RELISE

FACILITATORS AND CHALLENGES OF ACADEMIC ENTREPRENEURSHIP: A SYSTEMATIC AND INTEGRATIVE LITERATURE REVIEW[1]

FACILITADORES E DESAFIOS DO EMPREENDEDORISMO ACADÊMICO: REVISÃO SISTEMÁTICA E INTEGRATIVA DA LITERATURA

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ABSTRACT

Given the ever-evolving demands of society, the implementation of entrepreneurship in universities has attracted the attention of university management. This study sought to analyze in an integrative and systematic way the works on entrepreneurial universities published in national journals between 2013 and 2023, using the Scientific Periodicals Electronic Library - SPELL database. The approach is qualitative and descriptive, with data collection carried out through bibliographic research and systematic and integrative review. The analysis of 15 articles revealed a series of facilitators to be achieved and challenges to be overcome by institutions. Although the topic has been discussed since the 1990s, its implementation is a recent novelty in university institutions, highlighting the relevance of its adoption given the ongoing social transformations.

Keywords: entrepreneurial university, entrepreneurship, university management.

RESUMO

Diante das demandas em constante evolução na sociedade, a implementação do empreendedorismo nas universidades tem despertado a atenção das gestões universitárias. Este estudo buscou analisar de forma integrativa e sistemática os trabalhos sobre universidade empreendedora publicados em periódicos

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nacionais entre 2013 e 2023, utilizando a base de dados da *Scientific Periodicals Electronic Library* - SPELL. A abordagem é qualitativa, de natureza descritiva, com coleta de dados realizada por meio de pesquisa bibliográfica e revisão sistemática e integrativa. A análise de 15 artigos revelou uma série de facilitadores a serem alcançados e desafios a serem superados pelas instituições. Embora o tema seja discutido desde a década de 1990, sua implementação é uma novidade recente nas instituições universitárias, destacando a relevância de sua adoção diante das transformações sociais em andamento.

Palavras-chave: universidade empreendedora, empreendedorismo, gestão universitária.

INTRODUCTION

In a context in which the world moves at an impressive speed and technology constantly redefines the boundaries of knowledge, society becomes increasingly demanding, incessantly seeking the best. This dynamic is clearly reflected in universities, where there is a pursuit of meeting the new demands of society. From the presence of highly qualified professors to initiatives such as junior enterprises, incubators, research and extension activities, contributions to economic and regional development, and above all, ensuring that the entrepreneurial mindset is aligned from the beginning of the course throughout the university student's academic journey.

A university is classified as entrepreneurial when it concentrates its efforts on teaching, research, and extension, guided by entrepreneurship, creativity, challenge-solving, innovation, and a willingness to take risks, with the purpose of actively contributing to society’s demands in alignment with sustainable development (Morosini, 2006).

It can be stated that the concept of the entrepreneurial university is both old and new, since there are still many institutions seeking to implement this concept created in the 1990s by Etzkowitz. This indicates that institutions face challenges, resulting in slower development (Volles; Gomes; Parisotto, 2017). However, as evidenced by Aranha and Garcia (2013), entrepreneurial

universities demonstrate greater adaptability to external environmental demands compared to non-entrepreneurial universities.

Universities emerge as the most suitable agents to address social issues. It is not enough merely to provide entrepreneurial initiatives within the institution; it is essential to implement them among university students, genuinely encouraging them to take action. Understanding that the demands for a new professional are constantly evolving, the university faces the challenge of adapting and becoming flexible in order to keep pace with these changes (Morosini, 2006). To achieve this, institutions that are not yet aligned with this model must seek adaptation, while those that are already aligned need to understand how to implement the services they already possess.

Technological entrepreneurship is constantly growing, and higher education institutions are no exception. Academic entrepreneurship, aligned with emerging technologies such as artificial intelligence, shapes the future, requiring managers and professionals in the field to adapt in order to keep up with this evolution (Garcez; Franco; Silva, 2023).

