

## Innovation and creativity in entrepreneurship: a bibliometric analysis

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### Abstract

*This literature study focuses on the impact of innovation and creativity on entrepreneurship. The method used is bibliometric literature study analysis which is analyzed by VOSviewer software. The VOSviewer analysis technique was used to analyze the articles that had been compiled through the Scholar database which were taken as a reference for researchers. The findings of this article were referenced from 2017 to 2021 with a total of 26 articles from 50 articles found for analysis. Next, the researcher clarified and visualized using VOSviewer software to analyze co-authorship, co-occurrence, and citation. This study provides a reliable reference for further research on the topic, allowing for more in-depth research on topics such as innovation and creativity in business. Innovation and creativity are essential to the success of any business. Innovators and creative thinkers can generate new ideas and identify new business opportunities. Every man or woman can be creative and innovative for all ages. The ability to create new and different things by carrying out innovative and creative processes is a key factor in achieving different values.*

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## INTRODUCTION

Today's deregulation of the modern labor market, business economy, globalization economy, and rapid technological change have an impact on changing the structural, economic, and social order in life (Vodă & Florea, 2019). Entrepreneurship is the main generator in creating jobs and means of economic growth for a country. As a result, an entrepreneur is seen as the leader of economic growth, a source of employment, and a resource of competitiveness and

innovation in the new arrangement of business ventures in the future (Phan Tan, 2021).

For a business to succeed, innovation and creativity must be instilled in business people and then developed for a business to be successful. The words innovation and creativity are always in the business world (Dwijo Wiyono et al., 2020). Innovation and creativity are two characteristics of businesses that can provide creative solutions to problems and opportunities. Businesses also can identify and investigate new ideas and approaches while analyzing problems and opportunities that exist in the business world. Creativity and innovation can be done by a community of people, both women, and men of all ages, and can be applied to any situation. Creating a variety of innovative and creative processes can be used to develop new and different things, becoming more important when trying to achieve an advantage that is different from what it has.

The Great Dictionary Indonesian defines entrepreneurs and the self-employed as individuals who are “smart” or “talented” in the sense of someone who is involved in determining new products, analyzing new products, determining the process of producing new products, determining methods of producing new products, carrying out operations for the sale of new products, and managing the financial aspects of new product sales. For the growth and success of a business, innovation and creativity must be preserved and fostered in entrepreneurship.

In this case, innovation and creativity are two aspects of the entrepreneurial business that can help improve and improve entrepreneurial work results. Innovation is the process by which an individual is willing to accept change as well as contribute to the creation of ideas, objects, or practices that allow people to accept change enthusiastically. Whereas, creativity serves as a tool to generate new ideas and reveal ways previously seen in business analysis and decision making. The tighter competition for entrepreneurship makes an entrepreneur must be more innovative and creative in producing and developing the products and services he is offering. For example, by welcoming the era of free trade.

To get through the current era of trade competition, many Indonesian companies, large and small, began implementing strategies to revitalize their businesses by focusing on the needs of local, national, and international markets, while developing physical products to make them more attractive to consumers, who as expected, conducted a thorough assessment of the company's internal competence, such as conducting a review of marketing performance and conducting a proper market analysis. In line to increase sales revenue.

As a result of a series of processes of changing the way of thinking, finding new ideas and uniqueness can be an advantage. Creativity will develop when entrepreneurs look at ancient products, then compare them with modern products to make them better. A series of creative and innovative processes will be carried out by people who have self-awareness, purpose, and a sense of belonging in the broader human community and who recognize their self-worth (independent, creative, risk-taking, action-oriented, leadership, hard work, honest, disciplined,

innovative, responsible, cooperative, unyielding, committed, realistic, curious, and communicative. Motivated and passionate for success that has an emphasis on outcomes and the future, and is willing to accept risks. It is also an initiative, which means energetic, deft, and active.

Creativity and innovation are likened to the heart and soul of the company that requires effort in carrying out various activities that provide entrepreneurs with a unique mix of values. Leveraging creativity and innovation allows the country's entrepreneurs to seek new opportunities applied through innovative means (Juliana et al., 2021). Entrepreneurship is an important component of growing a business, as seen from the view of business owners and operators when running initiatives to demonstrate innovative, proactive, and risk-averse behavior.

