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Bibliometric Analysis of Entrepreneurial Competencies in the Last 10 Years (2013-2023)

Analisis Bibliometrik Kompetensi Kewirausahaan dalam 10 Tahun Terakhir (2013-2023)

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Abstract

This research uses bibliometric analysis to reveal state-of-the-art entrepreneurial competencies in the context of entrepreneurship. The method used in this research is quantitative research with the use of Scopus database assistance as well as VosViewer as an analysis tool. The limitation specified in this research is scientific publications published from 2013 to 2023. Countries with the highest productivity three largest rankings contributing to the theme of entrepreneurial competencies research are Malaysia, the United States, and India. The results of the bibliometric analysis reveal co-citation, bibliographical coupling, authors' keywords, and co-occurrence of all keywords. Further research in the future is expected to be able to investigate entrepreneurial competencies with novelty.

Keywords: Bibliometric Analysis, Entrepreneurial Competencies, Entrepreneurship.

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Abstrak

Penelitian ini menggunakan analisis bibliometrik untuk mengungkapkan kompetensi kewirausahaan mutakhir dalam konteks kewirausahaan. Metode yang digunakan dalam penelitian ini adalah penelitian kuantitatif dengan menggunakan bantuan database Scopus serta VosViewer sebagai alat analisis. Batasan yang ditentukan dalam penelitian ini adalah publikasi ilmiah yang diterbitkan dari tahun 2013 hingga 2023. Negara-negara dengan produktivitas tertinggi tiga peringkat terbesar yang berkontribusi pada tema penelitian kompetensi kewirausahaan adalah Malaysia, Amerika Serikat, dan India. Hasil analisis bibliometrik mengungkapkan co-citation, *kopling bibliografi, kata kunci penulis, dan* co-occurrence *dari semua kata kunci. Penelitian lebih lanjut ke depan diharapkan mampu menginvestigasi kompetensi kewirausahaan dengan kebaruan.*

Kata Kunci: *Analisis Bibliometrik, Kompetensi Kewirausahaan, Kewirausahaan.*

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INTRODUCTION

The study of entrepreneurship has experienced a very significant increase in the last two decades with various dynamics and problems that exist, both on a national scale and even on an international scale (Purnomo *et al*., 2023). Researchers have made preliminary observations on entrepreneurship in the Scopus database conducted in September 2023, showing that in 2013-2023 there were 88,707 scientific publication documents detected there. It was noted that since 2013, publications have increased from year to year by more than 1,000 scientific publications, with the highest peak being in 2022 with 11,410 recorded documents.

One interesting part of the discussion of the study of entrepreneurship is the process of entrepreneurship (Manickam *et al*., 2023). Success in the entrepreneurial process is rooted in how entrepreneurial competencies are because it is considered that entrepreneurial competencies can inspire to have the ability to create new ideas, new products, and even a new business (Hwang *et al*., 2019; Tehseen *et al*., 2019). Not only that, several studies have found that there is a relationship between entrepreneurial competencies with success in entrepreneurship and the ability to develop through elements such as finance, markets, sales, income, and even net worth (Shirokova *et al*., 2021). Other things about entrepreneurial success, in addition to financial reviews, can also be seen from non-financial aspects such as how to achieve customer satisfaction, and the ability to build company image, and reputation, all of which are implications of successfully managing entrepreneurial competencies (Aidara *et al*., 2021; Tehseen *et al*., 2019).

The foundation for innovation as well as the company's ability to survive in achieve economic success is entrepreneurial competencies (Singh & Misra, 2021). Not only that but entrepreneurial competencies are also considered a motivation to increase the spirit of entrepreneurship, find perspectives and find other new things (García-cabrera *et al*., 2023). Recently, research on entrepreneurial competencies has increased significantly. Therefore, a study is needed on an analytical approach that can be accounted for to analyze this research. Bibliometric analysis was selected and used in this research as a tool to accomplish this.

A wide variety of approaches are used in the bibliometric analysis of statistical bibliographic information of publications. This bibliometric technique briefly uses the help of technology to interpret and analyze data, both quantitatively and qualitatively, depending on the bibliographic records obtained, which are then presented in the form of relevant visualizations. Academics have widely used this bibliometric method with its popularity. The widely used tools are VOSviewer, Gephi, and Leximancer as well as frequently used scientific databases, namely Scopus and Web of Science (Rejeb *et al*., 2022). The use of this bibliometric method has many uses, including identifying any trends in research publications well as analyzing productivity in publications, what kind of collaborative patterns in the world of authorship and research aspects, and can help to learn about the basic anatomy of certain fields in the creation of current research works (Manickam *et al*., 2023). This study uses scholarly articles from the Scopus database and the VOSviewer tool to offer a graphical mapping of bibliometric data associated to entrepreneurial competence. This study update can assist in determining and facilitating what is happening in the selected research subject, as the data collected spans the years 2013 to 2023. Additionally, to make the information simpler to grasp, it is also provided in the form of explanation and graphic data.

