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Cognitive and Psychological Aspects in Academic Entrepreneur Identity and Entrepreneurial Intention: A Systematic Literature Review

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ABSTRACT

Objective: to investigate the cognitive and psychological variables shaping academic entrepreneurs' identity and entrepreneurial intention. **Methods:** a systematic literature review covering 1996 to 2022, using Web of Science and Scopus databases. The analysis involved co-citation network construction and thematic categorization into clusters. **Results:** four clusters were identified, three interconnected through citations and one isolated. The theory of planned behavior emerged as a framework linking entrepreneurial identities to intentions, explaining how cognitive structures influence entrepreneurial roles. A gap was noted in defining academic entrepreneurial identity. It is suggested to combine the theory of social entrepreneurial identity with interdisciplinarity, incorporating liquid modernity theory and a fluvial metaphor to propose the concept of Liquid Academic Entrepreneurial Identity, opening new research paths. **Conclusions:** future studies should integrate evolutionary cognitive psychology and social entrepreneurial identity theory to examine how social and cognitive factors interact in identity formation, aiding in developing robust theoretical models and informing academic entrepreneurship policies and interventions.

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INTRODUCTION

Understanding academic entrepreneurship solely through the creation of spin-off companies (Roberts, 1991; Shane, 2004) has not been the only approach found in the literature. Klofsten and Jones-Evans (2000), for example, expanded the role of academic entrepreneurship by including other technology transfer activities such as patent licensing and various collaborative activities with industry (Baldini et al., 2007; Bodas Freitas & Verspagen, 2017; Fini & Toschi, 2016).

The promotion of the entrepreneurial university perspective supports the idea that contextual factors, such as legal and institutional frameworks, are sufficient to drive greater intensity in technology transfer, understood here as the flow of knowledge and innovation from the university to the productive sector (Etzkowitz et al., 2000; Guerrero & Urbano, 2012). However, this view often neglects the individual characteristics shaped by a more complex context, as well as the intrinsic motivational elements of the actors involved (Shinnar et al., 2012).

To advance knowledge in these areas and create more effective mechanisms for promoting technology transfer, a deeper understanding of the individual characteristics of entrepreneurs is necessary. In this sense, these intrinsic and extrinsic factors play a fundamental role in determining the success of technology transfer. It is known that traditional technology transfer activities cover only part of the scope of academic entrepreneurship research (Huyghe & Knockaert, 2016; Miranda et al., 2017).

However, more systematic analyses at the micro level of individuals are becoming increasingly relevant as they seek to broaden understanding of academic entrepreneurial behavior (Balven et al., 2018; Wright & Phan, 2018). These studies, which have a more behavioral connotation, focus largely on identifying the characteristics of academic entrepreneurs, such as risk acceptance, competencies, and social ties (Soetanto & Jack, 2016), as well as collaborative aspects such as alliances and strategic partnerships (Ipiranga et al., 2010), all of which contribute to promoting an entrepreneurial environment.

Despite this, psychological aspects, which are more essentially behavioral in nature, have been little addressed in the literature on academic entrepreneurship, such as studies on identity and entrepreneurial intention (Bercovitz & Feldman, 2008; O'Kane et al., 2019; Scholten et al., 2015; Soetanto & Jack, 2016; Urban & Chantson, 2019; Wang et al., 2022). In this direction, Neves and Brito (2020) identified that individual characteristics continue to be a relevant topic, such as the positive relationship between academic status, years of research in the institution, and entrepreneurial intentions (Bercovitz & Feldman, 2008; D'Este & Patel, 2007; Link et al., 2007; Prodan & Drnovsek, 2010); duty, academic and social recognition, as well as peer pressure as drivers of entrepreneurship (Huyghe & Knockaert, 2016; Obschonka et al., 2015); and propensity for risk-taking, facing challenges, and seizing opportunities in different knowledge transfer activities as contributors to entrepreneurial intention (Wang et al., 2022). In addition to personal motivations, valuing knowledge, entrepreneurial and industrial experience in creating patents and collaborating with industry are factors that promote the formation of entrepreneurial identity (Huyghe & Knockaert, 2016; Miranda et al., 2017; Obschonka et al., 2015; Morales-Gualdrón et al., 2009; Zahari et al., 2018).

Additionally, Hayter et al. (2021) studied the construction of entrepreneurial identity among academic scientists based on the liminality theory, supporting the thesis of a process of identity construction that could lead scientists to two types of identities: identity play, where individuals play with the development of an identity, and identity work, where individuals work on constructing their identity. Both identities are influenced by external and internal factors that can either enhance or hinder their development.

Thus, although some studies have sought to delve into the individual cognitive and psychological aspects of academics in the construction of their entrepreneurial identity (Hayter et al., 2021; Neves & Brito, 2020; Wang et al., 2022), the different aspects contributing to the construction of models that relate identity and entrepreneurial intention of academics are not yet fully defined. Therefore, the following research question arises: What are the relevant cognitive and psychological aspects presented in the literature regarding the formation of academic entrepreneur identity and their entrepreneurial intention?

To answer this question, this study aims to perform an updated and comprehensive systematic literature review by conducting a survey in both the Web of Science and Scopus, the largest research databases in the field (Lobo et al., 2024). Initially, 1,041 articles were identified, from which 159 duplicate articles were excluded, leaving 884 articles. These articles, through other processes described throughout the study, were refined to 30 articles, which enabled the creation of the co-citation network, pointing to the consolidated current knowledge and revealing possible emerging topics in research on academic entrepreneurial identity and intention.

This work is justified by the inherent need of researchers working in the field to understand the the-

oretical, methodological, ontological, and epistemological lenses that have been used in previous studies, given the diversity of definitions and theories present in the research field, in order to guide their studies and discoveries. Furthermore, its relevance lies in the social impact that such a study enables, as it connects various areas of knowledge, not limited to the administrative field, promoting analyses of previously overlooked elements and findings, which contribute to academic and social progress in the face of the multitude of cases examined.

In addition to this introduction, the article provides a brief theoretical framework in the following section. The third section presents the methodology used for the systematic literature review and the steps taken. The fourth section presents the main results of the review analysis, and finally, a concluding reflection is made on the main findings.

THEORETICAL FRAMEWORK

Driven by the idea of entrepreneurial universities, these institutions have increasingly become the focus for innovation development. This is due to their crucial role in knowledge transfer to the market, connecting science and industry (Etzkowitz et al., 2000; Guerrero & Urbano, 2012). However, although academics play a fundamental role in the flow of knowledge, these entrepreneurial actors still face several barriers to commercialize their discoveries. This includes the consideration of advantageous academic rewards, the need to understand the commercial value of their knowledge, and gathering market information. Some academics perceive this dynamic as a situation where their commercialization efforts come at the expense of their academic activities, putting them in a balancing act between two identities: the academic and the entrepreneurial (Jain et al., 2009; Krabel & Mueller, 2009).

Such challenges require further studies, such as the conflict between the identities of academic individuals, sometimes focused on their basic university research, and other times on applied research in the market. This discussion still lacks in-depth exploration from different angles to contribute to public policies that foster activities and the development of entrepreneurial universities (O'Shea et al., 2008; Prodan & Drnovsek, 2010).

Research that aims to understand the construction of the entrepreneurial profile of academics has focused on socio-contextual factors such as patenting activity, type of research, personal networks, perceived models, time in the academic institution, entrepreneurial experience, intellectual property protection, personal opinions on research commercialization, close personal ties with industry, institutional support, and access to venture capital (Krabel & Mueller, 2009; Obschonka et al., 2015; O'Shea et al., 2008; Prodan & Drnovsek, 2010).

Although some studies have already investigated individual-level variables that drive academic entrepreneurship, such as the belief that their academic field is conducive to research commercialization, perceived self-efficacy and feasibility, risk propensity, innovativeness, and identity balance (Jain et al., 2009; Krabel & Mueller, 2009), it is still not clear how other individual-cognitive-psychological variables could contribute to understanding the construction of the academic entrepreneur's identity.

