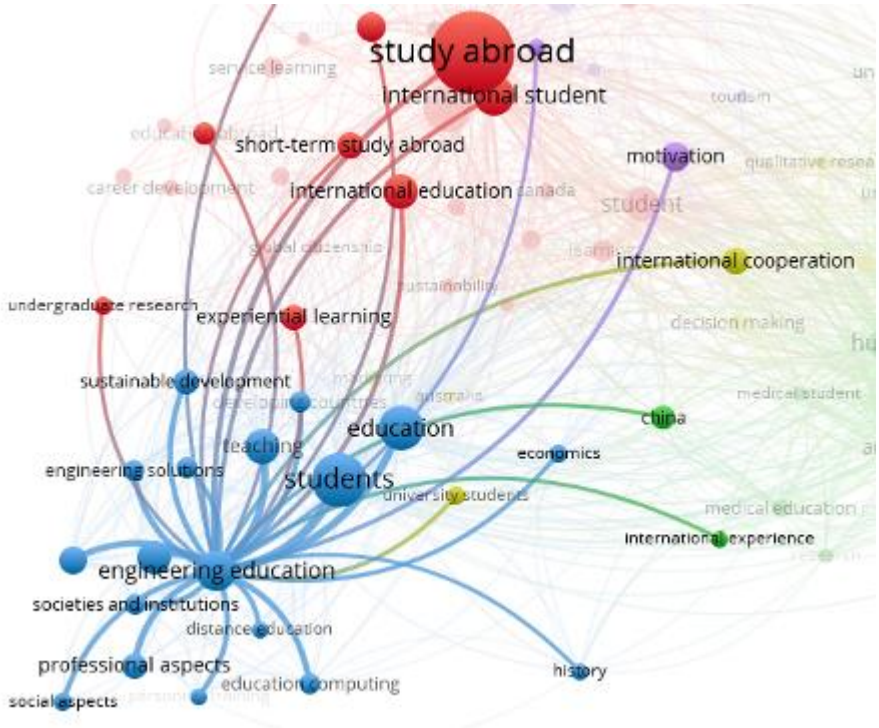


Figure 23 Mapping of Engineering Education Keywords Relating to Engineering

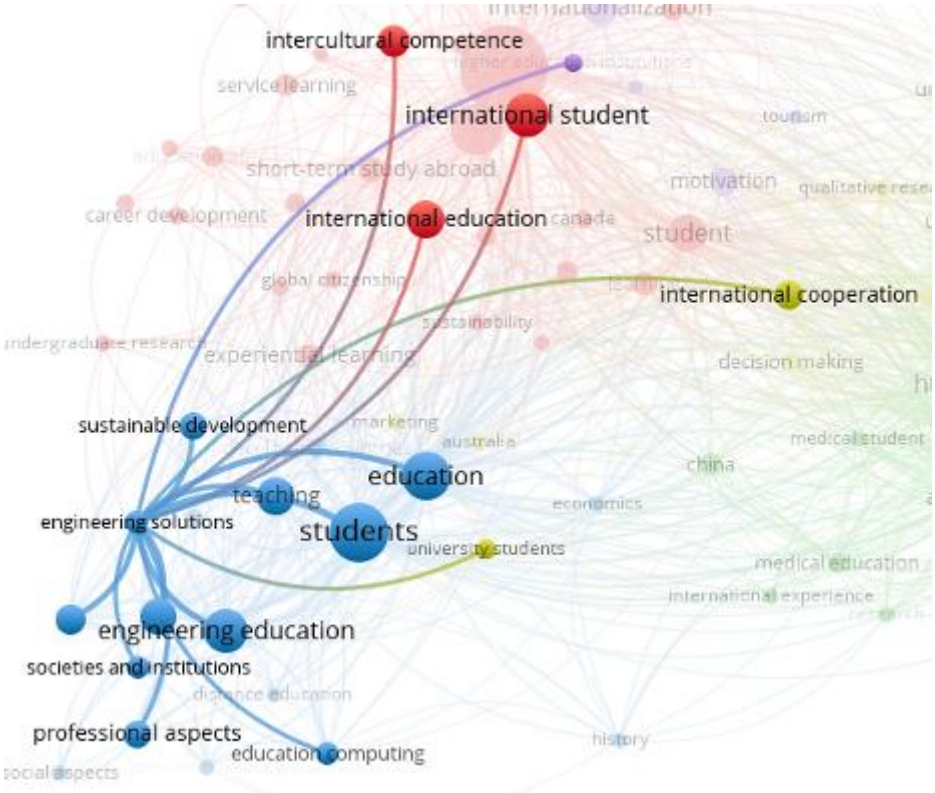


Figure 24 Mapping of Engineering Solutions Keywords Relating to the Field of Engineering Education

3.6. Factors Influencing Students to Continuing Study Abroad

Some of the goals of students to study abroad are to increase grades, increase self-confidence, maturity, deeper knowledge of the subject they are studying, and contribute to their higher achievement, as well as motivational influences such as the purpose of studying abroad, chosen activities, and the benefits that students get from their participation (Anderson & Lawton, 2015; Cardwell & Cardwell, 2019). There are 3 pull factors and push factors each that are determined to

influence the choice of countries and institutions. The driving factors such as the desire to travel abroad, the willingness to learn more about other cultures, the level of enjoyment expected from the trip, the possibility of meeting interesting people, traveling, the motivational strength of fellow students, influence, and personality, have a positive influence on student interest in studying abroad (Bandyopadhyay & Bandyopadhyay, 2015; Eder et al., 2010; Li, M., Olson, J. E., & Frieze, 2012; Lörz et al., 2016; Owen et al., 2013). While the pull factors operate in the host country and attract students to the destination country, such as the structure of opportunities provided by individual recipient institutions, the availability of scholarships and grant programs, which country to choose, and which institution, as well as the global ranking of the institution (Bandyopadhyay & Bandyopadhyay, 2015; Eder et al., 2010; Lörz et al., 2016; Owen et al., 2013; Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, 2009; Wang, Z., & Crawford, 2020). While the pull factors operate in the host country and attract students to the destination country, such as the structure of opportunities provided by individual recipient institutions, the availability of scholarships and grant programs, which country to choose, and which institution, as well as the global ranking of the institution (Eder et al., 2010). Push factors have power in the initial