Furthermore, it is important for the university to adopt a new institutionalized vision, together with viable mechanisms. The willingness of a few individuals alone is not sufficient to introduce entrepreneurship and innovation into the institution; this process requires intelligence, negotiation, cooperation, and a strategic approach (Gomes; Coelho; Gonçalo, 2014).

The entrepreneurial mindset should be integrated into society as a whole, becoming an integral part of university education and enabling all students to develop innovative and entrepreneurial skills. For example, it would be beneficial for each student to demonstrate the ability to develop a business plan, encouraging them to create their own ventures (Etzkowitz, 2009). This is particularly important given that many students are becoming increasingly exposed to entrepreneurial realities, as companies tend to opt for service

contracts with legal entities rather than traditional employment contracts. In this new outsourced scenario, differentiation becomes crucial for securing opportunities, including the need for strategic planning and management skills.

In this era filled with technological advances and an increasingly inclusive society, university management emerges in the academic landscape to adapt to changes, explore opportunities, and implement efficient and effective management aligned with academic entrepreneurship (Santos, 2013). However, it is important to highlight that each university has its own pace of adjustment and establishment, without adhering to predefined models, so that it can combine high-quality education with the production and application of knowledge (Santos, 2013).

University management involves more than simply overcoming challenges related to the development of tools for integrating data and managerial processes. It defines directions and pathways for the university's role in interacting with the state and society, determining what kind of university we are building and what kind of university we aspire to create (Fialho; Burigo; Virgilio, 2023).

Given the context described above, the guiding research questions emerge: How is academic entrepreneurship being addressed and considered within the academic environment? What difficulties do universities face in establishing academic entrepreneurship?

Therefore, the main objective of this study was to analyze, in an integrative and systematic manner, works on entrepreneurial universities published in national journals from 2013 to 2023 and available in the Scientific Periodicals Electronic Library (SPELL) database. As specific objectives, a quantitative analysis of the studies was conducted. Subsequently, a qualitative comparison of the studies was carried out based on the described themes.

Finally, a proposal for a national research agenda on the topic for the coming years was developed.

This article is organized as follows: in this first section, a contextualization of the theme was presented, along with the guiding research question and the proposed objectives; in the second section, the theoretical framework discussing the entrepreneurial university is presented; in the third section, the methodological procedures adopted to answer the research question and objectives are described; in the fourth section, the results obtained and their discussions are presented; and finally, the concluding remarks of the research are provided.

THEORETICAL FRAMEWORK

According to Souza and Santos (2014), entrepreneurship emerges as a process of action and cooperation among people to shape this new way of managing universities. Entrepreneurship has expanded because it is something that can be taught to people. In this regard, the advancement of entrepreneurial education emerges as a strategy to stimulate knowledge, technology, and innovation, especially within universities, in order to enable students to contribute to economic and social development, encouraging them to test their hypotheses and recognize their entrepreneurial capabilities (Etzkowitz, 2009).

A university is classified as entrepreneurial when it concentrates its efforts on teaching, research, and extension, guided by entrepreneurship, creativity, challenge-solving, innovation, and a willingness to take risks, with the purpose of actively contributing to society’s demands in alignment with sustainable development (Morosini, 2006).

Partnerships play a fundamental role in this context, as they facilitate the implementation of external initiatives, whether with other educational institutions, companies, or even the government. This relationship is known as the triple helix,

through which the three sectors collaborate to promote development and innovation (Ruiz; Martens, 2019).

In this context, universities can be viewed as sources of knowledge-based societies, such that an entrepreneurial university, as a natural incubator, stimulates knowledge creation and the development of new ventures (Etzkowitz, 2009). The entrepreneurial university is based on four pillars for its implementation: leadership, legal control, technology transfer capacity, and entrepreneurial ethos. The last pillar, entrepreneurial ethos, encompasses the set of traits or behaviors that shape entrepreneurial identity or character (Etzkowitz, 2009).