Jain et al. (2009) and Hayter et al. (2021) shed light on a theory in which entrepreneurial academics end up playing a game between their identities, allowing them to preserve both their academic and entrepreneurial identities. Building on these authors' work, Jain et al. (2009) emphasize that these actors use skills such as delegation and buffering to assist them in transitioning from one identity to another. Delegation involves assigning tasks to others, while buffering involves creating temporal or spatial separations between their academic and commercial identities.

Understanding the mindset of academic entrepreneurs and the specific mechanisms they use to manage their identities is becoming increasingly relevant for the successful promotion of mechanisms that encourage effective technology transfer between academia and society. Public policies emerge in this context as a crucial factor to further facilitate the flow of knowledge, generating development and access (Hayter et al., 2021; Neves & Brito, 2020; Wang et al., 2022).

Regarding the conceptual understanding of the academic entrepreneur, through the entrepreneurial identity formed by them, the predominant approach associates the processes of identity construction with the concept of role identity, which originates from social psychology (Jain et al., 2009). This conceptual approach defines roles as social positions that have been attributed and achieved to develop impactful actions and, therefore, are associated with a set of behavioral expectations within the environment in which they are embedded and interconnected with other actors (Merton, 1968). The conceptual analysis of identity is related to the formation of individual competencies and guidelines already acquired by the individual in their past trajectory, which, in turn, guide and influence the individual's actions in their social context (Gecas, 1982).

Furthermore, in terms of theoretical foundation in the relationship between 'academic entrepreneur' and 'entrepreneurial identity,' the epistemological reference of the association with role identity is demonstrated in

the scientific field by studies of Ibarra (1999) and Pratt et al. (2006), who analytically conceived that the transitions and changes arising from formative processes of professional careers in different individuals evidenced the influence of different roles played during these processes (Jain et al., 2009). Such influences were visible through changes in patterns associated with individual and behavioral actions, exposed skills, and evident beliefs when individuals are required to perform certain professional roles related to their roles in the social context (Ebaugh, 1988; Jain et al., 2009; Louis, 1980; Zou et al., 2019).

Scientific findings demonstrate that the entrepreneurial identity formed from various incentives present in the academic environment does not surpass the prominence of the academic role identity, given that individuals in this analytical environment primarily seek to perform the role of 'academic scientist,' related to mental stimulation and the intellectual freedom of scientific production (Jain et al., 2009; Zou et al., 2019). In contrast, the role of 'academic entrepreneur,' conceptually designated by entrepreneurial initiatives such as the creation of startups, spin-offs, and venture building (Lockett et al., 2005; Shane, 2004; Stuart & Ding, 2006), exposes a formative influence of a secondary entrepreneurial identity in academic actors. Additionally, scientific studies demonstrate a conceptual shift in understanding the 'entrepreneurial role' of these actors, where they argue that every intellectual effort or scientific initiative associated with the potential for technology transfer, such as patent registrations, licensing, and consulting, as well as startups, highlights entrepreneurial actions and, therefore, influences the formation of the entrepreneurial identity of these individuals (Jain et al., 2009; Zou et al., 2019).

Furthermore, the role of entrepreneurial intention in the origin of an individual's entrepreneurial behavior should be highlighted. The entrepreneurial intention explored here is understood as a process of understanding external stimuli to influence the individual's entrepreneurial behavior (Mueller et al., 2014). Thus, it is understood that entrepreneurial intention can also contribute to the academic adopting entrepreneurial behavior (Gecas, 1982; Merton, 1957), influencing the construction of their academic entrepreneurial identity (Jain et al., 2009).

METHODOLOGY

The study adopts a systematic literature review (SLR) method to conduct a comprehensive survey of the literature related to the overall objective of the work, reducing the risk of selection biases and enhancing transparency in all stages of the research by employing clear and systematic procedures (Aguinis et al., 2023; Colicchia & Strozzi, 2012; Lame, 2019).

Although there are several studies contributing to the methodological approach of conducting an SLR, there is no standard methodological design, and research typically follows a process that includes formulating the research question, identifying keywords for article retrieval, selecting inclusion and exclusion criteria for articles, and evaluating the selected articles (Aguinis et al., 2023; Colicchia & Strozzi, 2012; Lame, 2019; Thomé et al., 2016; Tranfield et al., 2003).

Within the broader framework of SLR, this study adopts the scoping review as the specific approach, given its alignment with the study's objective to comprehensively map the field, identify conceptual boundaries, and highlight research gaps. According to Xiao and Watson (2019), the scoping review is a systematic method particularly suitable for exploring broad research questions and synthesizing diverse bodies of literature. This approach allows for the inclusion of a wide range of studies, focusing on providing an extensive overview of the field.

In addition to the mentioned steps, this research also includes the analysis of co-citation networks within the selected articles, which was performed using the Research Rabbit platform developed by Chandra et al. (2023). Research Rabbit is a visual discovery tool for scientific articles and citation network analysis based on a bibliographic database. The significance of this analysis lies in the perspective that citation networks act as a system that promotes knowledge modification, assuming that authors within a specific network cite each other to position their work within the field, relying on prior knowledge. Prominent citations tend to serve as pillars of the research tradition being studied. This technique allows for the study of network connectivity, identification of research specialties, and the evolution of traditions and paradigm shifts (Colicchia & Strozzi, 2012; Hummon & Dereian, 1989).

With the research question formulated, a preliminary literature review was conducted to identify keywords for the search in the Scopus and Web of Science databases, considered the largest academic databases (Colicchia & Strozzi, 2012). The keywords were organized into three axes: academic entrepreneur, entrepreneurial identity, and technology transfer, as exemplified in Table 1.

Table 1. Guiding axes for keyword search.

Axes	Branches	Boolean logic	Authors
Entrepreneurial scientist	Entrepreneurship aspiration Entrepreneurial behavior University support	("entrepreneurial scientist" OR "academic entrepreneur" OR "entrepreneurial researcher" OR "aspiration to entrepreneurship" OR "entrepreneurial behavior" OR "university support" OR "University Environment" OR "university context" OR "entrepreneurial education")	Hessels et al. (2008), Carsrud and Brännback (2011), Bullough and Renko (2013), Bayuo et al. (2020)
Entrepreneurial identity	Entrepreneurial culture Entrepreneurial engagement Entrepreneurial intention	("entrepreneurial identity" OR "entrepreneurial consciousness" OR "entrepreneurial intelligence" OR "entrepreneurial self recognition" OR "entrepreneurial culture" OR "entrepreneurial artifact" OR "entrepreneurial conscience" OR "entrepreneurial education") AND ("entrepreneurial engagement" OR "entrepreneurial commitment" OR "entrepreneurial endeavor" OR "entrepreneurial involvement") AND ("entrepreneurial intention" OR "entrepreneurial participation" OR "entrepreneurial will" OR "entrepreneurial disposition" OR "entrepreneurial thinking" OR "entrepreneurial desire" OR "entrepreneurial purpose")	Shane and Venkataraman (2000), Van der Zwan et al. (2016), Hessels et al. (2011), Chen et al. (1998)
Technology transfer	Spin-offs, patents, licenses, consulting, industry collaboration	("technology transfer" OR "spinoff" OR "patents" OR "licenses" OR "science consultancy" OR "industry collaboration" OR "innovation broker")	Guan et al. (2006), Woolley (2017), Tseng et al. (2020), Perkmann and Walsh (2007)

Note. Developed by the authors.

The axes and branches presented enabled the creation of the Boolean logic also included in Table 1. A survey of possible synonyms and related words was conducted to construct the query strings used in the databases. In total, 38 terms related to entrepreneurial identity were included in the search. It is worth noting that the connector 'AND' was used to link the axes, which restricts the search to include all the specified terms.