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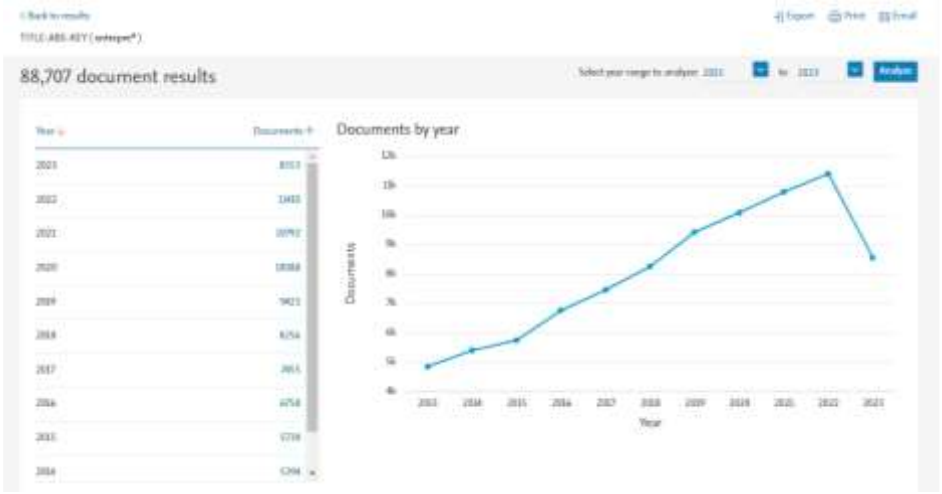


Figure 1. Trends in Scientific Publications on Entrepreneurship in the Scopus database, The search is carried out with the search string TITLE-ABS-KEY (entrepre*) on September 30, 2023. Source: www.scopus.com, 2023.

LITERATURE REVIEW

The practice of entrepreneurship activities in a country will significantly affect related to the level of entrepreneurship in it (Brito & Leitão, 2020; Jones *et al*., 2019). Things that can influence and help to increase one's intention to explore a new opportunity that is diverse and affect the enthusiasm to carry out entrepreneurial activities are how to apply and entrepreneurial competence (Almeida *et al*., 2019; Kruger & Aletta, 2020). Findings regarding recent studies state that entrepreneurial competencies can influence to stimulate ideation processes and increase the commercialization of innovative products, as well as utilization with the existence of industrial technology 4.0 (Shet & Pereira, 2021; Stawiarska *et al*., 2021).

There are various philosophies regarding entrepreneurial competencies, each of which provides a variety of significant insights (Manickam *et al*., 2023). The term entrepreneurial competencies itself began to be known in the early 90s which refers to basic and specific information, goals, qualities, self-image, posis as well as the ability to manage new businesses, sustainability, and even development (Ismail & Wright, 2022; Ramadani *et al*., 2022). Recent research has found that entrepreneurial competencies as a group of knowledge and skills that lay the foundation for individuals to achieve success in entrepreneurial activities (Sakib *et al*., 2022).

There are many dimensions of entrepreneurial competencies, this research adopted based on empirical findings in one of the studies, in which it discusses seven categories of competencies, namely conceptual thinking, strategic thinking, commitment, relationships, organizing, personal maturity, and organizing (Kisubi *et al*., 2022).

METHOD

This research is written using bibliometric analysis methods to find what fields are developing, collaborative works, and elements in research also explores journal citations, authors, or other statistics to analyze the effectiveness of articles that have been published (Manickam *et al*., 2023). The writing process of this research is also assisted by the Scopus Database as a place to find scientific publications and the help of the VOSviewer application in analyzing bibliometrics with visual presentations.

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Data Collection and Search Strategy

Various kinds of data from Scopus were collected for the needs of this research. Followed by a series of testing phrases used for titles, abstracts, and keywords to find scientific publications on entrepreneurial competencies "entrepre* competenc*". The data mining will be carried out on September 30, 2023, using the Scopus database. The reason for using Scopus is that it has achieved tremendous popularity among academics and is also one of the most widely used databases with a greater scope when compared to the Web of Science (Vallaster *et al*., 2019).

