

ENTREPRENEURSHIP EDUCATION IN TIMES OF CRISIS: A BIBLIOMETRIC ANALYSIS AND LITERATURE REVIEW

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Abstract

The aim of this study focuses on the analysis of entrepreneurship education in crisis situations from a bibliometric perspective. The findings reveal the distribution of frequently occurring keywords and their co-occurrence, highlighting terms such as "entrepreneurial intentions", "innovation", "education" and "impact of Covid-19." The analysis also identifies keywords like "higher education", "economic crisis", "sustainable development" and "self-efficacy" which are connected to entrepreneurship and crisis education. Furthermore, the study recognizes key authors contributing significantly to entrepreneurship education research and identifies five important countries in the field. The research suggests that entrepreneurship in crisis situations faces challenges related to students' perceptions and expectations. The COVID-19 pandemic has significantly impacted businesses and universities, leading to innovative ideas in the education sector to mitigate the pandemic's effects on students and their studies.

Keywords

bibliometric analysis, entrepreneurship education, crisis situations, VOS viewer

JEL Classification

A2, I21, I25

Introduction

Entrepreneurship is an important research topic given its significant role in triggering economic growth, reducing poverty, and increasing incomes by creating new employment opportunities (Castellanza et al., 2022; Lin et al., 2021). In some cases, entrepreneurship has promoted economic welfare and social change through innovative products and services (Castellanza et al., 2022; Wardana et al., 2021). Therefore, students' interest in entrepreneurship will substantially increase their intention to become entrepreneurs, which will increase the number of entrepreneurs among young people (Wardana et al., 2021).

The entrepreneurial idea is the starting point of all entrepreneurial intentions and activities. A previous study noted that there is a link between entrepreneurial learning and entrepreneurial ideation (Kier, 2018). Creative and innovative learning

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implemented during the teaching and learning process can promote the expansion of ideas among young people. The development of entrepreneurial idea can promote the initiation of a business and is an essential factor in making business happen. An entrepreneurial idea is applicable when the idea is sustainable as a basis for the business context and activity. In general, the process of entrepreneurship creation refers to how individuals get entrepreneurial ideas, create established businesses and seek initial investments aimed at realising business ideas. The presence of the entrepreneurial idea will promote entrepreneurial intention. Some recent work has noted that entrepreneurial ideas are created by an individual, while an opportunity is created by the environment, and entrepreneurial ideas will have benefits for increasing business opportunities (Kier, 2018; Kier, 2020). The vision of the entrepreneurial idea is to present and explain the entrepreneurial process from the moment the idea is formed until the business is brought to market. The objective of a business idea is to establish a new business opportunity, a potential market and a feasible concept, which in turn can promote the creation of a new business. A well formulated business idea will be essential to support the sustainability of a newly established business in the future. Some researchers have reported that entrepreneurial ideation can be promoted through entrepreneurship learning and teaching in schools or universities (Mahfud et al., 2020; Zhao et al., 2020). The role of education is essential in the early phase of stimulating innovative processes, in particular, new ideas are derived from problem-solving identifications and project-based learning activities (Hahn et al., 2021; Suratno et al., 2021). In addition, one study noted that entrepreneurial ideation is associated with creativity and covers three main domains: knowledge, creativity and motivation (Kier, 2018; Secundo et al., 2016). Entrepreneurial education enhances entrepreneurial intention of university students and is positively related to it (Mahfud et al., 2020; Zhao et al., 2020). By academically engaging both educators and learners with business representatives and government officials, entrepreneurship education can shape and enhance young people's entrepreneurial intentions, i.e. actions, in starting a business. Specific means of intervention span the broad spectrum of entrepreneurship education, covering innovative teaching techniques, training, simulations, skills development and curriculum development. Numerous studies have shown that entrepreneurship education could stimulate students to be proactive, take risks, support the decision-making process to start a new business, and therefore lead to students' entrepreneurial intention (Dehghanpour, 2013; Wu & Wu, 2008; Zhang et al., 2014). Wu & Wu (2008) suggested that the diversity of students' educational backgrounds can induce differences in entrepreneurial intentions and that higher education institutions need to design flexible approaches to entrepreneurship education for different groups of young people, tailored to their educational backgrounds, that meet their needs.