These terms were used in the Scopus and Web of Science databases, selecting the option to search in titles, abstracts, and keywords. Regarding the article selection criteria, in this initial data collection phase, it was decided not to restrict the search in order to gather the maximum number of studies possible. Therefore, there were no limitations regarding the field, language, or year. The only criterion was that the articles should be already completed.

The two databases returned a total of 1,043 articles, which were grouped and analyzed using R 4.1 software, leveraging the bibliometrix library and its biblioshiny add-on (Aria & Cuccurullo, 2017). This process led to the exclusion of 159 duplicate articles, resulting in 884 unique entries. After this initial filtering, a second filtering stage was applied, focusing solely on documents categorized as articles, which narrowed the selection to 431 initially chosen works.

The selected articles were analyzed through their abstracts (Bowen, 2009) and mining processes using the bibliometrix library, including the biblioshiny package. The selection criteria included the number of citations, publication in high-impact journals, author relevance, and thematic alignment with the identity of the entrepreneurial scientist (Aria & Cuccurullo, 2017; Lobo et al., 2024). The 38 articles that stood out based on these indicators were identified as the most relevant and were organized into a co-citation network (Chandra et al., 2023) and subjected to thematic content analysis (Bardin, 2016). In addition to the mining phase described, which included identifying conceptual gaps, categorizing the literature through clusters, and problematizing existing approaches, this study aims to advance along the miner–prospector continuum (Breslin & Gatrell, 2023). Thus, it follows the prospector's path by exploring the transfer of theories across interdisciplinary domains and proposes a future research agenda (Suddaby et al., 2011), anchored in inter- and intra-cluster dialogue within the co-citation network. This approach enabled the identification of variables that contribute to the formation of scientists' entrepreneurial identity and the factors influencing their entrepreneurial intentions.

RESULTS AND DISCUSSION

The general bibliometric details based on the search terms used and obtained through the biblioshiny add-on are presented in Table 2. The data collection period spanned from 1996 to 2022, with a total of 431 articles analyzed from 218 sources within this period. The average publication growth rate is 15.02% per year. Additionally, the published documents have an average age of 4.29 years, and the average number of citations per document is 10.64.

The analyzed documents feature 618 keywords assigned by the sources, 1,166 keywords assigned by the authors, and 17,336 references used. The analysis includes 1,138 authors, with 53 authors having single-authored documents. Regarding author collaboration, the co-authorship index is 2.91 authors per article, and the international collaboration rate reaches 23.9% of the 431 articles analyzed.

Table 2. Key information about the database.

Description	Results
General information	
period	1996–2022
source	218
documents	431
annual growth rate %	15.02
average document age	4.29
average citations per document	10.64
total references used	17,336
Keywords	
keywords plus (id)	618
author keywords	1,166
Authors	
Document authors	1,138
Authors of single-authored documents	53
Author collaboration	
co-authors per document	2.91
% of international co-authorships	23.9

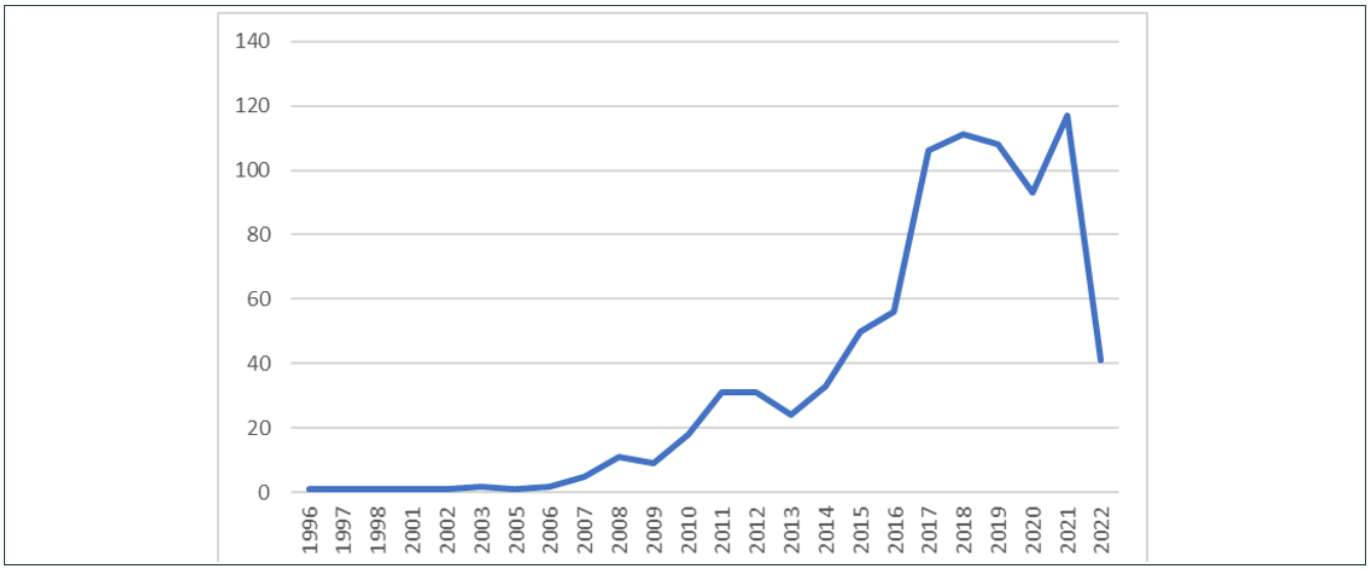
Note. Developed by the authors.

Figure 1 illustrates the annual article production on the subject, with the first publication in 1996 and the peak of publications in 2021 with 117 articles, up until the data extraction, which occurred in the second semester of 2022. The publication by Shimron and Klos (1996) discusses the implementation of entrepreneurial education in the educational curriculum of Israel. According to the authors, this shift in perspective from collectivist values to a competitive perspective embedded in entrepreneurship is due to the country's strategic vision of creating avenues for the formation of entrepreneurial individuals.

Valencia-Arias et al. (2021), Tiwari et al. (2022), Breznitz and Zhang (2022), and Kayed et al. (2022), for example, explore various attributes, including social entrepreneurial education, empathy, university environment, and culture, which can contribute to the development of entrepreneurial intention.

Furthermore, Donoso-González et al. (2022) seek to understand how entrepreneurial education affects the formation of identity in pre-university students, through pedagogical and environmental factors present in an entrepreneurial education program.

Based on this analysis, there is a shift in focus from a perspective initially centered on the debate of the possible effects of entrepreneurial education to one that investigates the attributes that can foster the formation and development of entrepreneurial intention, as well as the effects of these attributes on the formation of individuals' identities.



Source: Developed by the authors

Figure 1. Annual article production.

Table 3 presents the top 10 sources with the highest number of publications on the researched topic within the period covered until the present study.

Table 3. Key sources of publications on the researched topic.

Source	Articles
Education and Training	26
International Journal of Entrepreneurial Behavior & Research	23
Frontiers in Psychology	22
Sustainability	21
International Journal of Management Education	11
Journal of Small Business Management	9
Quality Management in Higher Education Vol 1	9
Industry and Higher Education	8
International Entrepreneurship and Management Journal	8
Journal of Small Business and Enterprise Development	8

Note. Developed by the authors.

The *Journal Education and Training* appears with 26 publications. It is a periodical that focuses on young students in universities, supporting investigations that study the transition from academic settings to employment. Among these 26 publications, the study by Nielsen and Gartner (2017) stands out with 27 citations to date. The authors investigate various individual factors that play a role in students' internal reflection as they attempt to develop an entrepreneurial identity, from a perspective of multiple identities and the influence of external factors, such as the university environment.

Table 4 presents the top 10 most cited references within the analyzed author database.

Table 4. Top 10 most cited references within the database.