The new paradigm of universities is to serve society, recognizing entrepreneurship and education as opportunities intrinsically linked to socioeconomic development and the future of academics. Being an entrepreneurial university implies innovation and a willingness to take risks while simultaneously offering comprehensive support to the university community by providing resources for entrepreneurial initiatives (Ruiz; Martens, 2019).

University management requires an approach centered on creativity, flexibility, innovation, and agility. This implies that universities need to be knowledge-intensive; in other words, the more relevant the role of knowledge is for academics, the greater the intellectual activity acquired and applied (Souza; Santos, 2014).

In a university context, the development of entrepreneurial skills and competencies is important because entrepreneurship is an acquired aptitude, and it is imperative that university students cultivate an entrepreneurial mindset. Furthermore, universities must provide an appropriate structure to offer entrepreneurial activities, including sound financial management, rigorous criteria for selecting students and professors, as well as the production of research and other activities with high-quality standards (Ruiz; Martens, 2019).

METHODOLOGY

The present study adopts a qualitative approach, descriptive in nature, with data collection conducted through bibliographic research and systematic and integrative review. Through the qualitative approach, it is possible to discover concepts and relationships through an interpretative process among the studies found in order to understand or interpret the facts (Gil, 2021). Through the descriptive criterion, it is possible to “specify properties, characteristics, and important traits of any phenomenon” (Sampieri; Collado; Lucio, 2013, p. 102).

According to Souza, Silva, and Carvalho (2010), bibliographic research is one of the best ways to begin a study, seeking similarities and differences among the articles identified in reference documents. Therefore, data were collected through a bibliographic survey, focusing on the search for articles related to the field of academic entrepreneurship in order to achieve the study’s objectives.

According to Ercole, Melo, and Alcoforado (2014), integrative and systematic reviews are meticulous research methods implemented to provide the best knowledge produced about a given research problem. Therefore, to analyze the articles, the integrative systematic review method and comparative analysis were adopted, aiming to obtain the best results and new information for the research line. Since the integrative review determines the current knowledge on a specific topic, as it is conducted in order to identify, analyze, and synthesize results from independent studies on the same subject (Souza; Silva; Carvalho, 2010). Meanwhile, the systematic review, unlike the integrative review, is employed to address a precise question related to a specific problem (Ercole; Melo; Alcoforado, 2014).

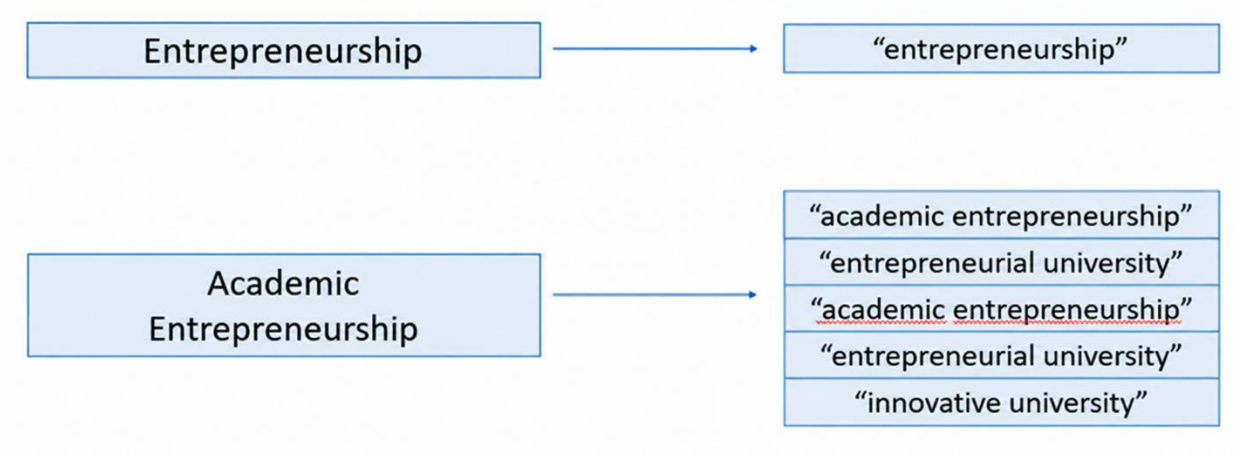
All these factors were integrated into the comparative analysis, aiming to identify possible similarities and discrepancies, as well as deepen the

investigation of the data, since this type of analysis allows for a more detailed understanding. For Gibbs and Flick (2009, p. 103), comparative analysis consists of “seeking patterns, making comparisons, generating explanations, and building models.”

