

Entrepreneurial skills in education: a bibliometric analysis of Brazilian production

The expansion of connectivity is reshaping people's interactions with the world, influencing consumption patterns and behaviors. In this context, consumers are not only seeking competitive prices but also quality and convenience, thereby presenting challenges to companies. Against this backdrop, Higher Education Institutions play a crucial role in training professionals capable of adapting to market demands and fostering the development of entrepreneurial competencies. This study aimed to investigate how entrepreneurial competencies have been addressed in Brazilian academic literature from 2002 to 2023 and their correlation with education, with a focus on understanding their evolution amid digital transformation. The methodology employed the SciELO, Scopus, and SPELL databases to examine entrepreneurial competencies in the educational context through a bibliometric approach, facilitating the systematic analysis of 49 selected works. These works were processed using Microsoft Excel to ensure data consistency. The analysis revealed that the main journals for publishing on entrepreneurial competencies are the Journal of Entrepreneurship and Small Business (REGPE) and the Revista Pensamento Contemporâneo em Administração (PCA). Mapping key researchers highlighted significant contributions from authors such as Lizote, Lenzi, and Zampier to the field. Regional analysis demonstrated a concentration of research in the Southern region of Brazil, particularly in Santa Catarina and Paraná, indicating strong support from local institutions and researchers' interest in promoting entrepreneurship in the region. These findings underscore the crucial role of educational institutions and journals in disseminating knowledge about entrepreneurial competencies, while also indicating opportunities for growth and improvement. Future research should expand its geographical scope within Brazil, especially in the North and Northeast regions, to enhance understanding and develop tailored educational interventions for entrepreneurial skills.

Keywords: Entrepreneurial Skills; Teaching; Research; Higher Education Institutions; Entrepreneurship.

Competências empreendedoras no ensino: uma análise bibliométrica da produção brasileira

O avanço da conectividade está transformando a interação das pessoas com o mundo, influenciando os padrões de consumo e comportamento. Nesse cenário, os consumidores buscam não apenas preços competitivos, mas também qualidade e conveniência, o que representa desafios para as empresas. Nesse contexto, as Instituições de Ensino Superior desempenham um papel fundamental na formação de profissionais capazes de se adaptar às demandas do mercado, incentivando o desenvolvimento de competências empreendedoras. Este estudo teve como objetivo investigar como as competências empreendedoras foram abordadas na literatura acadêmica brasileira de 2002 a 2023 e sua relação com a educação, buscando compreender sua evolução em meio à transformação digital. A metodologia utilizou as bases de dados SciELO, Scopus e SPELL para investigar as competências empreendedoras no contexto educacional por meio de uma abordagem bibliométrica, permitindo a análise sistemática dos 49 trabalhos selecionados. Esses trabalhos foram processados no Microsoft Excel para garantir a consistência dos dados. A análise indicou que as principais revistas para publicação sobre competências empreendedoras são a Revista de Empreendedorismo e Pequenas Empresas (REGPE) e a Revista Pensamento Contemporâneo em Administração (PCA). O mapeamento de pesquisadores-chave destacou contribuições significativas de autores como Lizote, Lenzi e Zampier para o campo. A análise regional mostrou uma concentração de pesquisas na região Sul do Brasil, especialmente em Santa Catarina e Paraná, demonstrando um forte apoio de instituições locais e o interesse dos pesquisadores em compreender e promover o empreendedorismo na região. Esses resultados destacam o papel essencial das instituições de ensino e revistas na disseminação do conhecimento sobre competências empreendedoras, destacando a diversidade de estudos, mas indicando espaço para crescimento e melhoria. Pesquisas futuras devem expandir seu escopo geográfico dentro do Brasil, especialmente nas regiões Norte e Nordeste, para aprimorar a compreensão e desenvolver intervenções educacionais sob medida para competências empreendedoras.


Palavras-chave: Competências Empreendedoras; Ensino; Pesquisa; Instituições de Ensino Superior; Empreendedorismo.

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INTRODUCTION

The expansion of connectivity has profoundly reshaped the way people interact with the world around them. This hyperconnected scenario is not only redefining consumption patterns but also consumer behaviors themselves (SWAMINATHAN et al., 2020). With easy access to the internet, individuals find themselves immersed in a vast virtual universe where they can search for and compare a wide range of products and services in a matter of seconds.

When choosing to make purchases and hire services online, people are not only seeking competitive prices but also quality and convenience. As highlighted by Kotler et al. (2021), the quest for quality becomes an increasingly evident priority in a digitally saturated market full of options. Consumers are more demanding than ever, seeking not only products or services that meet their basic needs but also experiences that surpass their expectations and add value to their lives (MIN et al., 2019).