References used	Citations
Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T	116
Krueger, N. F., Jr., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15*(5-6), 411-432. https://doi.org/10.1016/S0883-9026(98)00033-0	88
Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta–analytic review. *Entrepreneurship Theory and Practice, 38*(2), 217-254. https://doi.org/10.1111/etap.12095	85
Liñán, F., & Chen, Y. (2009). Development and cross–cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice, 33*(3), 593-617. https://doi.org/10.1111/j.1540-6520.2009.00318.x	74
Souitaris V., Zerbinati, S., Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing, 22*(4), 566-591. https://doi.org/10.1016/j.jbusvent.2006.05.002	72
Oosterbeek, H., van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review,* 54(3), 442-454. https://doi.org/10.1016/j.euroecorev.2009.08.002	64
Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management, 53*(1), 75-93. https://doi.org/10.1111/jsbm.12065	63
Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing, 28*(2), 211-224. https://doi.org/10.1016/j.jbusvent.2012.03.002	63
Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90*(6), 1265-1272. https://doi.org/10.1037/0021-9010.90.6.1265	57
Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice, 29*(5), 577-597. https://doi.org/10.1111/j.1540-6520.2005.00099.x	55

Note. Developed by the authors.

The theory of planned behavior studied by Ajzen (1991), which falls within the theoretical field of social psychology, seeks to predict and explain human behavior based on attitudes, subjective norms, and perceived behavioral control. This work seems to serve as a broad umbrella for many research studies related to the analyzed theoretical field. Among the 431 articles, this work is cited in 116, representing 26.92% of the entire analyzed database, positioning it as a guiding theoretical lens among researchers in the field.

Among the most cited and recent references in this field, the study by Bae et al. (2014) stands out. They conducted a meta-analysis of 73 studies to examine the effect of entrepreneurial education on entrepreneurial intentions. Despite a small effect, the authors were able to establish a significant relationship. Other works add insights into the entrepreneurial behavior of academics, such as the study by Krueger et al. (2000), which compares two models based on intention in terms of their ability to predict entrepreneurial intentions: Ajzen's (1991) theory of planned behavior (TPB) and the entrepreneurial event model (SEE) by Shapero and Sokol (1982), which is also part of the theoretical field of social psychology. In this study, the authors explore the social dimensions of entrepreneurship, examining the role of social factors in the entrepreneurial process and how

they influence the creation and development of new ventures. It is noteworthy that the attribute of entrepreneurial education is widely used as a promoter of entrepreneurial intention, and alongside that, the investigation of factors that shape entrepreneurial capacity is also among the most cited. The literature seems concerned with identifying the variables that can contribute to the promotion of entrepreneurship among individuals.

Examining the literature analyzed from a geographic perspective of its origin, Table 5 presents the most productive countries based on the location of their authors, using two indicators: single-country publications (SCP) and publications with international contribution (MCP).

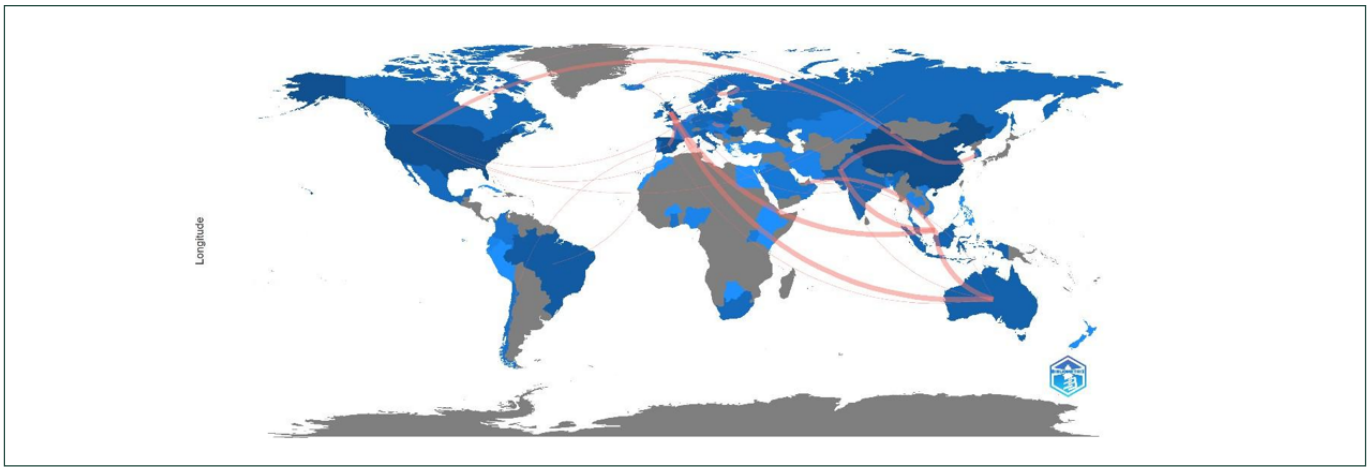
Table 5. Corresponding countries of the authors.

Position	Countries	Articles	SCP	MCP	MCP_%
1	China	51	40	11	21.60%
2	Spain	38	34	4	10.50%
3	USA	35	31	4	11.40%
4	Brazil	21	19	2	9.50%
5	Romania	19	18	1	5.30%
6	Indonesia	14	12	2	14.30%
7	Italy	14	11	3	21.40%
8	United Kingdom	14	11	3	21.40%
9	Poland	13	11	2	15.40%
10	Malaysia	12	5	7	58.30%

Note. Developed by the authors.

Table 5 contains the ranking of the top 10 most productive countries. It is notable that the majority of publications come from authors located in China with 51 articles, followed by Spain with 38 and the United States of America with 35 publications. Brazil is in fourth position with 21 publications.

When analyzing the index of international contribution participation (MCP_%) by countries, we observe that Malaysia is the country with the highest level of international contribution in the research process within this field, with international contribution in 58.30% of its research. China follows closely with 21.60%, and Italy and England come next, both with 21.40%. Brazil appears second to last, indicating that it is one of the countries with the lowest levels of international contribution in its research within the investigated theoretical field. Figure 2 illustrates the discussed dynamics.

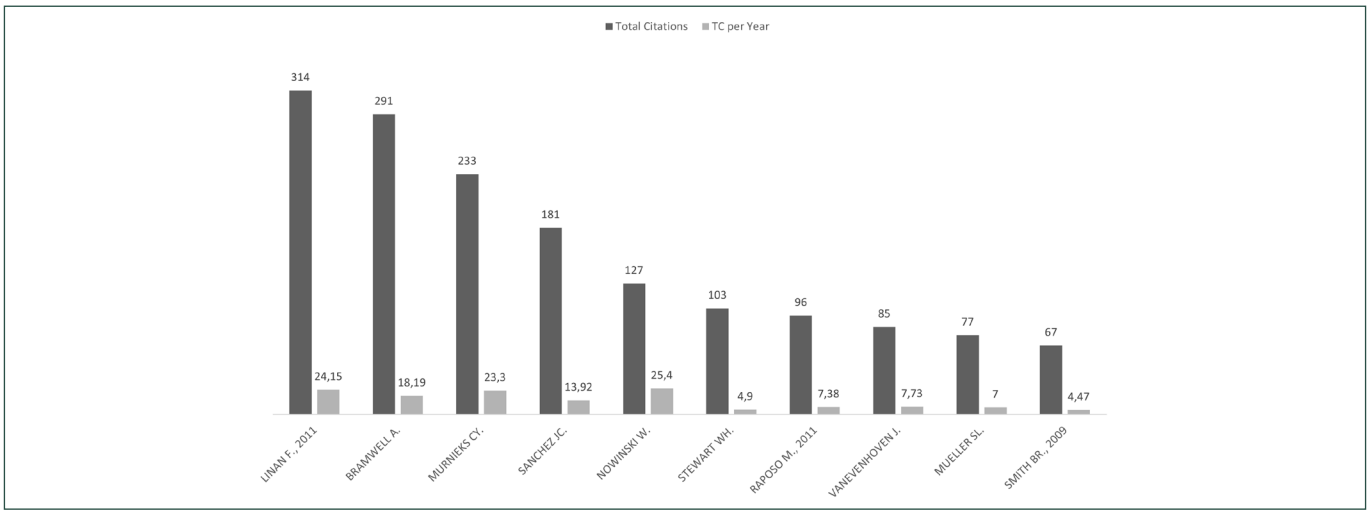


Source: Developed by the authors

Figure 2. Dynamics of international contribution.