Therefore, to continue the study, in accordance with the six phases required for the development of an integrative systematic review, the guiding research question was formulated as follows: How is academic entrepreneurship being addressed and considered within the academic environment? What difficulties do universities face in establishing academic entrepreneurship?

To begin this search, as shown in Figure 1, the research axis and keywords were defined.

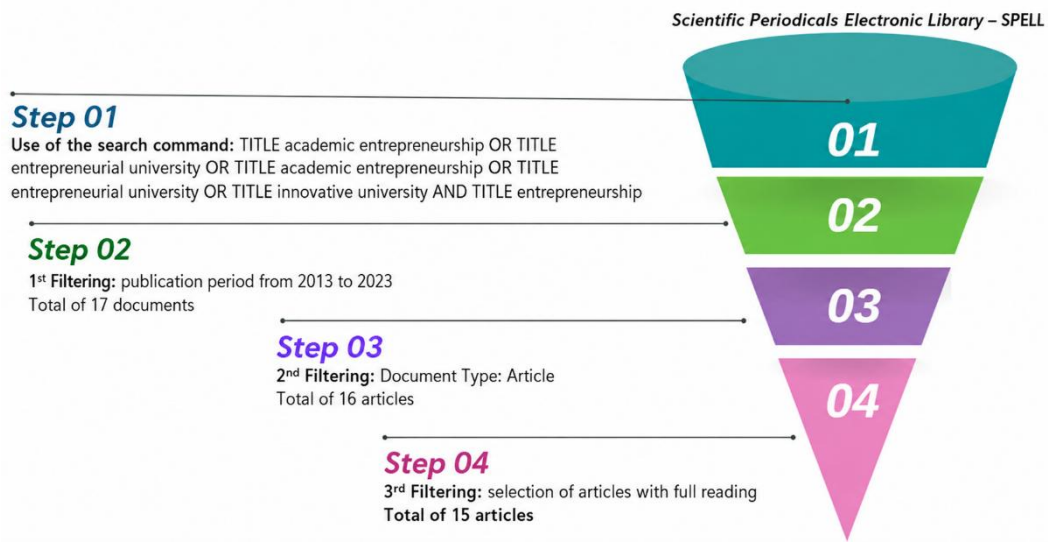
Figure 1 – Defined axis and keywords



Source: Own Authorship (2024).

After this definition, we proceeded with the methodological process, as shown in Figure 2.

Figure 2 – Number of articles found in SPELL according to keywords



Source: Own authorship (2024).

After the searches using the keywords in the Scientific Periodicals Electronic Library (SPELL) database, 22 documents were identified and, after the applied filters, 15 articles remained and were selected for full-text reading. Thus, the results are presented in the next section along with the discussions.

ANALYSIS AND DISCUSSION OF RESULTS

As this is an emerging and still underexplored topic, research has revealed several approaches that can be applied in the university context, aiming to transform the academic environment into an entrepreneurial one. It is important to emphasize that there is no single and definitive approach to university entrepreneurship, as this depends on the specific objectives of each institution. For example, a university may be more focused on professional training than on academic research, which will imply distinct entrepreneurial strategies. In addition, it is necessary to consider the particularities of each academic program, as each may require a different approach. However, the importance of the entire university adopting an entrepreneurial mindset is highlighted, including faculty members, so that they can transmit this mindset to students.

To begin presenting the research results, critical analyses of the following articles were conducted in order to provide the most accurate possible results regarding the entrepreneurial university and its current challenges.