In this sense, the dynamics of online consumption not only influence consumer decisions but also impose additional demands on companies. Simultaneously, companies are seeking professionals who not only possess technical qualifications but also demonstrate skills and competencies to adapt to the constantly changing market demands (DIAS et al., 2016; DRUMOND et al., 2023; MACHADO et al., 2017; RIBEIRO et al., 2023; STEFANICZEN et al., 2017). This demand goes beyond merely obtaining degrees; it requires the ability to mobilize knowledge, skill, attitude, and experience, exceeding customer expectations (DORNELAS, 2021; FLEURY et al., 2001; MADALENA et al., 2019; RUAS, 2005). Thus, companies recognize the importance of developing entrepreneurial competencies to remain competitive (AVELAR et al., 2022; WERLANG et al., 2016; ZONATTO et al., 2017).

The competencies needed for success in the job market are not exclusively acquired in the corporate environment; they must also be developed throughout academic life, in Higher Education Institutions (HEIs). HEIs play a fundamental role in shaping students capable of facing the challenges of the job market, providing a conducive environment for the development of these skills (GOULART et al., 2022). With qualified faculty and well-structured educational programs (OLIVEIRA et al., 2022), HEIs encourage student participation in practical, research, and extension activities, which are essential for enhancing the competencies necessary for professional success (SOUZA et al., 2024).

In this sense, the disciplines offered by HEIs should stimulate the development of entrepreneurial competencies (CUALHETA et al., 2020), preparing students not only for the technical demands of the market but also for understanding the context in which they are inserted and finding creative solutions to everyday challenges (SOUZA et al., 2014; MENEGHATTI et al., 2020; MENEZES et al., 2016; RUAS et al., 2005; SOLIANI et al., 2024).

Authors such as Cualheta et al. (2020), Silva et al. (2016), Meneghatti et al. (2021), Souza et al. (2013), Souza et al. (2015), and Zampier et al. (2014) have significantly contributed to understanding entrepreneurial competencies in the university context. It is essential for higher education institutions to incorporate entrepreneurship education as an essential part of their educational strategy, aiming to ensure the

continuous employability of students (FONTENELE et al., 2015; LAMAS et al., 2022; MACHADO et al., 2018).

Considering this constantly evolving scenario, the research question arises: How have entrepreneurial competencies been addressed in the Brazilian academic literature from 2002 to 2022, and how do they relate to education? This inquiry aims to understand how the Brazilian academia has addressed entrepreneurial competencies in a period marked by digital transformation, aiming to analyze the evolution of these discussions and their connection with education.

Therefore, this study aims to contribute to a deeper understanding of the evolution of entrepreneurial competencies in the national educational context. Amidst transformations in consumer behavior driven by connectivity, it becomes indispensable for professionals to acquire skills that transcend mere technical qualification.

The structure of this article comprises an introduction contextualizing the research, detailing the problem, objective, and justification, as well as the concept of entrepreneurial competencies. Next, the methods used will be presented, followed by the analysis and discussion of the results. Finally, the conclusions will be discussed, and the bibliographic references will be presented to support the content presented. This structure aims to provide an organized and coherent understanding of the study conducted.

METHODOLOGY

Exploring entrepreneurial competencies in the context of education required a robust and thorough methodology to ensure a detailed and comprehensive analysis of discussions and practices related to this theme. Considering the complexity and multifaceted nature of entrepreneurial competencies and their integration into the educational environment, a mixed research approach combining quantitative and qualitative methods was chosen. This methodological choice allowed for a more comprehensive and holistic analysis of entrepreneurial competencies, enabling not only the quantification of their frequency and scope but also the understanding of their nuances and implications in the educational context.

Bibliometric analysis, integrated into the mixed approach adopted in this study, played a significant role in mapping the historical development of discussions on entrepreneurial competencies in Brazilian education. It offers a panoramic view of trends and patterns over time (FORLIANO et al., 2021), allowing for a deeper understanding of the evolution of these competencies in the educational context. This choice was supported by its ability to provide a comprehensive view, combining quantitative and qualitative elements (ELLEGAARD et al., 2015). Quantitative methods allowed for measuring the extent and frequency of discussions, while qualitative methods explored the depth and nuances of educational practices, providing more detailed and contextualized insights.

The selection of the SciELO, Scopus, and SPELL databases was based on their extensive coverage across various domains, including Administration, Accounting, Economics, Engineering, Technology, and Tourism. These databases provide free access to scientific publications from leading national journals across all fields. According to Almeida et al. (2019), SciELO holds particular relevance as a national and regional database, crucial for understanding the actual state of scientific production in emerging countries like Brazil.