Figure 2 clearly shows the limited participation of the South American and African continents, with North America represented by the United States of America, Asia represented by Malaysia and China, and Europe represented by England, Italy, and Spain taking the lead.

Figure 3 displays the most cited articles. Among them, some discuss the influence of factors that can contribute to the development of an entrepreneurial characteristic. These discussions are directly related to the theme of entrepreneurial identity, which is the focus of investigation in this study.



Source: Developed by the authors

Figure 3. Most cited articles.

As shown in Figure 3, the article by Liñán et al. (2011) stands out with 314 citations to date. The authors investigate which elements of a cognitive approach, considering personality traits, play an influential role in forming the personal decision to start a business.

Murnieks et al. (2014) examine the influence of passion among entrepreneurs. The authors integrate identity theory with literature on passion to investigate the possible pathways through which entrepreneurial identities can influence passion, as well as the relationship between passion and entrepreneurial behavior.

Vanevenhoven and Liguori (2013) conduct their research using a secondary database from an entrepreneurial education project rooted in cognitive theory. The research was based on a longitudinal study in which university students provided data on the impact of entrepreneurial education on two main aspects: (1) the motivational processes underlying the student's journey to become an entrepreneur and throughout the entrepreneurial process, and (2) the transformation process from student to entrepreneur.

Finally, Mueller and Conway Dato-on (2013) investigate how biological sex, social roles, self-efficacy culture, and entrepreneurial motivation influence the formation of the entrepreneur stereotype that balances stereotypical feminine and masculine characteristics.

These studies provide a starting point for investigating the factors that can impact the development of entrepreneurial identity among scientists. It is important to consider the specific mechanisms through which the development of this identity influences entrepreneurial intention. However, it is important to recognize that this relationship may not be unidirectional. Instead, the development of entrepreneurial identity and entrepreneurial intention can feed back into each other in a dynamic and cyclical process, in which each variable influences and is influenced by the other over time.

The identified literature reveals connections between themes and actors, allowing us to understand their most relevant niches. By clustering the articles according to the themes present in the theoretical field of the database, it was possible to identify the following clusters: impact, innovation, business incubation, identity, secondary education, systems, lessons, emergence, and returns. These clusters were obtained using biblioshiny, which identifies the predominance of themes based on the frequency and co-occurrence of terms within the reviewed articles.

However, only the innovation cluster significantly relates to the identity cluster. This can be explained by the fact that many of the factors that drive innovation are also closely linked to the formation of entrepreneurial identity. Innovation often involves the adoption of new ideas, risk-taking, and the pursuit of opportunities, which are also fundamental characteristics for building an entrepreneurial identity. Thus, articles that explore innovation tend to address aspects of identity, either explicitly or implicitly, by describing how individuals see themselves as innovators and entrepreneurs (Chen et al., 2018; Mascha & Apostolakis, 2020). Therefore, other works related to the theme of identity were captured. Table 6 presents the results.

Table 6. Document adherence to the theme.

Title	Year	Innovation	Identity	Cluster	Total citations
Personalizing entrepreneurial learning: A pedagogy for facilitating the know why	2014	0.529	0.464	Innovation	55
Entrepreneurial education for the entrepreneurial university: A stakeholder perspective	2020	0.127	0.867	Identity	26
What determines the entrepreneurial success of academics? Navigating multiple social identities in the hybrid career of academic entrepreneurs	2019	0.691	0.282	Innovation	10
The university as an entrepreneurial learning space: The role of socialized learning in developing entrepreneurial competence	2020	0.362	0.431	Identity	5
Entrepreneurial intention of agriculture undergraduates in Russia	2020	0.172	0.517	Identity	3
Start-up sprint: Providing a small group learning experience in a large group setting	2021	0.639	0.184	Innovation	1
Enabling academic entrepreneurship: The I-corps experience	2021	0	0.961	Identity	1
Full curriculum-based venture creation programmes: Current knowledge and research challenges	2022	0.725	0.258	Innovation	0
University technology transfer and agricultural science entrepreneurial education: A view from inside	2019	0	1	Identity	0

Note. Developed by the authors.

It can be observed that the articles clustered under the theme of identity are recent, and a total of 10 articles related to both the identity cluster and the innovation cluster were identified. Among the articles exclusively belonging to the identity cluster, the most cited one is "Entrepreneurial education for the entrepreneurial university: A stakeholder perspective" by Gianiodis and Meek (2020).

For content analysis, these 10 articles were included, along with the works of Donoso-González et al. (2022), Liñán et al. (2011), Murnieks et al. (2014), Vanevenhoven and Liguori (2013), and Mueller and Conway Dato-on (2013), which were found to be related to the theme during the bibliometric analysis mining.

In addition, a review of the abstracts of the other 431 articles was conducted to check if there were any more related to the theme that were not identified during the bibliometric analysis. This resulted in the identification of 15 more articles related to the theme of the identity of the academic entrepreneur. All of these articles are listed in Table 7.

Table 7. Articles included for the construction of the co-citation network.

Cluster	Paper title	Research addresses
1	Factors affecting entrepreneurial intention levels: A role for education (Liñán et al., 2011)	Examines how education influences entrepreneurial intention levels.
1	Pathways of passion: Identity centrality, passion, and behavior among entrepreneurs (Murnieks et al., 2014)	Explores identity centrality and passion in entrepreneurial behavior.
1	The impact of entrepreneurship education: Introducing the entrepreneurship education project (Vanevenhoven & Liguori, 2013)	Discusses the impact of entrepreneurship education on skill and intention development.
4	Entrepreneurial orientation, entrepreneurial education and performance (Cho & Lee, 2018)	Analyzes the relationship between entrepreneurial orientation, education, and performance.
3	Entrepreneurship unleashed: Understanding entrepreneurial education outside of the business school (Turner & Gianiodis, 2018)	Examines entrepreneurship education outside of business schools and its impact.
4	Emotional competencies and cognitive antecedents in shaping student's entrepreneurial intention (Fernández-Pérez et al., 2019)	Explores how emotional competencies and cognitive antecedents shape students' entrepreneurial intention.
1	An analysis of the determinants of entrepreneurial intentions among students: A Romanian case study (Popescu et al., 2016)	Analyzes the determinants of entrepreneurial intentions among students in Romania.
4	Students' entrepreneurial intentions: The role of prior learning experiences and emotional, social, and cognitive competencies (Bonesso et al., 2018)	Investigates the role of prior learning experiences and competencies in students' entrepreneurial intentions.
1	Am I a student and/or entrepreneur? Multiple identities in student entrepreneurship (Nielsen & Gartner, 2017)	Examines multiple identities in student entrepreneurship.
2	Entrepreneurial intentions among university students in Italy (Israr & Saleem, 2018)	Studies entrepreneurial intentions among university students in Italy.
2	Do entrepreneurial education and big-five personality traits predict entrepreneurial intention among universities students? (Bazkiaei et al., 2020)	Analyzes if entrepreneurial education and Big Five personality traits predict entrepreneurial intention.
4	What determines the entrepreneurial success of academics? Navigating multiple social identities in the hybrid career of academic entrepreneurs (Guo et al., 2019)	Investigates factors determining the entrepreneurial success of academics, considering their multiple social identities.
4	Entrepreneurial intentions of private university students in the kingdom of Bahrain (Al-Shammari & Waleed, 2018)	Analyzes entrepreneurial intentions of private university students in Bahrain.
1	The impact of the family background on students' entrepreneurial intentions: An empirical analysis (Georgescu & Herman, 2020)	Studies the impact of family background on students' entrepreneurial intentions.