Chart 1 – List of studies analysed

Authors	Title	Year	Journal
Brants, Oliveira, Casemiro, Licório, Reboli	Empreendedorismo acadêmico no curso de administração da UNIR	2015	Revista PRETEXTO
Stal, Andreassi, Fujino	*The role of university incubators in stimulating academic entrepreneurship*	2016	RAI – Revista de Administração e Inovação
Volles, Gomes, Parisotto	Universidade empreendedora e transferência de conhecimento e tecnologia	2017	REAd. Revista Eletrônica de Administração
Filho, Rocha, Teles, Torres	Universidade empreendedora – um método de avaliação e planejamento aplicado no Brasil	2019	Revista Gestão & Tecnologia
Ruiz, Martens	Universidade empreendedora: proposição de modelo teórico	2019	Desenvolvimento em Questão
Scorsatto, Fischer, Schaeffer	Universidades e a dinâmica locacional do empreendedorismo acadêmico: uma abordagem para o estado de São Paulo	2019	REGEPE *Entrepreneurship and Small Business*
Cota, Aguiar, Neto, Benegas	*Open-source hardware as a model of technological innovation and academic entrepreneurship the Brazilian landscape*	2020	*Innovation and Management Review*
Ghobril, Baker, Rokop, Carlson	Para além dos cursos de empreendedorismo: estratégia, estrutura e processos na Illinois Tech para se tornar uma universidade empreendedora	2020	REGEPE *Entrepreneurship and Small Business*
Klein, Pereira	*Entrepreneurial university: conceptions and evolution of theoretical models*	2020	Revista Pensamento Contemporâneo em Administração
Bulhões	Em busca da educação de qualidade em instituições públicas brasileiras de ensino superior: a nova dinâmica baseada na universidade empreendedora	2022	Revista Gestão e Secretariado – GeSec
Lara, Oro, Bencke, Chais	Universidade empreendedora: um estudo bibliométrico acerca da produção científica	2022	Revista de Administração, Sociedade e Inovação

Continua

Chart 1 – List of studies analysed

Authors	Title	Year	Journal
Fialho, Burigo, Virgilho	A universidade empreendedora como instituição social	2023	NAVUS - Revista de Gestão e Tecnologia
Garcez, Franco e Silva	*The soft skills bases in digital academic entrepreneurship in relation to digital transformation*	2023	*Innovation and Management Review*
Lara, Sehnem, Prado	O uso do método delphi na criação de um modelo de universidade empreendedora e sustentável	2023	Revista de Administração, Sociedade e Inovação - RASI
Santana, Junior, Oliveira	A universidade empreendedora no universo da hélice tríplice em intercâmbio de conhecimento: o centro de informática da Universidade Federal de Pernambuco	2023	GESTÃO.Org - Revista Eletrônica de Gestão Organizacional

Source: Own authorship (2024).

The research methodology of the selected studies consisted of 12 qualitative analyses, 2 mixed-method (qualitative–quantitative) analyses, and 1 quantitative analysis. In addition to the predominance of publications in the journals Innovation and Management Review, REGEPE Entrepreneurship and Small Business Journal, and Revista de Administração, Sociedade e Inovação (RASI), these studies are more concentrated around 2023 than 2013, indicating a significant increase in interest in this topic within university management, with the aim of promoting institutional change.

The article “Entrepreneurial university: proposal of a theoretical model”, published in 2019, provided relevant information about the entrepreneurial universe, addressing its meanings and functions in a comprehensive and meaningful way. By exploring this topic, the article offered valuable insights into how universities can position themselves and operate entrepreneurially, contributing to the promotion of entrepreneurship both within and beyond the academic environment. This theoretical analysis provides a solid foundation for better understanding the role of universities in developing entrepreneurs and

fostering innovation, highlighting the importance of this concept in a contemporary context (Ruiz & Martens, 2019).