The focus of this study is on the analysis of entrepreneurship and crisis education from a bibliometric perspective. Bibliometric analysis provides researchers with the opportunity to assess and understand the evolution and impact of scientific research in a particular field or discipline. By assessing how scientific papers are cited and used, popular research trends and topics can be identified, facilitating the anticipation of future research directions. This also reveals patterns of collaboration between researchers, institutions and countries, facilitating the identification of potential research

collaborations and partnerships. For academic institutions and researchers, it can serve as a tool for assessing performance and impact in their research area and is useful in the processes of evaluating research employment, promotion and funding.

The article is structured in four parts: After the introduction, there is a review of the most relevant scientific literature on the topic of entrepreneurship education and crisis situations. The second section of this article is dedicated to the research methodology that was used to collect and analyze the data in order to achieve the purpose and objective of the research. The third part of the article discusses the results of the research. The article ends with the main conclusions, limitations and future research directions.

1. Review of the scientific literature

Entrepreneurship education is defined as "any pedagogical programme or process of educating entrepreneurial attitudes and competences" (Ratten & Jones, 2020). This definition reflects the idea that the field of entrepreneurship education involves the application, design and implementation of innovative and proactive strategies in an educational environment, the analysis of new market opportunities and technological solutions. Part of entrepreneurship education involves adopting an interdisciplinary perspective that incorporates different fields of study for a practical solution.

In the past, entrepreneurship education research has focused on how to overcome the myth that entrepreneurs are born, not made (Houston et al., 2020). This debate has focused on a trait-based versus a competency-based approach. The trait-based approach argues that entrepreneurs are born with unique, innate traits that cannot be learned (Farhangmehr et al., 2016). However, the competency-based approach argues that with the help of experience and training, entrepreneurship can be developed and learned (Kyndt & Baert, 2015). In support of the trait-based approach, some research has found differences in the personality traits of entrepreneurs compared to managers. These researches suggest that there may be some innate qualities that entrepreneurs possess, however, personality traits do not fully explain entrepreneurial activity and success. As such, factors other than personality may contribute to entrepreneurial activity and enhance entrepreneurial success. These skills can be taught and improved through education (Kyndt & Baert, 2015).

Crises are "extreme, unexpected and unpredictable events or more mundane, sudden or gradual everyday disruptions, classified as 'major' or 'minor', 'internal' or 'external' (Doern et al. 2019, p. 401) . While the nature of a crisis can be classified on a scale from severe to inconsequential, all crises influence human life (Eggers, 2020). This results in some firms performing better than others due to their level of resilience, meaning that they can cope with challenges due to creating solutions based on available resources (Ratten & Jones, 2020).

Linnenluecke (2017) suggests three main ways to build resilience: developing adaptive business models, changing global supply chains, and strengthening employees. By adapting business models, organisations can shift their production facilities to focus on relevant market needs. This enables rapid innovation by shifting the focus from the market to new business practices. In the context of the COVID-19 pandemic crisis, which is global compared to previous pandemics that were largely focused on specific

areas (He & Harris, 2020), a unique opportunity arises for entrepreneurs to transform existing practices (Kirk & Rifkin, 2020). In the context of the COVID-19 crisis, there has been a focus on contactless and online services, so organisations had to change their business models to reflect this (Kirk & Rifkin, 2020). As supply chains have become more global, it is useful to have alternative countries for sourcing. This helps to reduce reliance on a single country and means that in times of crisis there are more sources of supply.

This means that in times of crisis, a degree of improvisation and educational methods that incorporate entrepreneurial thinking are necessary (Krishnamurthy, 2020). As a consequence, employees in the education sector need to have autonomy and independence in decision-making (Hahn et al., 2020). As a result, the crisis has raised new questions about the role of education in society and how the education sector can respond to the crisis. Crises are nothing new in the education sector, but the COVID-19 pandemic has had the greatest impact on educational practices compared to other crises. Technology plays a key role in this times of crisis because of the need to create digital learning environments. Since the introduction of the internet and online forums for education, information technology has been an important facilitator and disruptor for management education. This is especially true in today's educational environment, where most aspects of teaching have a technological component. Technology is now interwoven into education, becoming more important during the Covid-19 crisis. Technology has been adapted and developed to solve some of the problems faced by changing environmental conditions. To build resilience in education, technology is used as an effective way to manage change (Liu et al., 2017).