reasons for studying abroad, while pull factors dominate the choice of the host country and host institution. Push factors are factors related to the country of origin and motivate students to leave their home country to undertake international studies (Eder et al., 2010). The interest in studying abroad in short-term programs is higher than in long-term programs, where short-term programs can increase students' motivation for further global experiences, especially for those who have plans to take part in study abroad programs (Hackney et al., 2012; Oda, 2020). Another influential factor, namely demographics such as race, also plays a role in determining interest in participating for minority students (Bandyopadhyay & Bandyopadhyay, 2015; Salisbury et al., 2011). Although the choice to study abroad is a personal decision, it can be influenced by various factors and, in particular the long-term cooperation between the host institution and the home institution (Yang et al., 2017).

3.6.1. Education Quality Factor

The quality of education is one of the things that students consider when taking study programs abroad (Pawar et al., 2019). Therefore, students need to identify the quality of education, have sufficient information about study abroad programs, the characteristics of study programs, academic levels, fields of education, and university factors, as well as the effectiveness of integration between study abroad and student class program factors that influence decision making (Brown et al., 2016; Doyle et al., 2015; Hackney et al., 2012; Salyers et al., 2015; Yan, 2010). Meanwhile, the main motivation for students to conduct international studies is to get a professional and quality educational experience (Owen et al., 2013; Salyers et al., 2015). A wider educational experience is expected to be obtained by students by strengthening academic achievement as an educational benefit from participating in study programs abroad for career advancement (Ahmad et al., 2016; Cardwell & Cardwell, 2019). In addition, there is an interaction effect between gender and achievement, showing that male achievement motivation is related to the desire to study abroad (Bandyopadhyay & Bandyopadhyay, 2015; Li, M., Olson, J. E., & Frieze, 2015).