Conversely, Scopus is an international multidisciplinary database that indexes a significant number of Brazilian journals. The strategic choice of the SPELL database was informed by its affiliation with ANPAD, the Brazilian Association of Graduate Programs in Administration, which represents the knowledge domain currently housing the highest volume of research on the specified theme (FAGUNDES et al., 2020). These meticulous selections ensured a comprehensive and robust approach to analyzing the scientific data relevant to the study at hand.

To ensure a comprehensive and precise search, boolean operators "AND" and "OR" were used to combine the following keywords: ("Entrepreneurial Competencies" OR "Entrepreneurial Skills" OR "Business Competencies" OR "Business Skills") AND ("Teaching" OR "Education" OR "Training" OR "Higher Education") AND ("Research" OR "Study" OR "Investigation") AND ("Higher Education Institutions" OR "Higher Education" OR "Universities" OR "Colleges" OR "Federal Institutes") AND ("Entrepreneurship" OR "Entrepreneur" OR "Entrepreneurs" OR "Businessmen" OR "Entrepreneurial Management" OR "Entrepreneurial Innovation"). This approach ensured breadth and accuracy in selecting works.

The inclusion criteria considered articles published between 2002 and 2023, reflecting a significant period for analyzing the evolution of entrepreneurial competencies in education. Studies directly addressing the theme of entrepreneurial competencies in the educational context and fully available in the databases were included. These studies were selected from peer-reviewed journals. On the other hand, exclusion criteria eliminated duplicate works, articles outside the established period, and studies that did not present direct relevance to the central theme of the study.

The article screening process was conducted by two reviewers, who assessed titles and abstracts to determine the relevance of the works according to the established inclusion and exclusion criteria. In case of disagreement, a third reviewer was consulted to reach a consensus. Following Castleberry et al. (2018) guidelines, all articles identified in the collection phase were considered, but only those that provided substantial insights and relevant data were included in the final analysis. During the article writing, the selection followed additional criteria of relevance and contribution to the study's objectives. The chosen articles were downloaded in different formats and organized in a dedicated folder for analysis.

The raw data were processed in Microsoft Excel 2019, initially undergoing a cleaning step to remove irrelevant or duplicate information. Then, the data were organized according to pertinent variables such as citations, downloads, accesses, title, authorship, source, year, and keywords, as guided by Ahmi (2022), ensuring quality and consistency for subsequent analyses. The detailed steps of this methodology will be illustrated in Figure 1.

This method provided a systematic and structured approach to explore the three databases, allowing for a detailed analysis of the intersections between entrepreneurial competencies and education over the study period. The insights obtained are highly relevant for understanding how these two fields relate and evolve over time. Next, the achieved results are presented, along with an analysis of the 49 papers selected through this method, providing a comprehensive and in-depth view of the discussions on entrepreneurial competencies in the context of education.

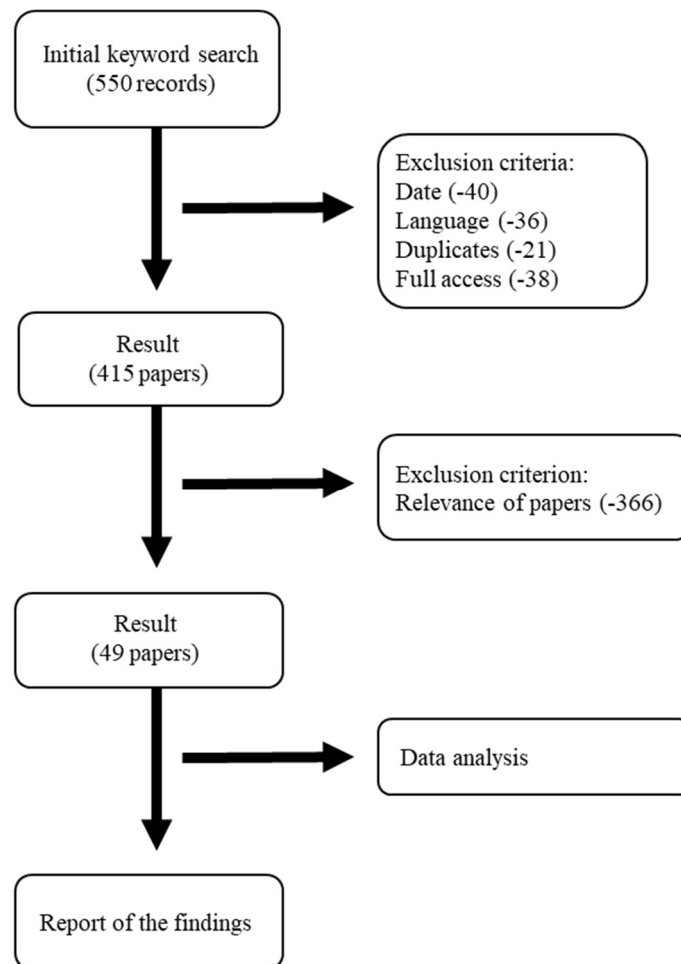


Figure 1: Diagram of bibliographic analysis and data extraction.