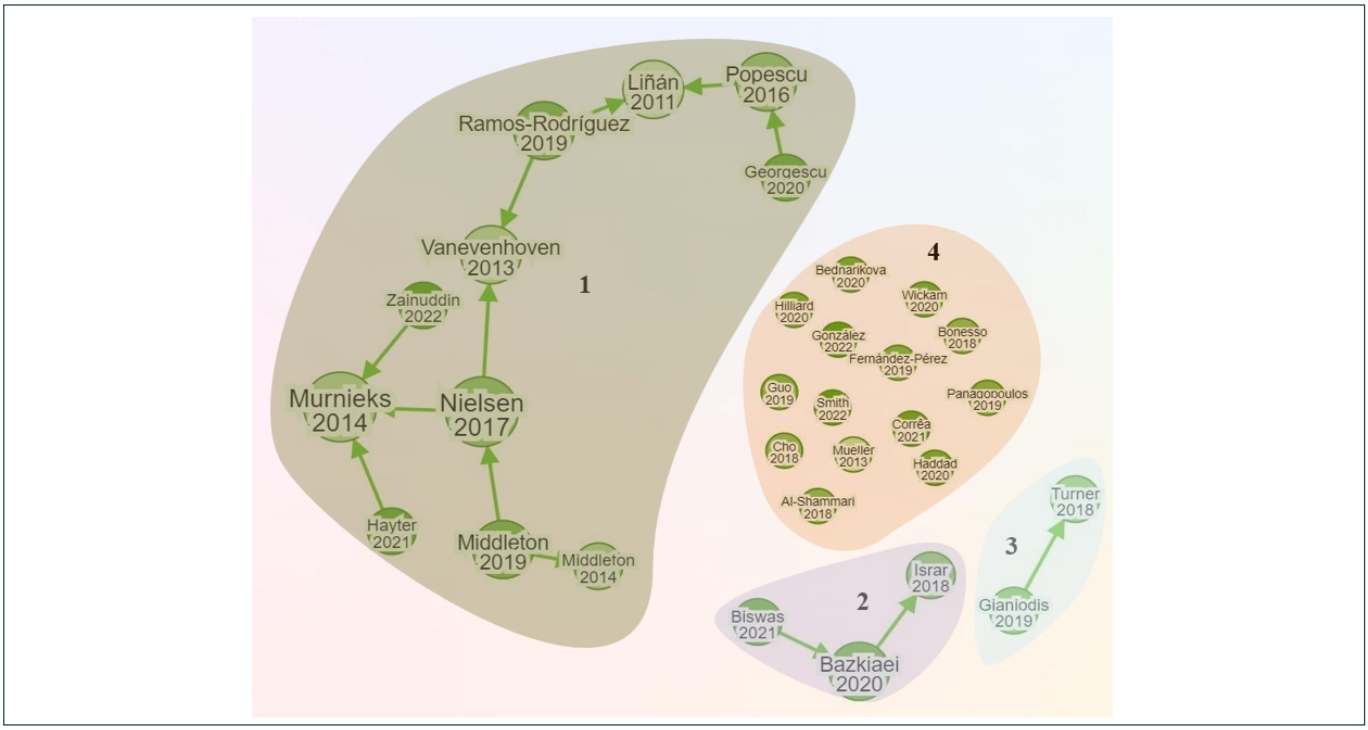
(continue)

Table 7. Articles included for the construction of the co-citation network. (continued)

Cluster	Paper title	Research addresses
1	Why not now? Intended timing in entrepreneurial intentions (Ramos-Rodríguez et al., 2019)	Explores intended timing in entrepreneurial intentions.
4	Social capital and individual entrepreneurial orientation: Innovativeness, proactivity, and risk-taking in an emerging economy (Corrêa et al., 2021)	Analyzes individual entrepreneurial orientation in terms of innovativeness, proactivity, and risk-taking in an emerging economy.
2	Engine of entrepreneurial intentions: Revisiting personality traits with entrepreneurial education (Biswas & Verma, 2022)	Revisits personality traits with entrepreneurial education as drivers of entrepreneurial intentions.
1	Becoming an academic entrepreneur: How scientists develop an entrepreneurial identity (Hayter et al., 2021)	Studies how scientists develop an entrepreneurial identity.
4	Assessing alignment of entrepreneurial spirit to job descriptions seeking business administration or management undergraduates (Wickam et al., 2020)	Assesses alignment of entrepreneurial spirit to job descriptions for business administration or management undergraduates.
4	Analysis of entrepreneurial education — Study of the configuration of the entrepreneurial identity through the acquisition of crucial transversal competences for future university students (Donoso-González et al., 2022)	Studies the configuration of entrepreneurial identity through acquisition of crucial transversal competences for future university students.
1	Postgraduate entrepreneurship education: Can entrepreneurial passion be developed? (Zainuddin & Mukhtar, 2022)	Investigates if entrepreneurial passion can be developed through postgraduate entrepreneurship education.
4	A cross cultural study of gender-role orientation and entrepreneurial self-efficacy (Mueller & Conway Dato-on, 2013)	Cross-cultural study on gender-role orientation and entrepreneurial self-efficacy.
1	Personalizing entrepreneurial learning: A pedagogy for facilitating the know why (Middleton & Donnellon, 2014)	Discusses a personalized pedagogy for facilitating entrepreneurial learning.
3	Entrepreneurial education for the entrepreneurial university: A stakeholder perspective (Gianiodis & Meek, 2020)	Addresses entrepreneurial education in the entrepreneurial university from a stakeholder perspective.
1	The university as an entrepreneurial learning space: The role of socialized learning in developing entrepreneurial competence (Middleton et al., 2019)	Explores the role of socialized learning in developing entrepreneurial competence in the university.
4	Entrepreneurial intention of agriculture undergraduates in Russia (Bednarikova et al., 2020)	Analyzes entrepreneurial intentions of agriculture undergraduates in Russia.
4	Start-up sprint: Providing a small group learning experience in a large group setting (Hilliard, 2021)	Discusses the small group learning experience in a large group setting in the context of startups.
4	Enabling academic entrepreneurship: The I-Corps experience (Al Haddad et al., 2021)	Explores the I-Corps experience in enabling academic entrepreneurship.
4	Full curriculum-based venture creation programmes: Current knowledge and research challenges (Smith et al., 2022)	Addresses full curriculum-based venture creation programs, current knowledge, and research challenges.
4	University technology transfer and agricultural science entrepreneurial education: A view from inside (Panagopoulos et al., 2019)	Examines university technology transfer and agricultural science entrepreneurial education.

Note. Developed by the authors.

With the theme-relevant papers identified, the next step was to analyze the co-citation network of this set of 30 articles. Figure 4 illustrates the co-citation network.



Source: Developed by the authors

Figure 4. Co-citation network of theme-relevant articles.

As observed in Figure 4, the co-citation network revealed four clusters, of which Clusters 1, 2, and 3 display connections between authors, while Cluster 4 shows no citation relationships among its authors. Among the connected clusters, the largest is Cluster 1, comprising a total of 11 articles, followed by Cluster 2 with 3 articles and Cluster 3 with 2 articles. Cluster 4, characterized by its independence among authors, contains 14 articles.

The studies within Cluster 1, titled Education and the Construction of Entrepreneurial Identities, highlight a convergence regarding the role of education in shaping entrepreneurial identity, supporting the notion that entrepreneurial education is one of the fundamental factors for molding intentions and behaviors related to entrepreneurship (Liñán et al., 2011). Along these lines, the importance attributed by authors to structured educational programs for developing specific entrepreneurial skills and fostering entrepreneurial intentions is evident (Vanevenhoven & Liguori, 2013). These authors argue that education goes beyond the transmission of technical knowledge, playing a significant role in building an entrepreneurial mindset.