This study presents four questions covering the influence of creativity and innovation in entrepreneurship. The question can be presented as follows:

1. RQ1. Do creativity and innovation, affect entrepreneurs?
2. RQ2. What are the popular keywords of creativity and innovation with the topic under study and have they evolved/changed over the past five years?
3. RQ3. Who is the researcher who publishes the most scientific articles on this topic? What affiliations and countries do they come from?
4. RQ4. Which top publications contributed to this research topic?

The results of this research are important for academics, researchers, and professionals in the field of knowledge, especially at the level of creativity and innovation for entrepreneurial development. It is intended that entrepreneurs can produce maximum production, innovation and creativity are essential to generate new ideas and identify new business opportunities that are key factors for achieving different values. Researchers can make this finding as one the basis for conducting future research. To achieve the goal, analysis is used using bibliometric analysis techniques with the help of VOSviewer software to present visualizations of data analysis results from articles found in this literature study process (van Eck & Waltman, 2010).

## **THEORETICAL FOUNDATION**

In the opinion (of Claire Allison Stammerjohan Josh et al., 2019) entrepreneurship is a source that brings new revenue streams online as well as offline, while innovation is a series of actions based on new ideas and may involve other business functions. While entrepreneurial creativity is a set of activities in the use of new and useful ideas to bring new business. Entrepreneurship can be interpreted that humans who discover something modern both radically and hiddenly allowing latent from reality and the creation of these results (Ballor & Claar, 2019).

A basis for generating creative ideas and turning them into innovation is one of the advantages of competitive advantages, creativity and innovation have obstacles such as existing rules and regulations, time discipline, and scarce resources. The influence of these constraints can interest strategic management, entrepreneurship, industrial organizations, modern technology, operations management, behavioral organizations, and finally marketing (Pickled et al., 2019). Similarly, with the discovery (Héraud, 2021) creativity of in different domains that include science (discovery), technology (discovery), and economics (innovation) as well as in the field of art, culture, and social to motivate and promote between innovation and creativity to establish entrepreneurship in preparing financial structures in providing policies (al Mamari et al., 2020). The existence of high job satisfaction is closely related to agility housing, knowledge housing, and social housing that affect innovation and entrepreneurial performance. (Bouncken et al., 2020). Career success lies in five indicators of entrepreneurship, namely career achievement, social reputation, entrepreneurial happiness, improved ability, and financial satisfaction (Chang & Chen, 2020).

## METHODS

Studies focus on the impact of innovation and creativity on entrepreneurship. Bibliometric literature for research in mapping data using systematic and detailed methods (Garza-Reyes, 2015). Usage focuses on the limits of knowledge (Tranfield et al., 2003). Researchers using the five stages used, according to (Setyaningsih et al., 2018), (Tranfield et al., 2003), and (Churiyah et al., 2022) can be summarized as follows:

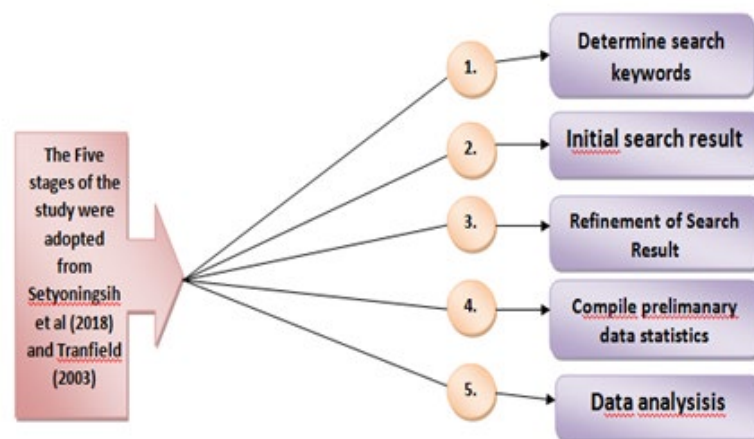


Figure 1. Five Stages of Bibliometric Literature Study Methods

1. **Determine Search Keywords**  
The keyword used to search for articles for analysis is "innovation and creativity on entrepreneurship". In April 2022, an article search was conducted on the Google Scholar database as a credible and high-quality reference source in this research topic area (Baas et al., 2020).
2. **Initial Search Results**  
Search for articles on "journals" and "proceedings", only "title word" and the year "2017-2021" and must be an English-language journal. A total of 50 articles were found in the initial search. The results are compiled in ris format, then included important information from the article such as writing the title, author name, affiliation, abstract, keywords, and finally references. For searches of "journals," researchers use Publish or Perish software.
3. **Refinement of Search Results**  
Appropriate and indexed articles in the Google Scholar database are filtered first which aims to select articles sourced from "journals" and "proceedings". Appropriate improvements to the article metadata are processed on the excel file that is re-stored on the RIS file to continue analyzing the data further.
4. **Compile Preliminary Data Statistics**  
Data collection is stored in the form of RIS. In the early stages, the components of journal articles and complete proceedings (year, publication, volume, number, page, etc.) are then examined by the researcher to add the necessary information if there is an incomplete data finding. Data analysis is done so that articles can be grouped by year by the source of the publisher's publication.
5. **Data Analysis**  
The study of bibliometric literature analyzes and visualizes data on bibliometric networks for research using VOSviewer Software, VOSviewer is used at the level of its ability to analyze data effectively and efficiently. With the existence of large data sets containing visuals, analysis, and investigations flexibly (van Eck & Waltman, 2010) VOSviewer can also create a network of publications, research maps, and article maps in shared citations through the cycle of creating keyword maps that match shared citations (Hudha et al., 2020). In addition, data analysis on citations using PoP software.

## **RESULTS AND DISCUSSION**

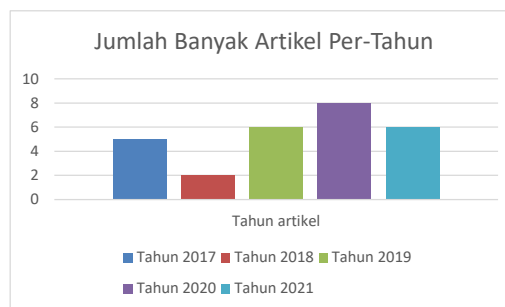
This database on research on innovation and creativity in entrepreneurship uses Google Scholar which is accessed through Publish or Perish (PoP) software. The article data on this study is stored in the form of RIS to then be reanalyzed using VOSviewer to show the network of research maps (van Eck & Waltman, 2010). The article file for research was taken from the period 2017 to 2021 to

present the latest data, namely the last five years.

The presentation of this article is made in four forms, namely the year of the article to show the number of articles in a given year, co-authorship to show the results of the analysis of the name of researchers who are enthusiastic about conducting studies on the topic of innovation and creativity in entrepreneurship, co-occurrence is used to show the results of keyword analysis with the topic as well as the development of the keyword and citation to show the results of the analysis of ten articles that have a big impact on the topic. research on that topic. This research aims to analyze in-depth article data on the topic of "innovation and creativity in entrepreneurship".

## 1. Research Results

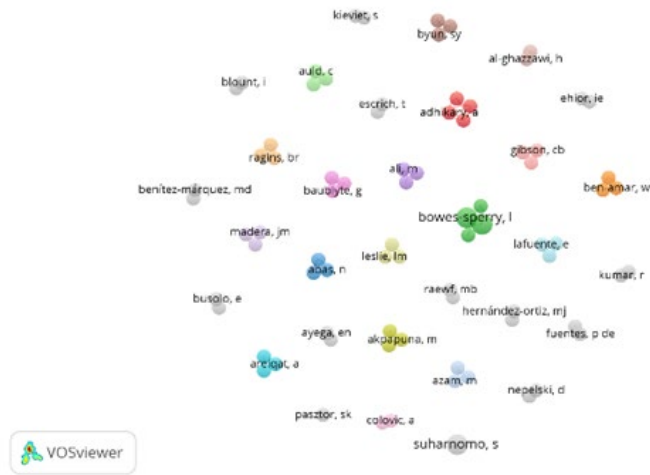
### a. Number of articles in the last five years