RESULTS AND DISCUSSION

In this section, the data collected from the SciELO, Scopus, and SPELL databases will be presented. The information has been organized into figures to facilitate understanding and analysis of the topics covered. Each figure addresses a distinct topic, enabling a detailed analysis of the collected material.

Next, six figures (Figures 2 to 7) will be presented, each addressing a relevant topic for data analysis. Additionally, Table 1 will provide an overview of the information necessary for interpreting the figures. Following this, Figure 2 will present the main topics identified in the conducted analysis.

In Figure 2, as expected, the most frequent term in the abstracts is "Entrepreneurial Competencies", indicating that this is the most explored theme by researchers. Another commonly found expression in the abstracts is "Entrepreneurial Learning," which is closely related to entrepreneurial competencies and often addressed in a complementary manner. Additionally, the term "Entrepreneurship" appears frequently, highlighting its significant role in the research landscape. These connections form an interesting junction of concepts that provide a comprehensive understanding of the field. The analysis of these connections, including their relevance and impact, will be explored in more detail in Figure 3, which presents the main journals for publication on entrepreneurial competencies.

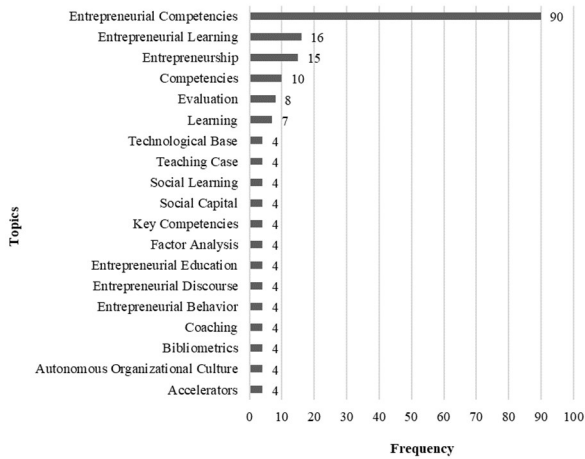


Figure 2: Main research topics explored.

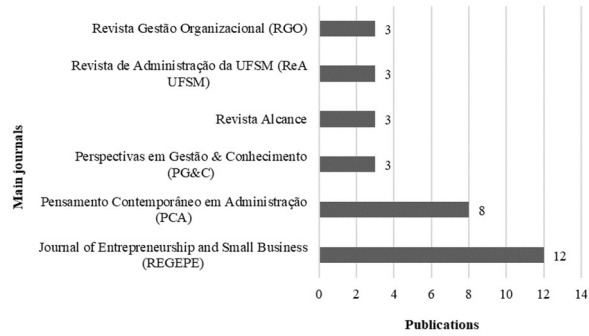


Figure 3: Main journals for publication on entrepreneurial competencies.

In Figure 3, a disparity between two journals is observed. The Journal of Entrepreneurship and Small Business (REGPE), stands out with 12 publications. This journal is recognized as one of the main scientific outlets of today and aims to promote debate on relevant topics in the field of Entrepreneurship. It is natural for it to have a larger number of publications on the topic, given that its target audience includes researchers, professors, and undergraduate and graduate students interested in this specific area.

Another relevant journal is the Revista Pensamento Contemporâneo em Administração (PCA), with 8 publications. Its target audience is similar to that of the previous journal, but with an emphasis on other areas of expertise, such as marketing and business strategies. The other journals maintain a similar average of publications and were also considered in this analysis.

Based on the data from Figure 3, it is evident that the two journals that publish the most on Entrepreneurial Competencies are the ones that contribute the most to education in this area. Each journal complements the other, as they address similar subjects but with their own particularities. Thus, REGPE focuses on Entrepreneurial Competencies, while the PCA emphasizes the advancement of business administration theory. This encourages studies and theoretical and empirical formulations in the areas of entrepreneurship and small business management, contributing to the development of knowledge, especially on the entrepreneurial process and the importance of teaching this discipline in the school environment (LIZONETE et al., 2020; MACHADO et al., 2018).

After the analysis of the main journals, Figure 4 will present the main authors and their scientific production on the topic.

In Figure 4, it is observed that the author Lizote stands out with 8 publications, significantly contributing to the theme of "Entrepreneurial Competencies" with various focuses in her studies, encompassing public managers, students, organizations, and education. According to Lizote et al. (2015), it is crucial to recognize "entrepreneurial competencies" as there is a significant number of people seeking to start their own businesses without possessing the appropriate competencies, highlighting the importance of identifying these competencies to succeed in competitive strategy.