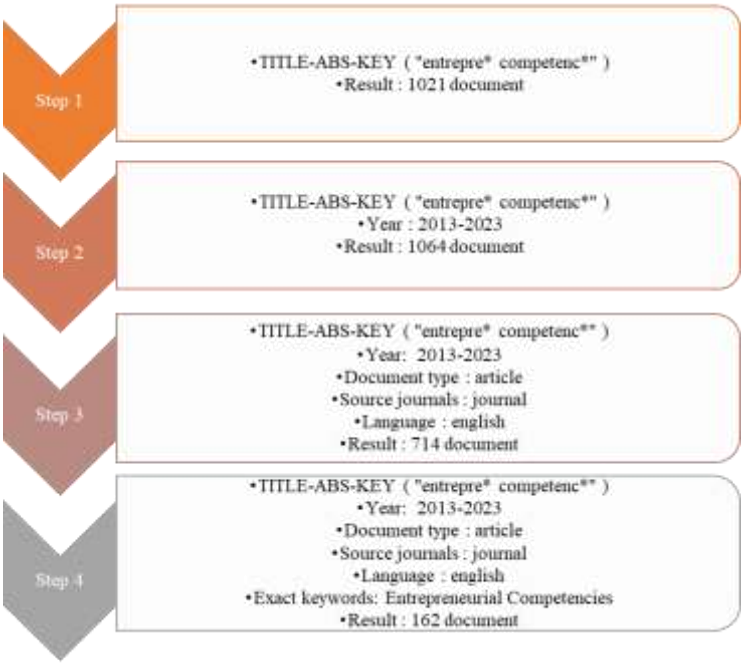


Figure 2. Publication Data Collection Process
Source: Processed by Authors, 2023.

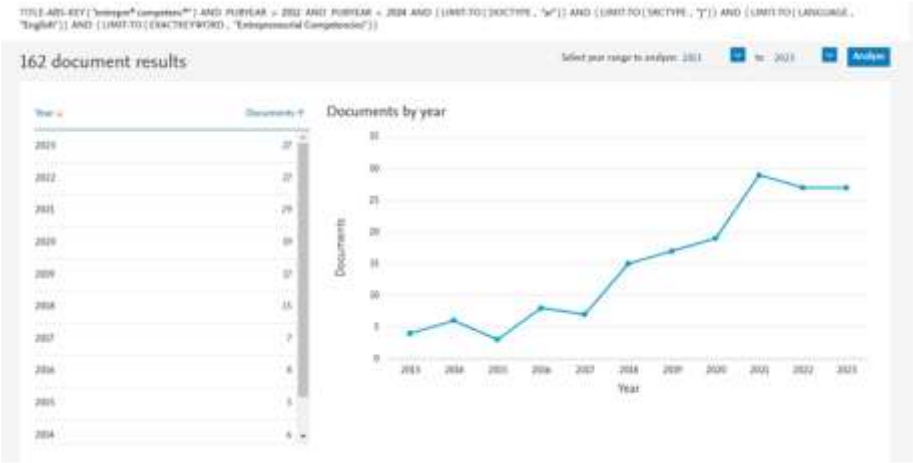


Figure 3. Trends in Scientific Publications on Entrepreneurial Competencies in the Scopus database for 2013-2023, Search performed with the search string TITLE-ABS-KEY ("entrepre* competenc*") AND PUBYEAR > 2012 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (EXACTKEYWORD, "Entrepreneurial Competencies")) TO (EXACTKEYWORD, "Entrepreneurial Skills") OR LIMIT-TO (EXACTKEYWORD, "Entrepreneurial Competencies")) on September 30, 2023.
Source: www.scopus.com, 2023.

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Search restrictions are carried out in this research, namely scientific publications ranging from 2013 to 2023. This is done because it is to find out what trends have occurred in the last 10 years on the theme of entrepreneurial competencies, and also performed as showed in Figure 2.

Based on the data displayed in Figure 3, it is evident that there has been a rise in the trend of research themes pertaining to entrepreneurial competencies. But in certain years, such 2015, 2017, 2022, and 2023, the situation holds steady, if not improves. This is due to the fact that 2023, the year this article was written, is still in effect. Even though the Covid-19 pandemic caused this condition to peak in 2021, there is reason to encourage researchers to look more closely at entrepreneurial competencies that are most likely to be applied as remedies to the current, changing conditions. The empirical data on entrepreneurs is becoming more diverse and fascinating to study, especially since many competencies need to be modified to fit the needs of the times.