**Figure 2. Graph of the development of the number of articles over 5 years**

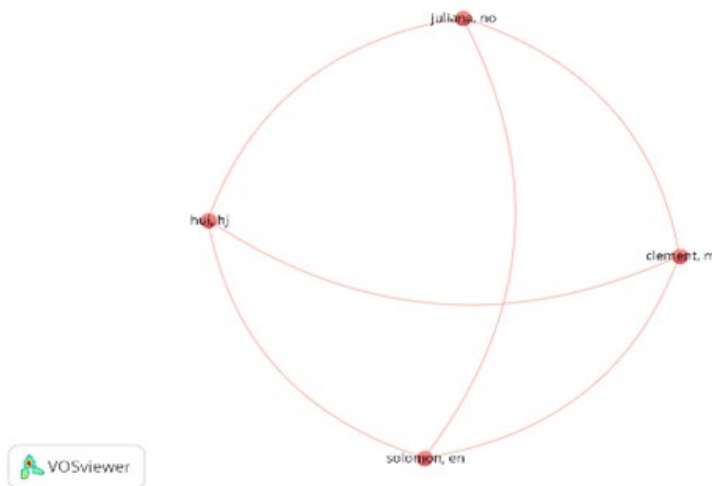
Based on figure 2, it can be seen the development of the number of articles on the topic of innovation and creativity in entrepreneurship experiencing ups and downs. The highest number of articles in 2020 was 8 articles and in 2018 there were only 2 articles found out of the total article, which was 26.

### b. Co-Authorship



**Figure 3. Network Map For Co-Authorship (Researcher Name)**

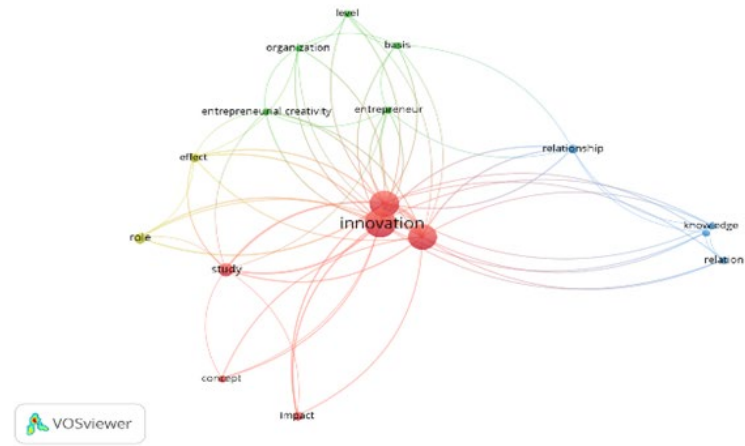
From figure 3, there are several networks of researchers' names on the topic of innovation and creativity in entrepreneurship that are not interconnected when conducting research, besides this is alleged because there are no restrictions on data retrieval in Google Scholar databases that use PoP software.



**Figure 4. Strongest Network Settings For Co-Authorship (Researcher Name)**

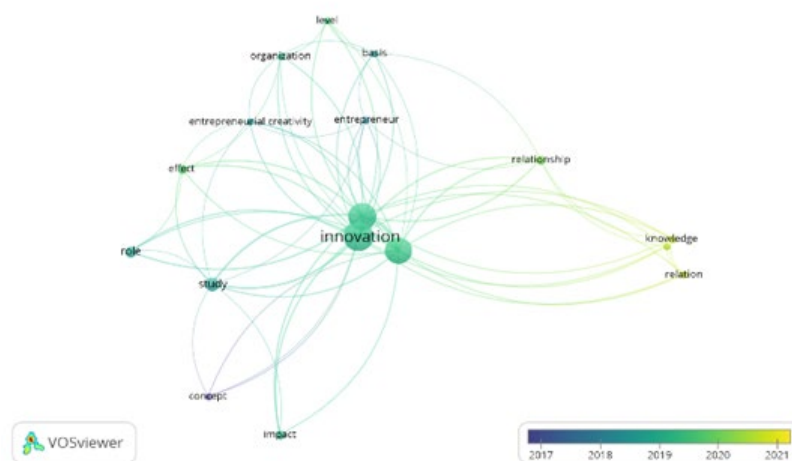
From figure 4, the strongest network of researchers' names can be seen on the topic of innovation and diversity in this entrepreneurship. The strongest network of researchers' names appears if the researcher's name network does not have a relationship with each other. This network is contained in the article owned (Juliana et al., 2021).