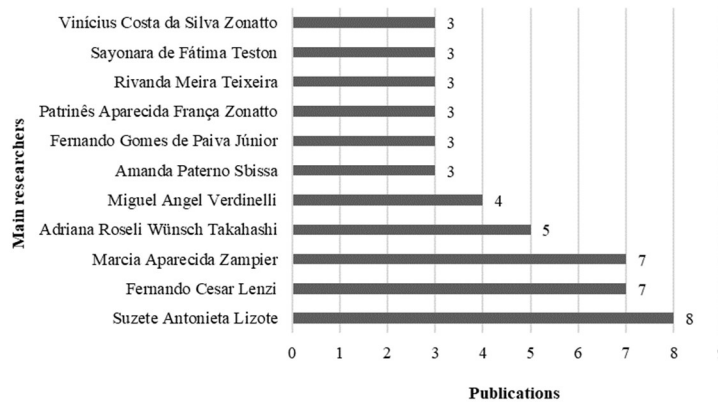


Figure 4: Mapping of the main researchers and their scientific production.

Two researchers, Lenzi and Zampier, also stand out, each with 7 publications related to entrepreneurial competencies. Both address the integration of entrepreneurial competencies with the corporate environment in the context of education, as well as focusing on micro and small businesses. According to Machado et al. (2018), higher education plays a fundamental role in the development of entrepreneurial practices. For Zampier et al. (2011), understanding the entrepreneurial learning process is essential, considering that there is sufficient evidence of this interrelation in the academic community.

Additionally, other researchers collaborated with Zampier in his research, such as Takahashi, and contributed with a varying number of publications. All these researchers were considered in this analysis. Figure 5, which addresses the researchers and the number of citations on the topic, will be presented next.

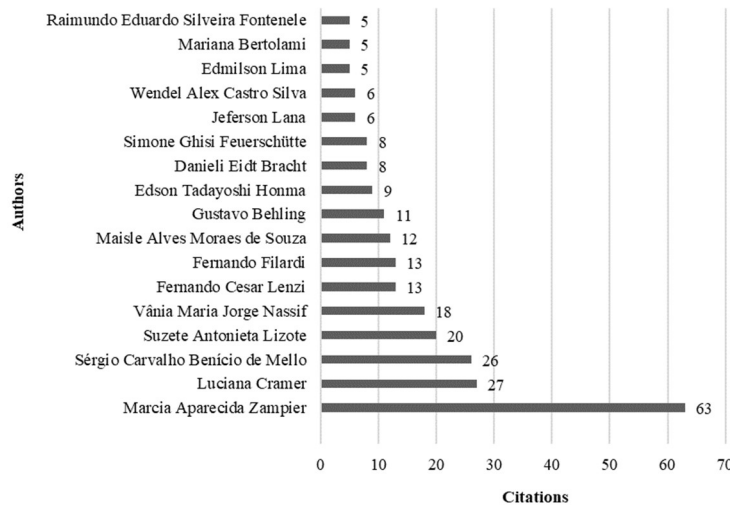


Figure 5: Main authors and their citations in research on entrepreneurial competencies.

In Figure 5, it can be observed the number of citations of the researchers, with author Zampier standing out with the most significant number of 63 citations. One of her research papers, titled "Entrepreneurial Competencies and Entrepreneurial Learning Processes: Conceptual Research Model" (ZAMPIER et al., 2011), contributes significantly to the field.

However, author Lizote, who presented one of the highest numbers of publications on the topic of "Entrepreneurial Competencies" in "Education", as evidenced in Figure 4, also deserves attention. Comparing Zampier's citations with other authors, it can be seen that her studies on entrepreneurial competencies in

various areas were widely recognized.

Authors such as Cramer and Mello, with 27 and 26 citations, respectively, have studies that address different aspects of entrepreneurship, from female representations of entrepreneurial action (CRAMER, 2012) to the entrepreneurial competencies of managers of medium and large companies (MELLO et al., 2006).

Lizote, the researcher with the most publications in the analyzed period from 2002 to 2023, is also listed, with 20 citations. She is one of the most relevant researchers regarding Entrepreneurial Competencies related to Education. However, it is worth noting that she also conducts studies in other areas, such as accounting (LIZOTE et al., 2014). All the verified articles are related to "entrepreneurial competencies" (LIZOTE et al., 2014; LIZOTE et al., 2015; LIZONETE et al., 2018; LIZONETE et al., 2020; LIZONETE et al., 2021; LIZONETE et al., 2022), consolidating her as a reference on the subject.

Author Nassif, with 18 citations, also contributes to the topic of 'Entrepreneurial Competencies.' One of her research papers examines: 'Entrepreneurial Competencies: Are There Differences between Entrepreneurs and Intrapreneurs?' (NASSIF et al., 2011). In this study, the research investigates the topic and seeks answers about these differences and their similarities.