Another article that drew attention was “Beyond entrepreneurship courses: strategy, structure, and processes at Illinois Tech to become an entrepreneurial university”, published in 2020. This practical study detailed how Illinois Tech developed a strategy toward becoming an entrepreneurial university. One notable initiative was the creation of projects and support units aimed at encouraging entrepreneurship and innovation, such as the Center for Entrepreneurship. This center was established with the purpose of promoting entrepreneurial activity both inside and outside the university, offering various opportunities for students to engage in the development of entrepreneurial competencies (Ghobril et al., 2020).

The article “The soft skills bases in digital academic entrepreneurship in relation to digital transformation”, published in 2023, introduced the term “digital academic entrepreneurship,” highlighting the growing importance of artificial intelligence in today’s context. It emphasizes how the implementation and enhancement of entrepreneurship in higher education institutions can be strengthened through the use of artificial intelligence integrated into teaching, research, and extension activities (Garcez, Franco, & Silva, 2023).

It is noteworthy that distinct objectives exist, particularly regarding the entrepreneurial environment, between public and private universities. Public universities, for example, tend to demonstrate a greater inclination toward entrepreneurial environments due to their extensive range of research and extension activities, which often exceed those found in private universities, where the primary objective is frequently the preparation of professionals for the labor market.

In general, the articles highlight the difficulties universities face in implementing entrepreneurship within their environments, especially with regard

to innovation. However, they also offer several significant contributions to support its implementation. The mindset of universities is still not fully aligned with entrepreneurial principles, and not all institutions fully understand the concept and its practical application. University management still has a long way to go before fully adapting to these ideas.

To facilitate a more comprehensive discussion of the results and as part of an integrative analysis, Chart 2 was created, relating the facilitators and challenges identified during the analysis of the articles.

Chart 2 – Observed Facilitators and Challenges

Facilitators	Technological Incubators. Research and Extension Activities. Junior Enterprise. Entrepreneurship Courses and Subjects. Visits to Companies and Trade Fairs. Lectures. Market Simulation. Spin-offs. Exchange Programs. Leadership. Industry Partnerships. Financial Support and Investment. Mentorship Networks. Networking Events. Technological Resources and Infrastructure. Workshops and Training Programs. Online Learning Platforms.
Challenges	Innovation. Methodological Change Among Faculty Members. Student Commitment. Competitiveness. Resistance to Change. Institutional Bureaucracy. Lack of Practical Experience. Multidisciplinary Integration. Financial Sustainability. Impact Assessment and Measurement. Project Scalability. Community Engagement. Long-Term Focus. Inequality of Access.

Source: Own authorship (2024).

With this information, it becomes easier to understand the entrepreneurial actions and activities that characterize an entrepreneurial university and that can be implemented within higher education institutions. There are many facilitators in this process that contribute to the advancement of academic entrepreneurship, but there are also numerous challenges that must be overcome.

To address the challenge of innovation, seeking external partnerships is an effective way to support this transformation, in addition to establishing an institutional culture that values innovation.

Methodological changes among faculty members can be achieved through training and professional development programs accompanied by feedback mechanisms, as well as by offering incentives and rewards to

encourage the adoption of new teaching methodologies. Student commitment can be strengthened through engagement in projects, extension activities, and university initiatives, while reward systems may also be implemented to motivate participation.

The lack of practical experience can be overcome through internships, projects, partnerships with companies, and workshops, providing learning opportunities for both students and faculty members.

To overcome the challenge of competitiveness, it is necessary to encourage the creation of projects, facilitate networking and partnerships, promote a collaborative environment among academics, and ensure visibility and recognition through participation in events and competitions.

Resistance to change can be addressed through clear communication, training, and active participation in the adoption of new approaches and technologies. In addition, institutional bureaucracy can be reduced by implementing technological solutions and promoting rapid adaptations, thereby decreasing process complexity.

Multidisciplinary integration can be promoted through exchange programs, events, and projects involving multiple disciplines, facilitating collaboration across different fields of knowledge.