Nielsen and Gartner (2017) and Murnieks et al. (2014) expand this perspective by emphasizing the centrality of emotional aspects, such as entrepreneurial passion, and the existence of multiple identities as key factors in the internalization of entrepreneurial identity. Consequently, it becomes clear that the combination of emotional and cognitive dimensions positions education as a multifaceted process encompassing technical, emotional, and social aspects (Ramos-Rodríguez et al., 2019), in addition to influencing the emergence of entrepreneurial intentions in individuals.

Additionally, it is acknowledged that family interactions have the potential to complement the role of education in shaping entrepreneurial identity (Georgescu & Herman, 2020). This suggests that the social environment in which an individual is embedded, particularly the family context, combines with formal entrepreneurial education to foster entrepreneurial perceptions and intentions.

Studies such as those by O'Shea et al. (2008), Krabel and Mueller (2009), and Prodan and Drnovsek (2010) emphasize the role of social networks and access to economic resources in the construction of entrepreneurial identity. These authors highlight that social networks, connections, and financial support can facilitate the transition to entrepreneurship and strengthen entrepreneurial identity.

On the other hand, some authors diverge regarding the effectiveness of formal and informal educational approaches. While Liñán et al. (2011) and Vanevenhoven and Liguori (2013) argue that formal and structured programs, such as university courses, are effective tools for developing entrepreneurial competencies and intentions, Middleton et al. (2019) and Middleton and Donnellon (2014) emphasize the relevance of informal and socialized learning experiences. They stress that the development of entrepreneurial identity occurs beyond the classroom, through network interactions, practical learning, and social dynamics. This perspective is supported by Hayter et al. (2021), who examine hybrid contexts, such as scientists transitioning into entrepreneurship, highlighting the role of non-traditional environments in fostering entrepreneurial skills.

Authors such as Down (2006) and Shepherd and Haynie (2009) also emphasize that the construction of entrepreneurial identity involves a dynamic process between an individual's self-perception and the social and cultural interactions within their environment. This perspective is further expanded by Downing (2005), who conceptualizes identity as a bridge between micro and macro analyses in the field of entrepreneurship.

The three studies within Cluster 2, categorized as Personality as Drivers of Entrepreneurial Intention, explore personality traits as predictors of entrepreneurial intentions (Bazkiaei et al., 2020; Biswas & Verma, 2022; Israr & Saleem, 2018). Israr and Saleem (2018) argue that individual traits directly influence perceived feasibility and perceived control, which are critical factors in the development of entrepreneurial identity among university students. Bazkiaei et al. (2020) identify a positive correlation between Big Five traits such as extraversion, openness, and conscientiousness and entrepreneurial intentions, shaping favorable attitudes and beliefs toward entrepreneurship.

Meanwhile, in Cluster 3, titled Alternative Contexts and Networks in Entrepreneurial Education, which includes only two articles, the focus is on the need for entrepreneurial education to transcend traditional business school boundaries. The cluster advocates for unconventional educational contexts, such as interdisciplinary courses or training in corporate environments, as offering more diverse and practice-oriented experiences (Turner & Gianiodis, 2018). Gianiodis and Meek (2020) highlight the importance of engaging external stakeholders, including investors, mentors, and institutions, to foster a more applied and market-driven entrepreneurial education.

Finally, Cluster 4, titled Competencies and Identities within Context, composed of independent articles, presents a diverse set of perspectives on the role of emotional, social, and cognitive competencies, as well as cultural and educational contexts, in shaping entrepreneurial identity. A key theme emerging from the analysis is the importance of emotional and cognitive

competencies in entrepreneurial intention (Bonesso et al., 2018; Fernández-Pérez et al., 2019), with emphasis on emotional skills, such as emotional regulation, and cognitive competencies, such as critical thinking, in the process of building an entrepreneurial mindset.

Furthermore, studies such as Weick (1995) discuss how individuals develop multiple identities to navigate different social contexts. Expanding on this perspective, Guo et al. (2019) introduce the concept of hybrid identities, suggesting that navigating multiple roles, such as academic and entrepreneur, relies on adaptive emotional and social competencies.

To synthesize the cognitive psychological aspects, the following table was organized, composed of clusters and the variables that emerge from them, validated by the authors who substantiate this analysis.

Table 8. Psychological and cognitive aspects.

Cluster		Psychological and cognitive aspects	Validation
1	Education and construction of entrepreneurial identities	**Entrepreneurial identity:** Centrality of identity as a driver of entrepreneurial behavior.	Murnieks et al. (2014), Nielsen and Gartner (2017)
		Entrepreneurial passion: Core emotion that drives entrepreneurial action.	Murnieks et al. (2014), Zainuddin and Mukhtar (2022)
		Self-efficacy: Belief in the ability to achieve entrepreneurial goals, strengthened by education and social support.	Liñán et al. (2011), Middleton et al. (2019)
		Cognitive internalization: Learning that reinforces entrepreneurial values and behaviors in educational environments.	Middleton et al. (2019), Vanevenhoven and Liguori (2013)
2	Personality and drivers of entrepreneurial intention	**Personality traits:** Big Five characteristics (extraversion, openness, conscientiousness) as determinants of intentions.	Bazkiaei et al. (2020), Biswas and Verma (2022)
		Perceived control: The belief in the ability to overcome entrepreneurial challenges.	Israr and Saleem (2018)
		Perceived feasibility: Cognitive evaluation of the likelihood and success of entrepreneurial behavior.	Israr and Saleem (2018)
3	Alternative contexts and networks in entrepreneurial education	**Contextualized learning, cognitive flexibility, and social engagement:** Practical experiences in non-traditional contexts shape entrepreneurial competencies, including interaction with stakeholders and networks for identity and motivation building.	Turner and Gianiodis (2018), Gianiodis and Meek (2020)
4	Competencies and identities within context	**Emotional competencies:** Emotional regulation, confidence, and empathy as enablers of entrepreneurial behavior.	Fernández-Pérez et al. (2019), Bonesso et al. (2018)
		Hybrid identities: Cognitive navigation between distinct social roles, such as academic and entrepreneur.	Guo et al. (2019)
		Social and cultural capital: Cognitive evaluation of cultural, social, and economic norms that shape intentions, behaviors, and social networks.	Mueller and Conway Dato-on (2013), Bednarikova et al. (2020), Corrêa et al. (2021), Al Haddad et al. (2021)

Note. Developed by the authors.

Assuming the perspective of the *miner-prospector continuum*, the proposed review, on one hand, explored, gathered, and analyzed previous works to shed new light on the field of academic entrepreneurial identity (Gond et al., 2020). On the other hand, the findings from the exploratory mining phase were synthesized and organized, enabling the reconstruction of the field by extending the existing literature, critically re-presenting it, and intervening in theory with the support of interdisciplinarity. In this way, the study advances toward the prospector perspective, proposing new theoretical directions and contributing to a future research agenda.

To this end, the literature analysis reveals that academic entrepreneurial identity is still not a well-defined construct, with a lack of consensus regarding its characteristics, formative processes, and impact on entrepreneurial behavior. Furthermore, the existing literature is predominantly fragmented, focusing on factors such as entrepreneurial intention (Fernández-Pérez et al., 2019; Murnieks et al., 2014) or educational entrepreneurship programs (Donoso-González et al., 2022; Wickam et al., 2020), without deeply exploring the relationship between identity and entrepreneurial practice. Given the lack of a clear definition of academic entrepreneurial identity in the analyzed articles, this study proposes the introduction of new theoretical pathways (Glaser & Strauss, 1967; Nadkarni et al., 2018), applying established theories to a new empirical context (Suddaby et al., 2011). In this sense, studies such as those by Tajfel and Turner (1979) and Fauchart and Gruber (2011) can contribute to the understanding of this social entrepreneurial identity, emphasizing that it emerges from social interactions and shared values within groups, such as social class, family, and research teams (Georgescu & Herman, 2020; Krabel & Mueller, 2009; Middleton et al., 2019; Middleton & Donnellon, 2014; O'Shea et al., 2008; Shepherd & Haynie, 2009). This theoretical framework is rooted in social psychology, much like the work of Fauchart and Gruber (2011), who identified three entrepreneurial social identities: Darwinian, communitarian, and missionary, in a distinct entrepreneurial context. When applied to the context of academic entrepreneurship, this framework

raises the possibility of clarifying whether there is a new entrepreneurial social identity specific to this context or whether the characteristics of academic entrepreneurs align with one of the identities already identified.