Additionally, both Lenzi and Filardi have 13 citations each. Filardi conducts a study on the evolution of entrepreneurial characteristics over time (FILARDI et al., 2014), while Lenzi, one of the authors with the most publications on "Entrepreneurial Competencies", is also among the most cited in the previous figure. His contributions are directly related to the theme of "Education", which is of interest in this study.

Another equally important analysis is the research by Souza, which consists of a study conducted in the Northeast Region, with characteristics specific to this locality. This study is related to entrepreneurial competencies, addressing them in a multi-case study (SOUZA et al., 2013), and received 12 citations.

Author Behling, with 11 citations, focuses on two studies: "Entrepreneurial Competencies" and "Strategic Behavior". The latter is conducted in partnership with Lenzi, entitled "Entrepreneurial Competencies and Strategic Behavior: A Study with Microentrepreneurs in an Emerging Country" (BEHLING et al., 2019).

Author Honma, with 9 citations, focuses on one of his studies on competency data, presenting them as an alternative for increasing companies' competitiveness. He conducts a multiple case study in small hotels in Curitiba-PR (HONMA et al., 2011).

Both Bracht and Feuerschütte have 8 citations each. Feuerschütte conducts research related to "Entrepreneurial Competencies" in the hotel industry (Feuerschütte et al., 2008). Bracht, on the other hand, focuses his study on the "Entrepreneurial Competencies" of rural producers in Santa Catarina (BRACHT et al., 2015).

Researchers Lana and Silva, with 6 citations each, have studies directed towards the Southeast Region and Santa Catarina, respectively. Lana studies competencies and intrapreneurial conduct in the educational services sector (LANA et al., 2013), while Silva is a co-author of several prominent works. In this study, we consider the one that identifies the Entrepreneurial Behavioral Competencies (EBCs) present in the

founders of companies in a city in Minas Gerais (OLIVEIRA et al., 2014).

With 5 citations, we have authors Lima et al. Fontenele focuses his research on the Entrepreneurial Intention of students from Higher Education Institutions (FONTENELE et al., 2015). Lima and Bertolami have their studies related to business aspects, such as innovation, managerial practices, and the influence of human capital (BERTOLAMI et al., 2018; LIMA et al., 2014).

This variety of approaches demonstrates the breadth of the topic of entrepreneurial competencies and highlights its relevance both for companies of all sizes and sectors and for the educational field, where one author complements the other through their research, enriching the detailed knowledge on the subject. Next, Figure 6 will present the mapping of researchers and the number of downloads and accesses of their studies on entrepreneurial competencies.

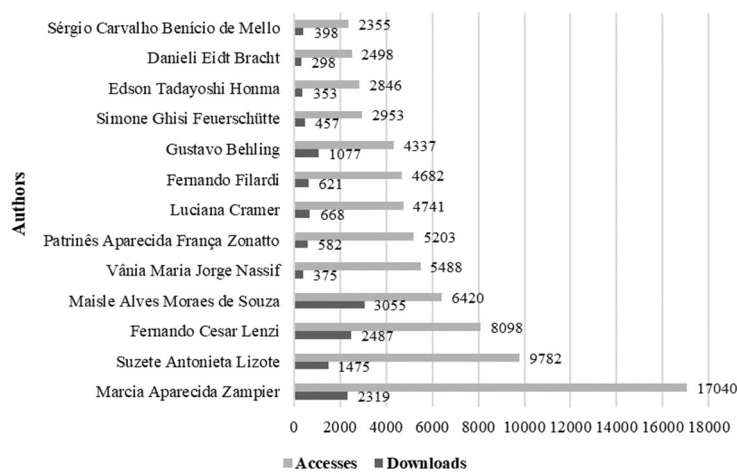


Figure 6: Mapping of downloads and accesses of studies by leading authors on entrepreneurial competencies.

In Figure 6, it is possible to verify access to the productions where researchers address "entrepreneurial competencies" in education and the number of downloads of the research. Once again, researcher Zampier stands out in the data collected in this image, as her research has a significant impact on the scientific community in the field of administration.

Authors Lizote and Lenzi also stand out, being researchers in the field whose works address "entrepreneurial competencies" in "education", serving as a foundation for new researchers in their citations. This knowledge about entrepreneurial competencies is associated with the region and institutions, contributing to the construction of the field.

With research focused on a specific region, author Maisle has a high adherence to his study and a relevant number of downloads on "entrepreneurial competencies". Similarly, Behling, with his contribution to "strategic behavior", ranks with a considerable number of accesses and downloads of his research. Likewise et al contribute to entrepreneurial competencies in the professional environment of small businesses and to the differentiation between entrepreneur and intra-entrepreneur, respectively.