3.6.2. Intrinsic Motivation Factors

There is a strong role of intrinsic motivation from personal variables such as lifetime opportunities, self-determination of intelligence, enriching life experiences, self-development, professional development, and intellectual improvement (Amani & Kim, 2017; Bandyopadhyay & Bandyopadhyay, 2015; Hackney et al., 2012; Holtbrügge, D., 2015; Yang et al., 2017). It is also influenced by attributes related to student intentions such as attitudes, behavioral control beliefs, and intentions of students, where individual attitudes and subjective norms are factors that influence students and the effect depends on the type of study program abroad (Sun & Janet, 2021; Wang et al., 2016). As for students with entertainment as their motivation, they tend to choose less challenging goals than those who are motivated to learn about the world or seek self-development, where they perceive that the experience gained can help the development of students' professional identity (Anderson et al., 2015). However, although self-development goals for studying abroad tend

to be more intrinsically motivated, it has no correlation with adaptation indicators (Chirkov et al., 2007).

3.6.3. Cross-Cultural Factors

Cross-cultural competencies, such as situational social conditions, cultural attractiveness, social and cultural abilities of students, as well as the choice of the host country are also factors that influence student participation (Doyle et al., 2015; Hackney et al., 2012; Holtbrügge, D., 2015; Salyers et al., 2015; Wang, Z., & Crawford, 2020). Students who have often studied abroad tend to be able to more easily adapt to a cross-cultural environment, where later social interaction between international students and local students can influence on the development of student cultural intelligence, so that students are expected to have an interest in the culture of other countries as a form of decision support factors to participate (Holtbrügge, D., 2015; Oda, 2020). On the other hand, there are significant differences between male and female intercultural competencies regarding the implications of studying abroad. Women who study abroad have higher levels of interaction attention, and are more motivated to understand, appreciate, and accept cultural differences. The responses of males tend to express less interest in studying abroad and do not emphasize the desire to learn about new cultures or to gain a global perspective compared to female (Tompkins et al., 2017). In addition, significant obstacles related to student interest in participating in international studies include the lack of foreign language skills, so students tend to prefer destinations where language is not a problem (Brown et al., 2016; Doyle et al., 2015; Owen et al., 2013).

3.6.4. Social Motivation Factors

Psychological and physical factors that influence student decisions include campus involvement such as the choice of higher education institutions, prospects for academic transfer, patterns of institutional characteristics, and the state of the social environment (Amani & Kim, 2017; Marjanović & Pavlović, 2018; Sun & Janet, 2021). As for social motivation, it can be said that it is a factor that can influence attitudes towards the choice of destination before making an international trip (Nyaupane et al., 2011). Having an environment such as continuous support from family or relatives as positive role models, faculty encouragement, group affinity, as well as personal and family international experiences can motivate them to study abroad (Amani & Kim, 2017; Brown et al., 2016; Doyle et al., 2015; Hackney et al., 2012). This is in line with a survey conducted in America, that as many as 72% of respondents showed an interest in participating in a study abroad program, with 61% of respondents have traveled abroad and 20% of respondents had previously attended a study abroad program (Owen et al., 2013). These factors can bring significant personal advantages in the global market such as more promising job prospects (Pawar et al., 2019; Sun & Janet, 2021).

3.6.5. Financial Factor

Time and finances are some of the things to consider for the majority of students who want to study abroad, where students from private institutions require less funding than public institutions (Bandyopadhyay & Bandyopadhyay, 2015; Specking, E., Abel, K. D., & Needy, n.d.). On the other hand, this can be an obstacle where students consider the availability of scholarships and financing while abroad in making decisions (Kelleher et al., 2016; Owen et al., 2013). Students from low-income groups use the program as a process to improve their socioeconomic status (Wang, Z., & Crawford, 2020). The majority of students have thought about participating in a study abroad program but have not registered yet. The most significant obstacle is the grant constraint where generally the funds do not cover all student living expenses, while grant assistance has a positive impact on increasing the possibility of participation in study abroad programs (Huják, 2015; Kelleher et al., 2016). The findings regarding the cost factor are consistent with research by Guest, Livett, and Stone (2006). Most (88%) believed that their family would support an overseas exchange, but only a third reported that this support would include financial assistance (Doyle et al., 2015).