2. Research methodology

This study aims to examine the field of entrepreneurship education. This research benefits from data collected from the Web of Science Core Collection database, the most powerful source of interconnected research information in the world. WoS is one of the most significant and popular sources of scientific documentation worldwide. This database was selected because it includes high-quality academic journals. 216 scientific articles published from 2003 to 2023 are examined in this analysis. VOS viewer software was used to perform analysis and various scientific mapping visualizations. VOS viewer is a software tool for building and visualizing bibliometric networks. The software uses bibliometric maps to display the structure and networks of authors, journals, universities or countries.

Considering the two main research concepts, I chose to search for articles on the topics of "entrepreneurship education" and "crisis". The Web of Science database returned 216 academic papers on these topics. The details (records and references) were collected via a .txt file which was uploaded into the VOS viewer software to perform the analysis.

The first step in the research was to conduct a keyword analysis. The characteristics of the keyword network in VOS viewer are as follows:

- Dot and font size: The size of the dots representing the keywords and the font size of the associated concepts indicate the frequency of mention of each keyword. Larger dots and fonts indicate that keywords were mentioned more frequently in the papers reviewed.

- Thickness of lines: The thickness of the lines linking keywords represents the frequency with which these keywords appeared together in the same paper. Thicker lines indicate a higher co-occurrence of keywords within papers.
- Distance between dots: The proximity or distance between the dots representing the keywords reflects the strength of the relationship between the concepts. A smaller distance between dots suggests a stronger relationship between related keywords.
- Colors: The different colors used in the visualization are assigned by the VOS viewer software to indicate clusters or groups of associated keywords. Keywords that have similar relationships or co-occurrence patterns are grouped together and assigned the same color.

By considering these characteristics, researchers can gain insight into the important concepts discussed in the documents, their frequency of mention, patterns of simultaneous occurrence, and the strength of relationships between different keywords. This analysis can help identify key themes and topics in the field of entrepreneurship and crisis education.

3. Results and discussions

3.1. Keyword analysis

Keyword analysis of 216 papers related to entrepreneurship and crisis education led to the identification of 1010 keywords. The relationships between these keywords were visualized using VOS viewer software and the results are shown in Figure 1.

In my case, keyword analysis using VOS viewer identified four large clusters within the 53 selected keywords with a minimum of 5 occurrences out of the total 1010 keywords initially identified. The software grouped keywords that have similar relationships or patterns of simultaneous occurrences and assigned them different colors to represent the groups. The first cluster (red), led by the word “entrepreneurial intention”, contains 16 items, including “economic crisis”, “entrepreneurial education”, “self-efficacy”, “impact” and “perception”. Cluster 1 also contains the highest number of words. The second cluster (green), led by the word “innovation”, this time with 14 items; it also contains “covid-19 pandemic”, “crisis”, “higher education” and “sustainable development”. Cluster 3 and cluster 4 both include 12 and 11 items respectively, such as “education”, “entrepreneurship education”, “students” and “effectiveness”. From the list of articles considered, the top keywords are "education" (with 49 appearances), "entrepreneurship" (also with 49 appearances), "innovation" (28 appearances), "crisis" (24 appearances), "covid-19" (23 appearances) and "impact" (22 appearances).

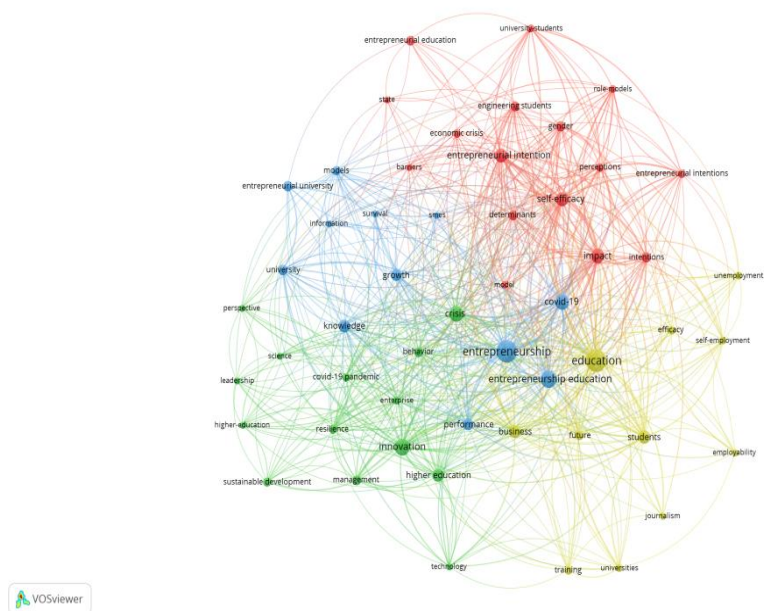


Figure 1: Keyword network visualization

Source: Own data processing from WoS

3.2. Analysis of co-citations by country

Next the countries of origin of the authors who wrote the selected and co-cited articles were analyzed. From the analysis researchers from Romania wrote the most articles on the topic "Entrepreneurial Education" between 2003 and 2023, i.e. 27 articles, followed by researchers from the United States of America with 23 of the articles analyzed.