RESULTS

The final stage of the search for entrepreneurial competencies in the Scopus database resulted in 162 documents. Figure 4 shows the publication trend from year to year, from 2013 to 2023, the trend of scientific publications has increased, with the highest number of years, namely in 2021 as many as 29 documents. One of the reasons why 2021 is the year when the most discussion about entrepreneurial competencies is due to the COVID-19 pandemic, which requires entrepreneurs to improve their skills in the world of digital commerce (Satar *et al*., 2023).

Figure 5 shows the number of citations from year to year. The results show the trend of research work regarding entrepreneurial competencies and the quality of published publications. When viewed from 2013-2023, the year with the most or most active number of citations is 2014 quoted 393 times. This shows that research on entrepreneurial competencies in that year published several articles discussing entrepreneurial competencies in the University environment.

Other results show the most productive countries by number of citations, which are measured in proportion to all publications collected by finding which country the authors come from. Figure 6 shows 5 countries with the highest ranking or number of cysts are occupied in the first position by Malaysia, followed by the United States, India, the United Kingdom, and Spain. Judging from this, countries in Asia still lead the most articles published on entrepreneurial competencies, which are included in the category of developing countries. Developing countries will always be synonymous with the ability to continue to develop entrepreneurial competencies to find the best competencies in entrepreneurial activities.

Table 1 presents the top 10 most cited articles. The highest ranking of widely cited articles is "Entrepreneurial competencies of women entrepreneurs pursuing business growth" with the writing team, namely Mitchelmore, Siwan (35729128500); Rowley, Jennifer (7201756587) in 2013 citations 195 times. The article discusses the findings of four competencies that have been identified, namely personal and relationship competencies, business and management, entrepreneurship, and human relations, with a focus on women entrepreneurs who are considered to have their uniqueness in the ability to manage businesses. Not only that, the article succeeded in giving birth to a framework about women entrepreneurs and became a reference in several articles afterward with the same discussion.

Figure 7 describes the documents published in each subject area. The majority of documents on entrepreneurial competencies were published on the subject of Business, Management, and Accounting with 34.7 percent or as many as 111 documents. This was followed by the subject of Social Sciences with 14.1 percent or as many as 77 documents.

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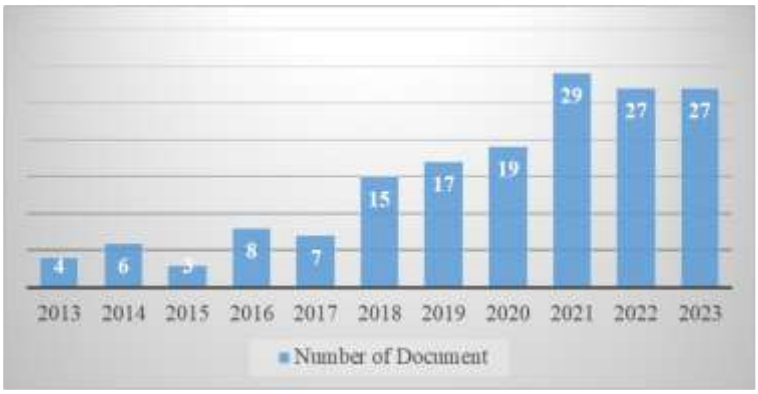


Figure 4. Number of Scientific Publications from 2013-2023
Source: Secondary data (processed), 2023.

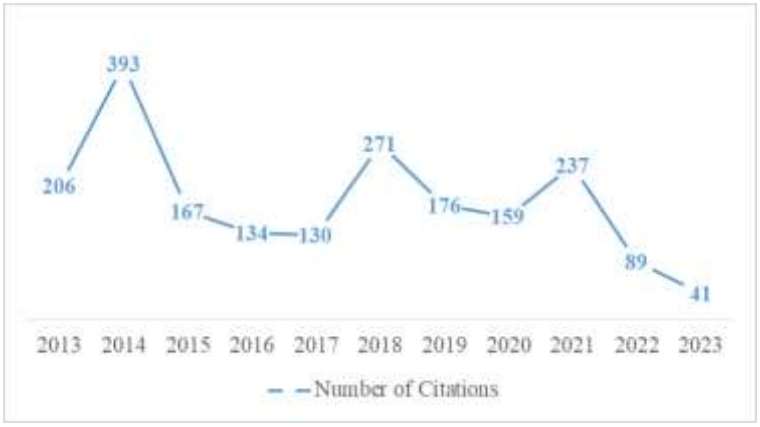


Figure 5. Number of Citations from 2013-2023
Source: Secondary data (processed), 2023.