Financial sustainability can be achieved by diversifying funding sources, establishing partnerships with the private sector, and developing sound financial planning. Project scalability can be facilitated through effective planning, the availability of financial and human resources, and the creation of replicable models that can be more easily implemented by students.

To improve impact assessment and measurement, institutions can define clear indicators, utilize additional evaluation tools, and provide continuous feedback. Community engagement can be fostered through effective

communication, ensuring that all stakeholders remain informed and actively involved.

A long-term focus can be maintained through strategic planning, the establishment of clear goals and objectives, periodic reviews, and continuous monitoring. To combat inequality of access, institutions can provide resources such as computer laboratories and tablets, ensuring that all students have access to the tools necessary for their development.

These are some examples of how challenges can be overcome to increase engagement and facilitate the implementation or enhancement of entrepreneurial universities. This is a constantly evolving field, particularly today, with artificial intelligence contributing to the facilitation and improvement of processes.

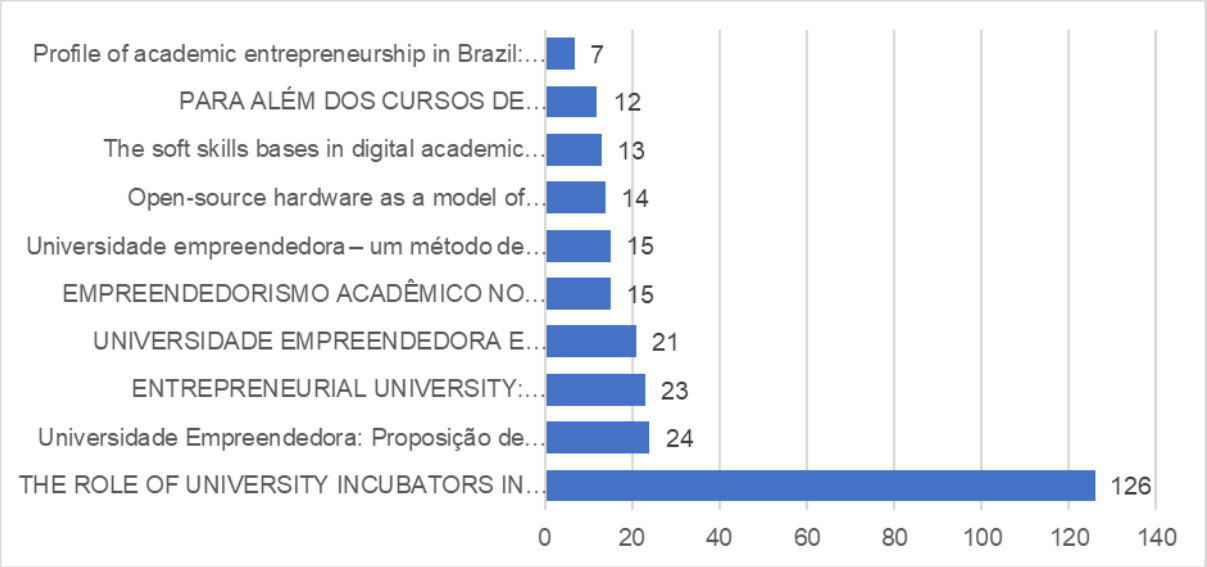
The partnerships frequently mentioned in the literature are important for student development, allowing students to engage in practical projects with the support of external partners. Furthermore, fostering an entrepreneurial culture, ensuring access to institutional resources, and encouraging participation in events, workshops, and lectures strengthen students' engagement in activities and projects aimed at improving private-sector organizations and the broader community.

It is worth emphasizing that student profiles may vary according to the academic program, suggesting that certain actions may need to be adapted to meet the specific needs of each field. Therefore, it is essential to consider the diversity of student profiles and needs when implementing entrepreneurial initiatives within the institution. This implies offering a variety of programs and activities that are aligned with the university's profile and students' interests, thereby promoting an inclusive and comprehensive entrepreneurial culture.