As we can see, figure 2 contains 7 clusters. The most important clusters are the first 5. They are represented by different colors such as red, green, blue, yellow and purple. Cluster one (red) contains countries such as Australia, Brazil, Portugal, People's Republic of China. Cluster two (green) contains countries such as Egypt and India. Cluster three (blue) contains countries such as Romania, Austria, Germany, Czech Republic. Cluster four (yellow) contains countries such as Spain and the Netherlands. The last one (purple) contains countries like England, Italy and Russia.

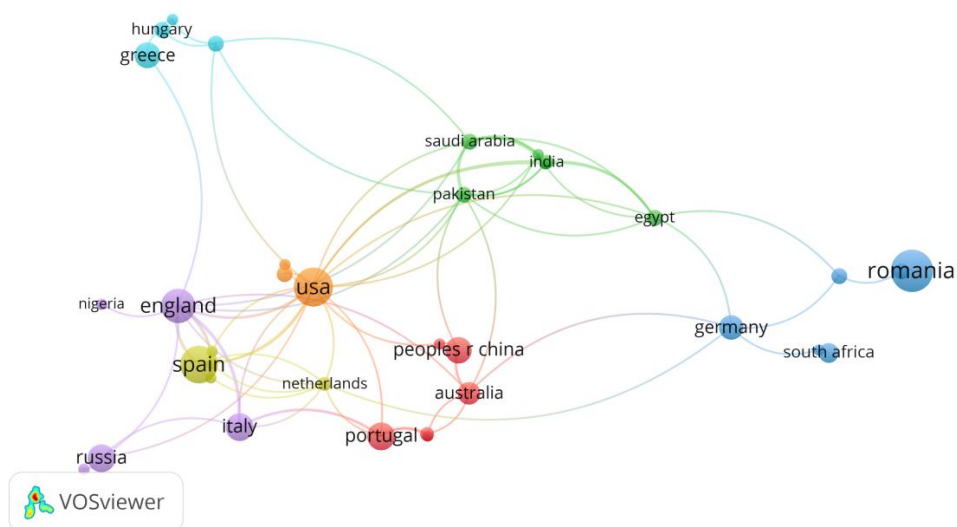


Figure 2: Co-citation by country
Source: Own data processing from WoS

3.3. The authors' co-citation network

In this section, the analysis focuses on the network of main authors in a research area. Figure 3 illustrates five clusters out of a total of 7531 authors, with a threshold of 10 citations. These authors are grouped into five clusters: cluster one (red), cluster two (green), cluster three (blue), cluster four (yellow) and cluster five (purple).

The first cluster (red) is considered the main cluster in terms of citations. It consists of 19 authors, led by the European Commission, which has the highest number of citations (48) and a total link strength of 296. The OECD follows the European Commission with 44 citations and a total link strength of 202. Two other authors in this group with a significant total link strength are Ratten (322) with 26 citations and Etzkowitz (115) with 34 citations.

The green cluster is another important cluster based on citation criteria. It includes Fayolle with 29 citations and 425 total links. Two other top authors, Zahra (13 citations; 95 total links) and Wilson (13 citations; 181 total links), are also part of this cluster.

The third cluster (blue) is led by Linan, who is among the top authors with 53 citations and 831 total link strength. Other authors in this cluster with a significant number of citations are Krueger (50 citations; 803 total links), Ajzen (48 citations; 730 total links) and Shapero (17 citations; 253 total links).