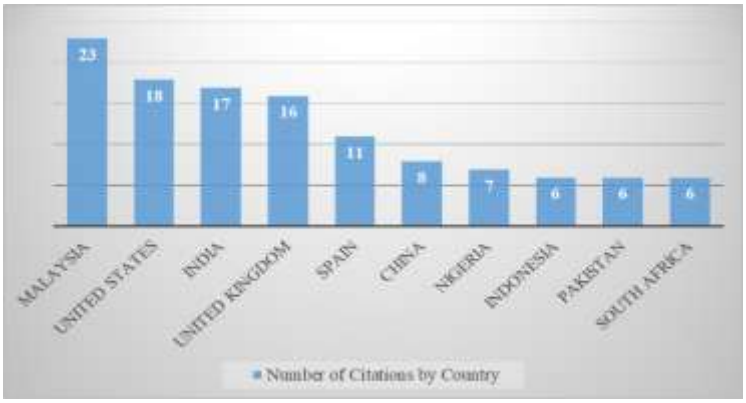


Figure 6. Productive Countries in Entreprenurial Competencies
Source: Secondary data (processed), 2023.

In Figure 8, a visualization of the authors' co-citation in entrepreneurial competencies is presented. It can also be seen that the most cited article in research with the theme of entrepreneurial competencies is "The Influence of University Departments on the Evolution of Entrepreneurial Competencies in Spin-off Ventures" research results from Wright, M *et al*. (Rasmussen *et al*., 2014), so the author is the most cited. The variety of colors contained in Figure 8 shows the clustering and connections within it. The younger the color, indicating the novelty of the research theme.

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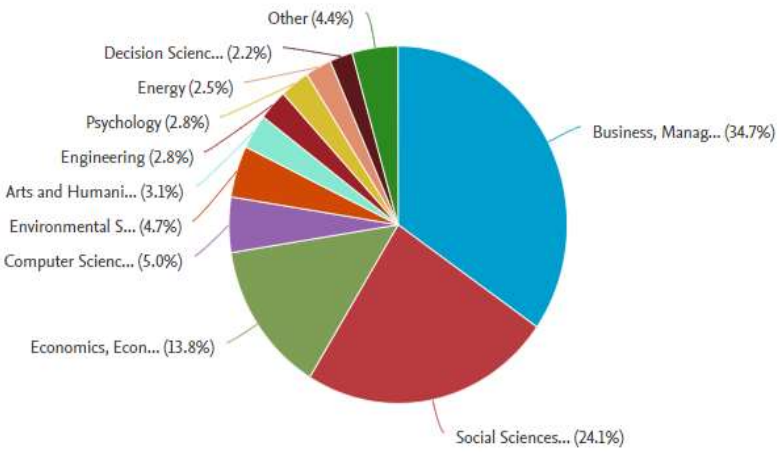
Table 1. Data Top 10 Most Cited Articles

R	Writing Team	Article Title	Year	Source Journals	Number of Citation	Publisher
1	Mitchelmore, Siwan (35729128500); Rowley, Jennifer (7201756587)	Entrepreneurial competencies of women entrepreneurs pursuing business growth	2013	Journal of Small Business and Enterprise Development	195	Emerald Group Publishing Ltd.
2	Rasmussen, Einar (12143742300); Mosey, Simon (12647712100); Wright, Mike (7401558861)	The influence of university departments on the evolution of entrepreneurial competencies in spin-off ventures	2014	Research Policy	181	Elsevier B.V.
3	Lackéus, Martin (55921506200)	An emotion based approach to assessing entrepreneurial education	2014	International Journal of Management Education	120	Elsevier Ltd
4	Rasmussen, Einar (12143742300); Mosey, Simon (12647712100); Wright, Mike (7401558861)	The transformation of network ties to develop entrepreneurial competencies for university spin-offs	2015	Entrepreneurship and Regional Development	89	Routledge
5	Tehseen, Shehnaz (56275205700); Ramayah, T. (57222416490)	Entrepreneurial competencies and smes business success: The contingent role of external integration	2015	Mediterranean Journal of Social Sciences	78	Mediterranean Center of Social and Educational Research
6	Farhangmehr, Minoo (8611942300); Gonçalves, Paulo (57213442478); Sarmento, Maria (56416246400)	Predicting entrepreneurial motivation among university students: The role of entrepreneurship education	2016	Education and Training	76	Emerald Group Publishing Ltd.
7	RezaeiZadeh, Morteza (57185626100); Hogan, Michael (56025577700); O'Reilly, John (57214280005); Cunningham, James (56689105400); Murphy, Eamonn (7401684077)	Core entrepreneurial competencies and their interdependencies: insights from a study of Irish and Iranian entrepreneurs, university students and academics	2017	International Entrepreneurship and Management Journal	65	Springer New York LLC