Other significant authors in the theme of "entrepreneurial competencies", such as Cramer, Filardi, Feuerschütte, Honma, Bracht, and Mello, have similar accesses and downloads. This demonstrates the

balance of these authors' contributions regarding the researched theme, providing a solid foundation for other researchers' understanding of the subject.

In Table 1, detailed information about the authors, their institutional affiliations, and the region in which their research on entrepreneurial competencies was conducted is presented.

Table 1: Mapping of universities, types of research, and regions addressing entrepreneurial competencies.

Authors	Universities	Institution Type	Region
COSTA, A. de S. M.	PUC-RIO	Private	Southeast
DUTRA, A.	UNISUL	Private	South
FISCHMANN, A. A.	FEA/USP	Private	Southeast
HASHIMOTO, M.	UNIFACCAMP	Private	Southeast
JÚNIOR, F. G. P.	UFPE	Public	Northeast
LENZI, F. C.	UNIVALI	Private	South
LIMA, T. C. B.	UFC	Public	Northeast
LIZOTE, S. A.	UNIVALI	Private	South
LOMAZINI, A.	UNIFACCAMP	Private	Southeast
MACCARI, E. A.	UNINOVE	Private	Southeast
MANTHEY, N. B.	UESC	Public	South
MARTENS, C. D. P.	UNINOVE	Private	Southeast
MELLO, S. C. B.	UFPE	Public	Northeast
MENEGHATTI, M. R.	UNIOESTE	Public	South
MIRANDA, A. L.	UNIVALI	Private	South
NETO, A. P.	UFJF	Public	Southeast
PAIVA, L. E. B.	UPE	Private	Northeast
PERIOTTO, A. J.	UEM	Public	South
RAMOS, F.	UNIVALI	Private	South
SBISSA, A. P.	UNIVALI	Private	South
SOUZA, D. L.	IFSULMINAS	Public	Southeast
STEFANO, S. R.	UNICENTRO	Private	South
TAKAHASHI, A. R. W.	UFPR	Public	South
TEIXEIRA, R. M.	UFPR	Public	South
TESTON, S. F.	UNOESC	Private	South
VERDINELLI, M. A.	UNIVALI	Private	South
WERLANG, N. B.	UFSC	Public	South
ZAMBALDE, A. L.	UFLA	Public	Southeast
ZAMPIER, M. A.	UNICENTRO	Private	South
ZONATTO, P. A. F.	UNIVALI	Private	South
ZONATTO, V. C. S.	UNIVALI	Private	South

In the table, we observe the association between the authors and the universities to which they are affiliated, allowing us to infer about the region of our country where studies on entrepreneurial competencies in education stand out. From this inference, we can assert that there are regions with greater predominance, interest, and demand for this topic, which aligns with the objective of this study and will be further explored in the next figure and in the conclusion of our work, just below Figure 7.

In Figure 7, the first point to note is the absence of one region in these data: the Northern Region. Thus, the research indicates that the analyzed theme in the SciELO, Scopus, and SPELL databases from 2002 to 2023 lacks representation of researchers addressing the topic, highlighting a general lack of investment in the theme in that region.

A clearer observation shows a significant concentration of research on "Entrepreneurial Competencies" in "Education" in the Southern Region of Brazil, with most of it concentrated in Private Higher Education Institutions. In the Southeast Region, there is a certain balance between public and private Higher Education Institutions regarding the amount of research they possess, although they lag behind the Southern Region.

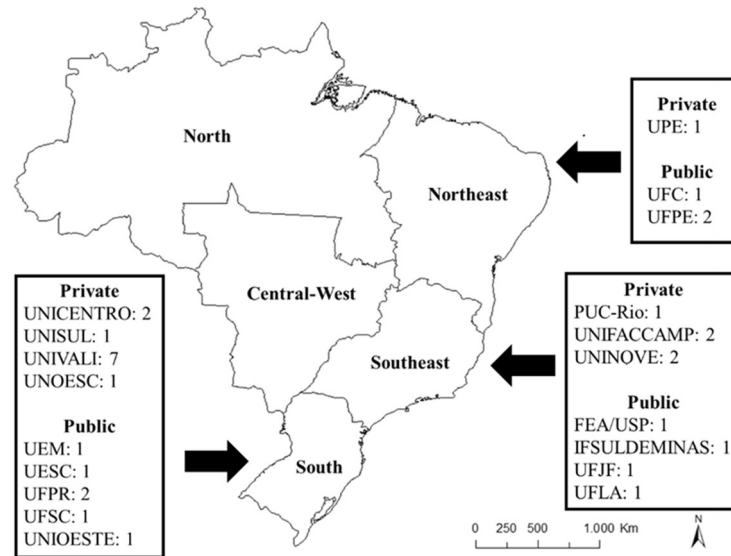


Figure 7: Regional analysis of research on entrepreneurial competencies in Brazil.