4. Conclusion

Referring to the discussion of the research results that have been described previously, it can be concluded several conclusions. Namely, publications on the topic of studying abroad have increased by an average of 0.26% per year during the last two decades, so it can be concluded that interest in research on studying abroad has been growing over the last two periods. Based on the results of the co-authorship analysis, it shows that the United States is the country and origin of the organization that dominates the number of publications with the highest collaboration. The results of the analysis based on citations show some sources with the highest number of publications which are also included in the sources of publications that are most frequently cited. The results of the analysis based on co-citation show that the most cited sources of publications are sources that discuss issues related to the internationalization of higher education so that they can make a significant contribution to the development of research on the topic of study abroad. The results of the analysis based on co-occurrence show that study abroad is the keyword that most often appears, with three dominant clusters discussing issues regarding internationalization, education, and social issues. In addition, the subject of study abroad research also has links with the fields of education and engineering, which can be a reference that from these two fields there is a close relationship with the topic of study abroad research in the world. Although the choice to study abroad is ultimately a personal decision, it is still influenced by several factors such as educational quality, intrinsic motivation, cross-cultural competence, social motivation, and financial or grant program availability.

The results of this study can provide several implications for its readers, including providing insight into trends and developments in publications on the topic of study abroad programs around the world, providing insight into the level of interest and various factors that can influence students to continue their studies abroad, as well as becoming a consideration for students in making their decisions. Based on the conclusions that have been described previously, the researchers try to provide recommendations for further research including; this research can be reviewed more narrowly by analyzing the motivations and factors that influence students to take study programs abroad locally and regionally with a domestic scope, and the results of this study can be used as a reference to develop further research on a more narrow case study.

References

Ahmad, A. B., Hassan, H. A., & Al-ahmedi, M. W. A. (2016). *Motivations of Government- Sponsored Kurdish Students for Pursuing Postgraduate Studies Abroad : An Exploratory Study*. https://doi.org/10.1177/1028315316662982

Amani, M., & Kim, M. M. (2017). Study Abroad Participation at Community Colleges : Students ' Decision and Influential Factors Study Abroad Participation at Community Colleges : Students '. *Community College Journal of Research and Practice*, *00*(00), 1–15. https://doi.org/10.1080/10668926.2017.1352544

Anderson, P. H., & Lawton, L. (2015). *The MSA : An Instrument for Measuring Motivation to Study Abroad*. *XXVI*, 53–67.

Anderson, P. H., Lawton, L., Anderson, P. H., & Hubbard, A. (2015). *Student motivation to study abroad and their intercultural development Development*.

Bandyopadhyay, S., & Bandyopadhyay, K. (2015). *Factors Influencing Student Participation In College Study Abroad Programs*. *11*(2), 87–94.

Brown, M., Appiah, E., & Evans, C. (2016). Nurse Education Today Should I stay or should I go ? A systematic review of factors that in fl uence healthcare students ' decisions around study abroad programmes. *YNEDT*, *39*, 63–71. https://doi.org/10.1016/j.nedt.2015.12.024

Cardwell, P. J., & Cardwell, P. J. (2019). Does studying abroad help academic achievement ? Does studying abroad help academic achievement ? *European Journal of Higher Education*, *0*(0), 1–17. https://doi.org/10.1080/21568235.2019.1573695

Chirkov, V., Vansteenkiste, M., Tao, R., & Lynch, M. (2007). *The role of self-determined motivation and goals for study abroad in the adaptation of international students*. *31*, 199–222. https://doi.org/10.1016/j.ijintrel.2006.03.002

Doyle, S., Gendall, P., Meyer, L. H., Hoek, J., & Tait, C. (2015). *Associated With Student Participation in Study Abroad*. 471–490.