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R	Writing Team	Article Title	Year	Source Journals	Number of Citation	Publisher
8	Tehseen, Shehnaz (56275205700); Ahmed, Farhad Uddin (57205750023); Qureshi, Zuhaib Hassan (57205751448); Uddin, Mohammad Jasim (57205750533); Ramayah, T. (57222416490)	Entrepreneurial competencies and SMEs' growth: the mediating role of network competence	2019	Asia-Pacific Journal of Business Administration	49	Emerald Group Holdings Ltd.
9	Gümüsay, Ali Aslan (56183045600); Bohné, Thomas Marc (6507819384)	Individual and organizational inhibitors to the development of entrepreneurial competencies in universities	2018	Research Policy	48	Elsevier B.V.
10	Hwang, Won-Sik (55414260700); Choi, Hyundo (35267848100); Shin, Jungwoo (56651448300)	A mediating role of innovation capability between entrepreneurial competencies and competitive advantage	2020	Technology Analysis and Strategic Management	47	Routledge

Source: Secondary data (processed), 2023.



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Figure 7. Document by Subject Field

Source: Secondary data (processed), 2023.

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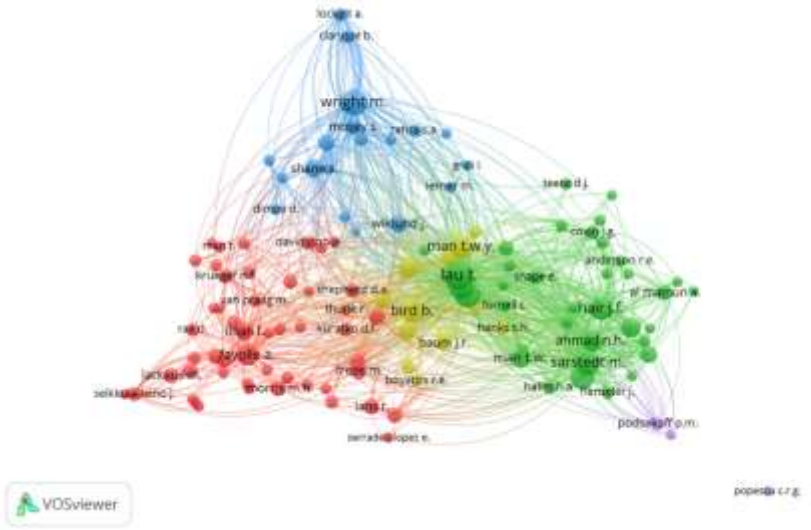


Figure 8. Co-citation in Entrepreneurial Competencies Research
Source: Secondary data (processed), 2023.

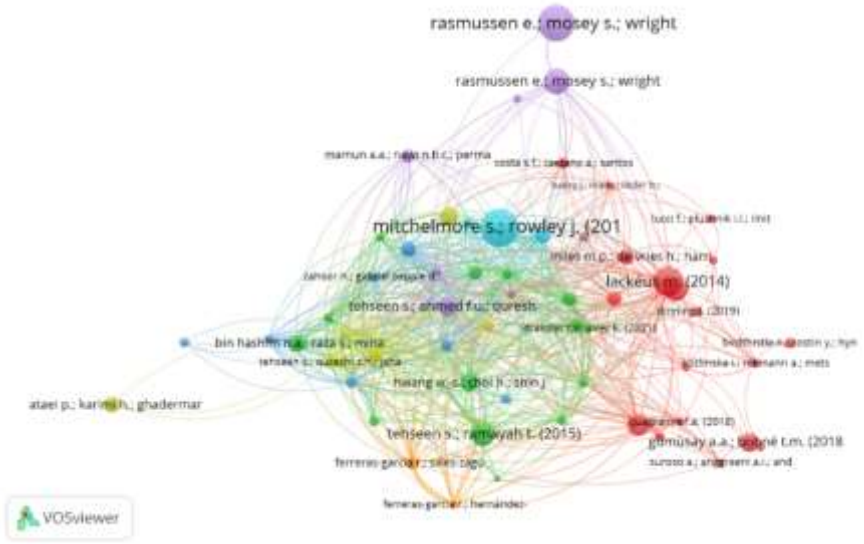


Figure 9. Bibliographic Connetion between Articles/Documents
Source: Secondary data (processed), 2023.