- c. Co-Occurrence



**Figure 5. Network Map For Co-Occurrence (Keywords)**

In this keyword search, there are no data retrieval restrictions. Data is taken from the title and abstract, then on VOS viewer for the same keyword with 2 conditions. From figure 3, you can see the results of a co-occurrence analysis that shows some keywords that can be used for research on the topic of innovation and creativity in entrepreneurship. The network that appears consists of several colors. In the red network, there are six keywords (study, impact, concept, creativity, entrepreneurship, and innovation), on the yellow network there are two keywords (role and effect), and on the blue network there are four keywords (relationship, relation, knowledge, and term) and finally in the green color network there are 5 keywords (organization, entrepreneurial creativity, base, and level).



**Figure 6. Network Map for Co-Occurrence Year (Year of Keywords)**

From figure 6, it can be known if the most keywords are found between 2018 and 2020, this can be seen from the color of keywords visualized on the green map network. The provision of the color of this keyword that the more dark blue keywords mean that the keyword exists in the old year, while the lighter the color of the keyword means the newer the year. From figure 4 it can also be seen



that the keywords on this research topic are developing well, every year new keywords appear related to the topic of innovation research and creativity in entrepreneurship.

**d. Quotation**

Tabel 1 Quotation

No	Cite	Researcher Name	Heading	Year	Journal	Publisher
1	127	Oguz A. Acar, Murat Tarakci, Daan van Knippenberg	Creativity and innovation under constraints: A cross-disciplinary integrative review	2019	Journal of Management	Sagepub
2	95	R Bouncken, M Ratzmann, Roman Barwinski, Sascha Kraus	Coworking spaces: Empowerment for entrepreneurship and innovation in the digital and sharing economy	2020	Journal of Business Research	Elsevier
3	49	J Piñeiro-Chousa, M <sup>Á</sup> López-Cabarcos, Juan Piñeiro-Chousa, M. Ángeles López-Cabarcos, Noelia María Romero, Castro Ada María Pérez-Pico	Innovation, entrepreneurship and knowledge in the business scientific field: Mapping the research front	2020	Journal of Business Research	Elsevier
4	44	H Sham, H Akib, AA Patonangi, Muhammad Guntur	Principal entrepreneurship competence based on creativity and innovation in the context of learning organizations in Indonesia	2018	Journal of Entrepreneurship Education	eprints.unm.ac.id
5	42	Rizwan Qaiser Danish, Javeria Asghar, Zeeshan Ahmad & Hafiz Fawad Ali	Factors affecting “entrepreneurial culture”: the mediating role	2019	Journal of Innovation and Entrepreneurship	innovation-entrepreneurship.springeropen.com

No	Cite	Researcher Name	Heading	Year	Journal	Publisher
			of creativity			
6	29	YY Chang, MH Chen	Creative entrepreneurs' creativity, opportunity recognition, and career success: Is resource availability a double-edged sword?	2020	European Management Journal	Elsevier
7	23	Temoor Anjum Muhammad Farrukh, Petra Heidler, Julián Andres Díaz Tautiva	Entrepreneurial intention: Creativity, entrepreneurship, and university support	2020	Journal of Open Innovation	mdpi.com
8	22	E Dimitriadis, T Anastasiades, D Karagiannidou, M Lagaki	Creativity and entrepreneurship: The role of gender and personality	2017	International Journal of business and economic sciences applied research	papers.ssrn.com
9	20	AND Héraud	A new approach of innovation: from the knowledge economy to the theory of creativity applied to territorial development	2021	Journal of the Knowledge Economy	Springer
10	14	JJ Ballor, VV Claar	Creativity, innovation, and the historicity of entrepreneurship	2019	Journal of Entrepreneurship and Public Policy	Emerald

From table 1 of the top 10 cited can be seen ten names of researchers who have a high interest in researching the topic of innovation and creativity in entrepreneurship along with the title of the article that has the most impact on the

development of research on the topic. Based on the results of the top 10 cited analysis obtained from PoP, the top three rankings of researchers' names were seen. The first position is occupied by (Pickle et al., 2019). His research discusses constraints and efforts in innovation and creativity that attract interest in all fields, one of which is entrepreneurship. This article received 127 citations.