The Northeast Region presents very few studies related to "Entrepreneurial Competencies" in "Education", thus being far behind the Southeast Region, and especially the Southern Region, in terms of the number of research on this topic. However, there are already studies on the topic, showing the potential of the region for future research, unlike the Northern Region, which does not present any research.

The concentration of studies on entrepreneurial competencies in education, especially in the Southern region of Brazil, suggests a strong interest and investment in this area, mainly from private higher education institutions. The role of researchers such as Lizote, Lenzi, and Zampier stands out, whose contributions have significantly impacted the field of entrepreneurial competencies. The analysis of journals reveals the diversity of approaches and the importance of vehicles such as REGEPE and the PCA in disseminating knowledge in this area. However, the lack of representation of researchers in the Northern region of Brazil is concerning, highlighting a gap in research investment on entrepreneurial competencies in this area. On the other hand, the presence of studies in the Northeast region indicates potential for future research in that area. Therefore, to advance in this field of knowledge, it is necessary to promote greater geographical diversity in research and investments in all regions of the country, in order to develop knowledge and practices that effectively contribute to entrepreneurship and entrepreneurial education in Brazil.

CONCLUSIONS

The primary objective of this study was to analyze the evolution of discussions on entrepreneurial competencies and their connection with education within the Brazilian context. Data from 49 works were utilized from the SciELO, Scopus, and SPELL databases, spanning from 2002 to 2023, to enhance understanding of this subject.

The research on entrepreneurial competencies in education is predominantly concentrated in the South of Brazil. This region, characterized by companies with advanced technology, higher investment levels, and greater development of competitive advantages, stands out as the epicenter of research activity. In

particular, the state of Santa Catarina emerges as the main driver in this field, with a significant portion of the research originating from both public and private higher education institutions within its borders. Additionally, the state of Paraná also plays a notable role, contributing several studies on entrepreneurial competencies in education from its higher education institutions.

This focus on the South Region, particularly in Santa Catarina, reflects genuine institutional incentives and researchers' interest in understanding local realities and driving entrepreneurial behavior transformation through their research endeavors. Studies of this nature not only enrich academic literature but also contribute to the formulation of social technologies aimed at mitigating prevalent social issues such as the high mortality rate of small and medium enterprises (SMEs) in Brazil.

Both public and private higher education institutions significantly contribute to research on entrepreneurial competencies in education, underscoring the considerable interest among various sectors of the public in understanding these competencies. The role of academic journals in disseminating this research is also noteworthy. Both specialized journals focusing on entrepreneurial competencies in education and journals from diverse fields leverage this theme to enrich their content offerings and encourage their readers to explore the subject further.

Among the main journals, the Journal of Entrepreneurship and Small Business (REGPE) stands out with the highest number of publications on entrepreneurial competencies. It aims to promote the debate on relevant topics in the field of entrepreneurship and serves a target audience that includes researchers, professors, and students. Another relevant journal is the Revista Pensamento Contemporâneo em Administração (PCA), which, while also contributing significantly to the theme, places additional emphasis on other areas such as marketing and business strategies.

In terms of individual contributions, several authors have made significant impacts on the field. Author Lizote distinguishes herself with eight publications, contributing substantially to the theme of "Entrepreneurial Competencies" with various focuses in her studies. Researchers Lenzi and Zampier also distinguish themselves, each with seven publications, addressing the integration of entrepreneurial competencies with the corporate environment and focusing on micro and small businesses. Zampier, in particular, has made notable contributions with her work on entrepreneurial learning processes, garnering a substantial number of citations.

The analysis of citations reveals that Zampier's research is highly influential, with her work on "Entrepreneurial Competencies and Entrepreneurial Learning Processes" being widely recognized. Lizote, despite having a high number of publications, also garners significant citations, reflecting the relevance of her research in education.

As technological advancements reshape consumer behavior, there has been a noticeable diversification in research on entrepreneurial competencies, spanning from educational managers at all levels to various types and sizes of companies, as well as studies centered on gender-specific aspects. However, there remains ample room for growth and improvement within this domain.

Looking ahead, there is a clear recommendation to broaden the geographical scope of future

research, particularly within Brazil. The study findings underscore a significant gap in research representation, notably in the Northern region of the country, where no studies on the subject have been identified. It is imperative to stimulate more research activity not only in the Northern region but also in the Northeast, where studies on the topic remain scarce. Additionally, attention should be directed towards the Southeast region, home to some of the country's most established states, yet lacking in substantial research and researchers focusing on entrepreneurial competencies in education. Addressing these gaps through future research endeavors would not only foster a more comprehensive understanding of the topic but also facilitate the development of tailored educational interventions and policies aimed at nurturing entrepreneurial competencies across different regions of Brazil.

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