The visualization in Figure 9 shows the relationship or bibliographic connection of the article as well as the visual indication of the cluster indicated by color. The unique size of the node corresponds to the sum of the overall citations of each existing article. Not only that, the distance or proximity of the network itself between studies explains how articles are related to each other in other words connected in bibliographic nodes. Here, the knots are interpreted as paper. For example, the maximum proxy distance of two nodes, or in other words the article, shows that this article has many references in general (Niknejad *et al*., 2021). In this research, the selected article had at least seven citations for this analysis. A total of 162 documents were collected from Scopus, and 63 related articles have been selected. In each of these documents, calculations are performed to determine how strong the connections between documents are through the bibliography, in other words, the document that has the greatest total connection strength is selected.

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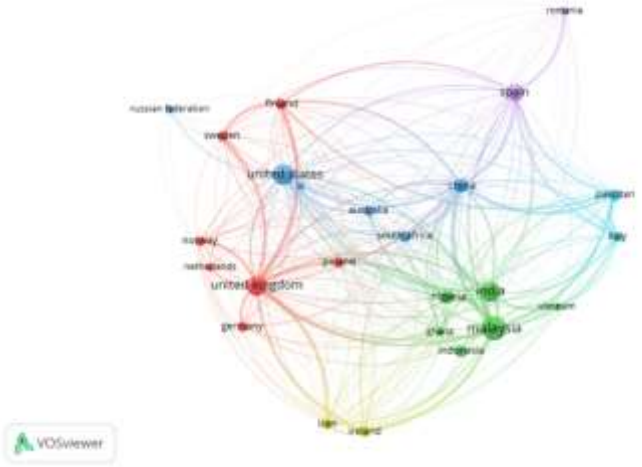


Figure 10. The Bibliometric Connection between Countries
Source: Secondary data (processed), 2023.

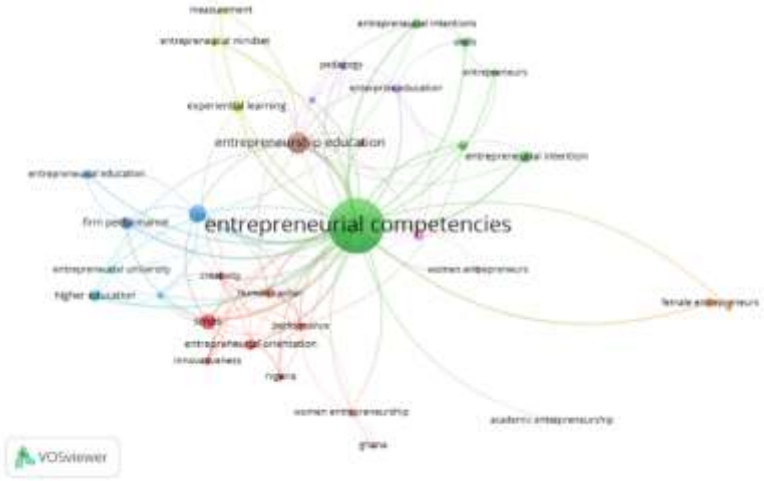


Figure 11. Keyword Co-Occurrence Author
Source: Secondary data (processed), 2023.

Based on Figure 10, developing Malaysia has become the country with the highest publication among others. This analysis is based on the results obtained when an article from Country A and Country B both cite general articles from Country C. The node in Figure 10 identifies that Country and the cover size shows the number of articles that have been published in that country. Not only Malaysia, followed by the United States and India as already presented in Figure 6.

Figure 11 shows the resulting analysis based on the keywords created by the author and this is one method that will help to understand the keywords that stand out in the theme of entrepreneurial competencies when conducting bibliometric analysis and the most common keywords used by the author. The most common keyword combination is entrepreneurial competencies with entrepreneurship education. Meanwhile, the most recent or contemporary combination is entrepreneurial competencies with entrepreneurial mindset and learning. One of the researchers discusses the findings of the latest bibliometric data that there is verification of the number of researchers contributing to the field of entrepreneurial learning and mindset studies, especially at the higher education level (Manickam *et al*., 2023).