In the second position, there is an article owned (Bouncken et al., 2020) with a total of 95 citations. This article discusses the contribution of old companies and co-working spaces that can affect job satisfaction as well as innovation and entrepreneurial performance. Then in the third position followed by the article owned (Piñeiro-Chousa et al., 2020) with a total of 49 citations. This article using bibliometric methods discusses entrepreneurial innovation over the past few years so that it can be a reference for future research.

In the top 10 cited also seen one article originating from Indonesia, namely research owned (Syam et al., 2018) with a total of 44 citations and occupies the fourth position of the top 10 cited. It is hoped that this can be a reference for other Researchers from Indonesia to research related topics that can make a large contribution. And it is hoped that the findings in this article can be used as a reference on the topic of innovation and creativity in entrepreneurship in the future.

## **2. Discussion of Research Results**

The research, which aims to analyze the topic of innovation and creativity in entrepreneurship widely and depth, uses a database from Google Scholar that is accessed using PoP software. This article's data was taken from 2017 to 2021 to be able to see the latest conditions on the topic of innovation and creativity in entrepreneurship. This research using bibliometric analysis uses VOSviewer in co-authorship to show the names of researchers interested in researching innovation and creativity in entrepreneurship.

From the results of the co-authorship analysis, it can be seen that each researcher has no relationship when conducting this study because the network maps on the co-authorship are not connected. Then the analysis of co-occurrence serves to provide keywords that appeared over the past five years and how the keyword developed. The result is that there appear diverse keywords and there is a significant development of keywords with related topics. It is seen that precisely in 2017 to 2018 keywords are found a little bit along with the development of the year, keywords are found more and more. It is expected that in future research more and more research on this topic by link the various findings produced on the topic of innovation and creativity in entrepreneurship so that more keywords will appear.

Furthermore, citation results are analyzed using PoP software. The results on the PoP software are then stored in excel form and fixed which articles are incomplete. The results of this analysis show ten studies with the highest number

of citations, which means that the article has a great contribution to innovation and creativity in entrepreneurship. Three studies occupy the top three positions, namely (Acar et al., 2019), (Bouncken et al., 2020) and (Piñeiro-Chousa, et al., 2020) It is hoped that the results of the study can be useful both for academics and as a reference in lecture materials. In the citation analysis, it was found that there was one article belonging to researchers from Indonesia which was in the fourth position. This means that this article from researchers in Indonesia also has a large contribution, so it is hoped that it can be a reference for researchers in Indonesia to conduct research on related topics by linking various findings on the topic.

## CONCLUSION

### Conclusion

Innovation is the process by which an individual is willing to accept change as well as contribute to the creation of ideas, objects, or practices that allow people to accept change enthusiastically, creating creativity serves as a tool for generating new ideas and revealing ways previously seen in business analysis and decision making. Innovation and creativity are two things that are important for an entrepreneur to have to be successful.

The research, which aims to analyze the topic of innovation and creativity in entrepreneurship widely and depth, uses a database from Google Scholar that is accessed using PoP software. This article's data was taken from 2017 to 2021 to be able to see the latest conditions on the topic of innovation and creativity in entrepreneurship.

The findings in this study in co-authorship are that each researcher has no relationship in his research while the results of the co-occurrence analysis showed there were significant developments related to keywords. The keywords that appear in this analysis are also very diverse. In addition, the citation analysis shows ten studies that have the highest number of citations, which means that the article has a large contribution to the topic of innovation and creativity in entrepreneurship. It is hoped that the results of the research can be useful both for academics and as a reference in lecture materials.

### Suggestion

The limitation of this study is that it only takes data on Google Scholar so it cannot display the co-authorship of organizations or countries, then there are no restrictions whatsoever other than years, and must be English-language articles so that it is expected that future research can use other databases and there are appropriate restrictions on related topics.

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