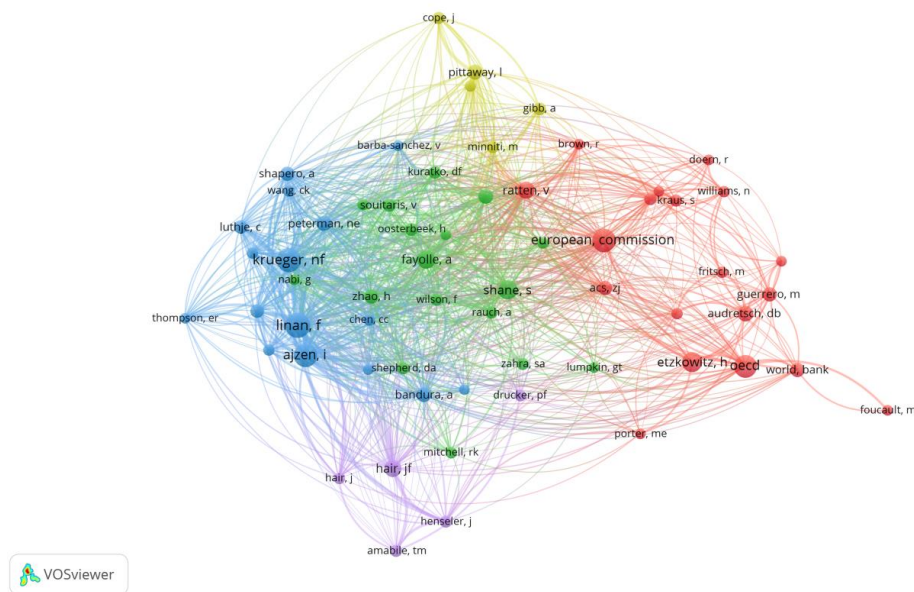


Figure 3: The authors' co-citation network

Source: Own data processing from WoS

Similar to the research led by Tiberius & Weyland (2023) we can see that Fayolle A. and Ratten V. are two main authors that have a big impact on the literature written regarding entrepreneurship education and crisis situations. Dissanayake et al. (2022) also concluded that China, the USA, the UK, Italy, and Spain are the top five most cited countries in this research topic.

The COVID-19 crisis has had a significant impact on businesses and changed the paradigm in which they operate. Firms have had to adapt quickly to new conditions and reassess their business models to cope with uncertainty and volatility in the market. In this context, entrepreneurship education plays a crucial role in preparing students to face challenges and identify new business opportunities. To face new trends and challenges, businesses need to be more agile, flexible and find innovative solutions. Therefore, entrepreneurship education must promote skills and competences that help students adapt to rapid change, identify emerging opportunities and find creative solutions to business problems. It is important to provide students with the tools and knowledge to develop entrepreneurial thinking and business skills, regardless of the economic or social context. Encouraging entrepreneurship education can help stimulate innovation and create an environment conducive to the development and success of entrepreneurs in the face of current and future challenges.

Conclusions

This research employs a bibliometric perspective to analyze entrepreneurship education in crisis situations, examining its significance for researchers. The analysis has several conclusions. First, a keyword analysis reveals the distribution of the most frequently occurring keywords and their co-occurrence. The tool also identifies numerous keywords relevant to our research, allowing the visualization of the most significant ones. Noteworthy terms include "entrepreneurial intentions", "innovation", "education" and "impact of Covid-19." Additionally, words like "higher education", "economic crisis", "sustainable development" and "self-efficacy" are connected to "entrepreneurship" and "crisis education" Furthermore, co-citation analysis identifies key authors contributing significantly to the entrepreneurship education research area. The research also uncovers five important nodes of countries (led by Roumania, the USA, Spain, England and China) through co-authorship analysis of entrepreneurship documents.

The analysis indicates that entrepreneurship in crisis situations faces challenges related to students perceptions and expectations. The COVID-19 crisis has had a significant impact on businesses and changed the paradigm in which they operate, but not only businesses have been affected, but also universities. COVID-19 not only disrupted education services globally, but also raised an important issue for educators: ensuring the operational continuity, development and progress of the sector. This has led to a number of innovative ideas, particularly in the education sector, to neutralise or reduce the impact of this pandemic on students and their studies.

The primary limitation of the paper lies in the reliance on a singular database. Future research approaches could be further delineated by constructing an econometric model with the dependent variable being "entrepreneurship education under crisis conditions" and the independent variables being the key keywords identified through the bibliometric study undertaken in this research.

In conclusion, the study emphasizes the importance to provide students with the tools and knowledge to develop entrepreneurial thinking and business skills, regardless of the economic or social context. Encouraging entrepreneurship education can help stimulate innovation and create an environment conducive to the development and success of entrepreneurs in the face of current and future challenges.

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