The analysis of the articles also made it possible to identify which studies were most frequently cited, using Google Scholar as the data source. Figure 3

illustrates the ten most cited articles and the number of citations they received, highlighting the most influential and widely referenced studies in the field of academic entrepreneurship research. This data visualization provides a clearer understanding of which studies have the greatest academic impact and relevance.

Figure 3 – Most cited articles in *Google Scholar*



Source: Own authorship (2024).

It can be observed that the article “The role of university incubators in stimulating academic entrepreneurship” stood out in comparison to the others, demonstrating its significant relevance to research on university entrepreneurship (Stal, Andreassi, & Fujino, 2016). The other articles also presented a considerable number of citations, reinforcing confidence in the quality and importance of the studies analyzed.

During the analysis of the articles, several universities were identified, including the Federal University of Rondônia, the University of São Paulo, the Federal University of Rio de Janeiro, the Pontifical Catholic University of Rio de Janeiro, the State University of Campinas, the Federal University of Mato Grosso do Sul, the Federal University of Minas Gerais, the Pontifical Catholic University

of Rio Grande do Sul, and the Federal University of Paraná. The inclusion of these institutions, predominantly public universities, highlights the relevance of the studies, as they analyze universities of major importance in Brazil, where numerous teaching, research, and extension activities take place.

FINAL CONSIDERATIONS

Academic entrepreneurship is a relatively new field; however, it has been growing significantly in recent years. Nevertheless, it is possible to observe the maturation of universities regarding this topic. By comparing articles published in 2013 with those published in 2023, continuous growth and improvement can be seen in the entrepreneurial profile and environment of universities, especially public institutions, which are well known for their teaching, research, and extension activities.

The entrepreneurial environment brings a range of benefits both for academics and for society as a whole. Entrepreneurial research and initiatives emerging from this environment contribute significantly to the economy, social well-being, and local development, demonstrating the transformative potential of higher education institutions when they adopt an entrepreneurial approach. Therefore, investing in the promotion of academic entrepreneurship may represent an important step toward progress and innovation.

Although numerous challenges still need to be overcome, several facilitators currently contribute to bringing the implementation of entrepreneurial environments closer to reality within universities. These facilitators, highlighted in this study, are helping make the pursuit of entrepreneurial environments within higher education institutions more accessible.

The most recent articles provided valuable insights for the field, highlighting how the digital era should be integrated into the academic entrepreneurship process. These studies emphasize the importance of digital

technologies in creating new entrepreneurial opportunities, optimizing processes, and expanding the impact of academic initiatives. Currently, the use of artificial intelligence in academic environments is essential for enhancing activities, projects, and extension programs.

Technology should be viewed as an ally rather than a threat and should be used to support faculty members. Integrating artificial intelligence into educational processes not only improves operational efficiency but also creates new opportunities for innovation and personalization of the learning experience, better preparing students for future challenges.

It is crucial to recognize the challenges, especially in a globalized knowledge society where information circulates rapidly. However, these challenges should not be allowed to hinder the dissemination of knowledge. On the contrary, they should be viewed as opportunities to adapt and strengthen academic institutions by fostering a culture of innovation, entrepreneurship, and collaboration. Through a proactive and collaborative approach, the challenges of the modern era can be addressed, ensuring that knowledge continues to serve as a catalyst for progress and sustainable development.

A limitation of this study is the use of only one database, namely SPELL, since there are not many articles related to this topic available within this source.

The research agenda includes identifying and analyzing current academic entrepreneurship practices in Brazilian universities, examining how digital transformation is influencing academic entrepreneurship initiatives, investigating how research, teaching, and extension activities are integrated to promote academic entrepreneurship, and measuring the impact of academic entrepreneurship initiatives on society and the local economy.

One proposal for future studies would be to compare academic entrepreneurship between public and private universities. Furthermore, it would be interesting to conduct a new integrative review in the future based on more

recent studies in order to evaluate the progress of entrepreneurship implementation within higher education institutions.

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