Eder, J., Smith, W. W., & Pitts, R. E. (2010). *Exploring Factors Influencing Student Study Abroad*

Destination Choice. *January 2015*, 37–41. https://doi.org/10.1080/15313220.2010.503534

Hackney, K., Boggs, D., & Borozan, A. (2012). An Empirical Study of Student Willingness to Study Abroad. *Journal of Teaching in International Business*, *23*(2), 123–144. https://doi.org/10.1080/08975930.2012.718705

Herrera-Franco, G., Montalván-Burbano, N., Carrión-Mero, P., Jaya-Montalvo, M., & Gurumendi-Noriega, M. (2021). Worldwide research on geoparks through bibliometric analysis. *Sustainability (Switzerland)*, *13*(3), 1–32. https://doi.org/10.3390/su13031175

Holtbrügge, D., & E. (2015). *Study abroad programs: Individual motivations, cultural intelligence, and the mediating role of cultural boundary spanning*.

Hou, D., Bi, X., Mao, Z., Fan, Y., Hu, X., & Li, X. (2019). Biomaterials research of China from 2013 to 2017 based on bibliometrics and visualization analysis. *PeerJ*, *7*(e6859).

Huják, J. (2015). *Study Abroad Programs as Tools of Internationalization : Which Factors Influence Hungarian Business Students to Participate ? 1994*, 56–76. https://doi.org/10.1080/08975930.2014.956973

Hurst, A. L. (2019). 'Class and Gender as predictors of study abroad participation among US liberal arts college Students.' *Studies in Higher Education*, *44*(7), 1241–1255. https://doi.org/10.1080/03075079.2018.1428948

Jackson, J., & Oguro, S. (2018). *Intercultural Interventions in Study Abroad*. Routledge.

Jamieson-drake, J. L. D. (2014). *Predictors of Study Abroad Intent , Participation , and College Outcomes*. https://doi.org/10.1007/s11162-014-9338-7

Jin, R., Yuan, H., & Chen, Q. (2019). Resources , Conservation & Recycling Science mapping approach to assisting the review of construction and demolition waste management research published between 2009 and 2018. *Resources, Conservation & Recycling*, *140*(September 2018), 175–188. https://doi.org/10.1016/j.resconrec.2018.09.029

Kelleher, S., Fitzgerald, S., & Hegarty, J. (2016). Factors that influence nursing and midwifery students' intentions to study abroad: A qualitative study using the theory of planned behaviour. *Nurse Education Today*. https://doi.org/10.1016/j.nedt.2016.05.019

Kitchenham, B., Pearl Brereton, O., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic literature reviews in software engineering - A systematic literature review. *Information and Software Technology*, *51*(1), 7–15. https://doi.org/10.1016/j.infsof.2008.09.009

Li, M., Olson, J. E., & Frieze, I. H. (2015). *Students ' Study Abroad Plans : the Influence of Motivational and Personality Factors*. *2006*.

Marginson, S., & van der Wende, M. (2007). To rank or to be ranked: The impact of global rankings in higher education. *Journal of Studies in International Education*, *11*(3–4), 306–329. https://doi.org/10.1177/1028315307303544

Marjanović, B., & Pavlović, D. K. (2018). *FACTORS INFLUENCING THE HIGH SCHOOL GRADUATES ' DECISION TO STUDY ABROAD : TOWARD A THEORETICAL MODEL*.

Netz, N., & Grüttner, M. (2021). Does the effect of studying abroad on labour income vary by graduates' social origin? Evidence from Germany. *Higher Education*, *82*(6), 1195–1217. https://doi.org/10.1007/s10734-020-00579-2

Nyaupane, G. P., Paris, C. M., & Teye, V. (2011). *Study Abroad Motivations, Destination Selection and Pre-Trip Attitude Formation 1*. *217*(October 2010), 205–217.

Oda, S. (2020). *Short-Term Study Abroad : Enhancing Engineering Students ' Motivation for Global Experience*. 2–6.

Owen, C., Breheny, P., Ingram, R., Pfeifle, W., Cain, J., & Ryan, M. (2013). *Factors Associated With Pharmacy Student Interest in International Study*. *77*(3).