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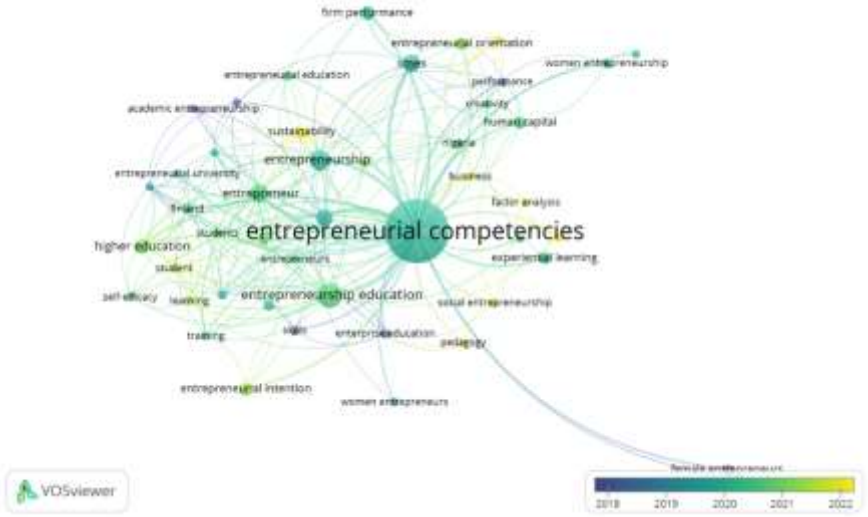


Figure 12. Overlay Visualization of All Keywords
Source: Secondary data (processed), 2023.

An overlay visualization of all occurrences alongside existing keywords is presented in Figure 12. This is similar to network visualization although it is colorfully different. In this overlay visualization, one of two ways to color the elements can be selected. If shades range from blue, it indicates that the weight is lighter. As for up to green or yellow, it represents a heavier weight (Manickam *et al*., 2023). In 2022 yellow captions show heavier weight, where keywords with entrepreneurial competencies are related to entrepreneurial orientation, sustainability, social entrepreneurship, pedagogy, business, and factor analysis. This shows that there is a relationship between these keywords.

Discussion

Studies in entrepreneurial competencies research will help to provide a general foundation for a wide variety of other subject areas. From this point of view, the most likely thing to adapt to all possibilities is that many researchers recommend the application of entrepreneurial competencies theory in business, management, and accounting. The statement also proves that entrepreneurial competencies in the workplace will have a major impact on the company's development efforts and profitability. Therefore, this bibliometric analysis is expected to provide academics with a complete picture of how research on entrepreneurial competencies helps in future decision-making (Al Mamun *et al*., 2019; Dawa *et al*., 2020; Rasmussen *et al*., 2014; Satar *et al*., 2023).

The most crucial subject to be addressed and thoroughly researched is entrepreneurial competences, particularly for academics so that the knowledge they get may be imparted to and advised to entrepreneurs. This will further enhance a company's performance and favorably impact a nation's economic growth (Mamun, 2018). This is due to the fact that MSMEs now play a significant role in the operation of the economy, whether in Indonesia or other emerging nations (Esubalew & Raghurama, 2020). This is both an excellent downstream research and the finest contribution that scholars can give.

The findings in this research are of course dynamic and will change from year to year. Therefore, it is recommended that research on the same theme be replicated in the future dean's coverage of even greater years. Apart from this, the fact that entrepreneurial competencies are one of

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the important aspects of entrepreneurial growth in developed countries, is based on data obtained that developing countries also invest heavily in entrepreneurship research. However, additional research in various fields of study in developed and developing countries is needed to determine the beneficial impacts as well as limitations in adopting entrepreneurial competencies.

CONCLUSION

This research was created to provide a comprehensive bibliometric study of entrepreneurial competencies. The analysis conducted in this research uses the type of performance analysis based on the Scopus database and scientific mapping with the use of VOSviewer software. The use of article analysis in this research is articles that have been published from 2013 to 2023. Based on the findings, research on entrepreneurial competencies continues to increase to be considered more deeply for academics, especially since 2021 which became the year for the most scientific publications. Not only that, other findings based on statistics obtained, show that Malaysia, the United States, and India are the top three countries with the number of scientific publications on entrepreneurial competencies. The next finding is about the disclosure of keywords that are most often used is the combination of keywords that are most often entrepreneurial competencies with entrepreneurship education. Meanwhile, the most recent or contemporary combination is entrepreneurial competencies with entrepreneurial mindset and learning. Based on this, it illustrates that entrepreneurial competencies research is closely related to the field of education. This signifies that educational institutions themselves help to promote the use of entrepreneurial competencies in education.

In this research, it cannot be separated from the shortcomings. The data collected entirely in this research only uses the Scopus database, therefore there is a possibility that other databases have unanswered studies in this research. Based on statistics, Scopus is a database that collects data on a rigorous calculation approach. Therefore, articles that have gone through a peer-reviewed process are considered more valuable than those written by just one person. In this research, fractional amounts were used in analyzing network modeling through the use of VOSviewer software to overcome this problem. The factors that are considered in this research are co-citation, bibliographic connections, and co-occurrence of author keywords. The findings of this research and the information presented are accurate because it there is no visible difference between the two calculation methods used.

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