Page, M. J., Mckenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Mayo-wilson, E., Mcdonald, S., Mcguinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., … Moher, D. (2021). *The PRISMA 2020 statement : An updated guideline for reporting systematic reviews Asbj ø rn Hr o*. *88*(March). https://doi.org/10.1016/j.ijsu.2021.105906

Partlo, M., & Ampaw, F. (2018). Using income effects to market undergraduate education abroad participation in higher education. *Journal of Marketing for Higher Education*, *28*(1), 66–89. https://doi.org/10.1080/08841241.2018.1425230

Pawar, S. K., Dasgupta, H., & Vispute, S. (2019). Analysis of factors influencing international student destination choice : a case of Indian HE. *Journal of Further and Higher Education*, *00*(00), 1–13. https://doi.org/10.1080/0309877X.2019.1690640

Salisbury, M. H., Paulsen, M. B., & Pascarella, E. T. (2011). *Why do All the Study Abroad Students Look Alike ? Applying an Integrated Student Choice Model to Explore Differences in the Factors that Influence White and Minority Students ' Intent to Study Abroad*. 123–150. https://doi.org/10.1007/s11162-010-9191-2

Salyers, V., Carston, C. S., & Dean, Y. (2015). *Exploring the Motivations , Expectations , and Experiences of Students Who Study in Global Settings*. *5*(4), 368–382.

Sidhu, G. K., & Kaur, S. (2011). *Enhancing Global Competence in Higher Education : Malaysia ' s Strategic Initiatives*. https://doi.org/10.1007/978-94-007-1500-4

Specking, E., Abel, K. D., & Needy, K. L. (n.d.). *Comparing Study Abroad Interest between Universities*.

Sun, H., & Janet, K. (2021). Who Studies Abroad ? Understanding the Impact of Intent on Participation. In *Research in Higher Education* (Vol. 62, Issue 7). Springer Netherlands. https://doi.org/10.1007/s11162-021-09629-9

Tarrant, M. A., Rubin, D. L., & Stoner, L. (2014). The Added Value of Study Abroad: Fostering a Global Citizenry. *Journal of Studies in International Education*, *18*(2), 141–161. https://doi.org/10.1177/1028315313497589

Tompkins, A., Cook, T., Miller, E., & LePeau, L. A. (2017). Gender influences on students' study abroad participation and intercultural competence. *Journal of Student Affairs Research and Practice*, *54*(1), 204–216. https://doi.org/10.1080/19496591.2017.1284671

Twombly, S. B., Salisbury, M. H., Tumanut, S. D., & Klute, P. (2009). Study Abroad in a New Global Century--Renewing the Promise, Refining the Purpose. *ASHE Higher Education Report*, *38*(4), 1–152. https://doi.org/10.1002/aehe.20004

Uche, R. D. (2014). Quality of university graduates and human resources development in Nigeria. *Research in Education*, *92*(1), 49–58. https://doi.org/10.7227/RIE.0004

Wang, Z., & Crawford, I. (2020). *Factors motivating destination decisions of Chinese study abroad students*. 0–33. https://doi.org/10.1108/IJEM-08-2020-0388.Official

Wang, L. C., Gault, J. J., Christ, P., Diggin, P. A., Wang, L. C., Gault, J. J., Christ, P., & Diggin, P. A. (2016). *Individual attitudes and social influences on college students ' intent to participate in study abroad programs*. *1241*(June). https://doi.org/10.1080/08841241.2016.1146385

Whatley, M. (2017). *Financing Study Abroad : An Exploration of the Influence of Financial Factors on Student Study Abroad Patterns*. https://doi.org/10.1177/1028315317697798

Yan, Y. (2010). *Factors Influencing the Students ' Decision-making to Study Abroad in Selecting Host Universities : A State Sponsored Program*.

Yang, Y., Volet, S., & Mansfield, C. (2017). Motivations and influences in Chinese international doctoral students ' decision for STEM study abroad. *Educational Studies*, *5698*(August), 1–15. https://doi.org/10.1080/03055698.2017.1347498