Furthermore, as this identity has not yet been studied in the academic context, there is an opportunity to explore how academics develop their entrepreneurial identity, particularly in environments where research commercialization and technology transfer are required (Donoso-González et al., 2022; Murnieks et al., 2014), through the lens of the theory proposed by Fauchart and Gruber (2011).

Moreover, the absence of a definition for academic entrepreneurial identity, as well as the scarcity of studies investigating its formation and implications (Li & Li, 2022; Mäkinen & Esko, 2022; Nowak-Mizgalska, 2022), highlights a critical gap. Although the reviewed studies often suggest that academic entrepreneurial behavior can be induced by contextual factors such as funding calls or institutional programs (e.g., I-Corps, Donoso-González et al., 2022), it remains unclear whether these initiatives foster the development of a lasting entrepreneurial identity or merely trigger reactive and temporary behaviors driven by specific opportunities (Hayter et al., 2021). These behaviors may fade once the incentives are removed, diluting the identity into intermittent episodes.

As suggested by Fauchart and Gruber (2011), the formation of an entrepreneurial identity relies on an internalization process that extends beyond external incentives, legitimizing the need for research examining how academics reconcile their multiple identities. Therefore, in addition to other traditional identities, one might be faced with Liquid Academic Entrepreneurial Identity. Inspired by the concept of liquid modernity, developed by Bauman (2000, 2013), this perspective argues that identity, in specific contexts such as funding calls, grants, institutional demands, and social needs, ceases to be a static characteristic and becomes a dynamic task. In these environments, individuals take on the responsibility of constructing their own identities, detaching themselves from fixed roots, rigid behaviors, or pre-established institutional norms. Liquid modernity thus emphasizes the mobility and flexibility of identities, which become increasingly fluid and adaptable to constantly changing circumstances (Beck, 2011; Giddens, 1991).

In this scenario, the identity of the researcher transitioning into the field of entrepreneurship exemplifies this notion of a fluid identity. This transition aligns with the coexistence of multiple identities (Nielsen & Gartner, 2017), the ability to navigate between different roles (Guo et al., 2019), the shift between academic and entrepreneurial functions (Donoso-González et al., 2022), and the experience of liminality (Hayter et al., 2021). These elements suggest a capacity to strategically and adaptively alternate between different identities, reinforcing the concept of a fluid identity (Turner & Gianiodis, 2018).

Despite the characteristic fluidity of identities in liquid modernity, Tajfel and Turner's (1979) social identity theory remains relevant by emphasizing the importance of the perceived continuity of group identity. This continuity, in both cultural and historical aspects (Sani et al., 2007), becomes particularly significant in dynamic contexts, such as the academic environment. Identification with the group and the fulfillment of needs related to the continuity of central identity (Smeekes & Verkuyten, 2017) are factors that contribute to the psychological and social stability of individuals.

In this sense, the perception of belonging to the academic group provides a solid foundation that enables experimentation and transitions between different identities, such as those of academic and entrepreneur (Zou et al., 2019). This dynamic, characterized by the coexistence of multiple identities, aligns with the notions of reintegration (Ibarra & Barbulescu, 2010) and identity holism (Rogers et al., 2017). Both approaches suggest that aspects of previous and new identities can be reconciled, allowing for meaningful integration of these dimensions (Ebaugh, 1988; Petriglieri, 2011). Thus, even in a context of fluidity and adaptability, continuity and belonging play a crucial role in balancing the stability and transactional nature of identities.

Adding to this, the cognitive framework provided by social identity theory helps interpret social situations and behaviors (Brewer & Miller, 1996; Tajfel & Turner, 1979), such as decisions about markets, customer needs, and resource utilization (Fauchart & Gruber, 2011). Fauchart and Gruber (2011) use three dimensions — basic social motivation, self-assessment, and frame of reference — to explain how they categorize different types of entrepreneurial social identities. By adopting theoretical lenses that address the transactional nature of academic and entrepreneurial identities (Donoso-González et al., 2022; Guo et al., 2019; Hayter et al., 2021; Nielsen & Gartner, 2017; Turner & Gianiodis, 2018) and grounded in the perspective of liquid modernity (Bauman, 2000, 2013; Beck, 2011; Giddens, 1991), a potential advancement in Fauchart and Gruber's (2011) entrepreneurial social identity theory is projected. This advancement would involve formulating a new theoretical construct that addresses the specificities of the academic context, termed Liquid Academic Entrepreneurial Identity. Table 7 below provides a systematization of the main theoretical relationships, highlighting the dimensions and their respective contributions.

Table 9. Theoretical systematization of the construct of Liquid Academic Entrepreneurial Identity.

Authors	Dimension	Social entrepreneurial identity (Fauchart & Gruber, 2011)	Liquid modernity (Bauman, 2000, 2013; Beck, 2011; Giddens, 1991)	Liquid Academic Entrepreneurial Identity
Fauchart and Gruber (2011)	Basic social motivation	Darwinian (profit), communitarian (collectivity), missionary (social impact)	Constant pursuit of adaptation and relevance in changing contexts	Academics combine scientific motivations (knowledge production) with practical ones (market and societal impact)
	Self-assessment	Guided by intrinsic values (e.g., innovation, group or social benefit) and entrepreneurial self-efficacy	Flexible identity, shaped by external pressures and contextual dynamics	Continuous reflection between the roles of academic and entrepreneur, depending on the demands of the market and academia
	Frame of reference	Norms of the social and economic field in which they operate	Absence of fixed structures; constant reinvention	Academics navigate between academic metrics (e.g., publications, citations) and practical impact metrics (e.g., startups, patents)
Tajfel and Turner (1979), Sani et al. (2007), Smeekes and Verkuyten (2017), Zou et al. (2018)	Perception of group identity continuity	Based on identification with the collective norms and values of the social and professional group	Group continuity is challenged by rapid changes but serves as an 'island of stability,' allowing individuals to experiment with new identities without completely losing their point of reference	The academic identity provides a perception of continuity that supports the transition to entrepreneurship, enabling the coexistence of academic and entrepreneurial identities
Bauman (2000, 2013), Nielsen and Gartner (2017), Turner and Gianiodis (2018), Guo et al. (2019), Hayter et al. (2021), Donoso-González et al. (2022)	Transactional nature	Not directly discussed, although the hybrid identity is acknowledged	Occurs essentially within the perspective of liquid modernity, with the exchange of roles	The constant transition between academic and entrepreneurial roles defines the 'liquidity' of the academic-entrepreneurial identity

Note. Developed by the authors.

Thus, the construct of Liquid Academic Entrepreneurial Identity is proposed through the integration of the perspective of entrepreneurial social identity theory, as proposed by Fauchart and Gruber (2011), which encompasses the dimensions of motivation, self-assessment, and frame of reference. This is complemented by the perspectives of liquid modernity from Bauman (2000, 2013), Giddens (1991), and Beck (2011), as well as perceptions of group identity continuity (Sani et al., 2007; Smeekes & Verkuyten, 2017; Tajfel & Turner, 1979; Zou et al., 2019). While the theoretical systematization provides a solid foundation, efforts are also directed toward advancing the construction of a metaphorical theorization, employing the analogy of a river's flow to illustrate the fluidity, transformation, and intersections inherent to this identity.

Regarding the proposed metaphor, the theoretical framework underpinning these analyses suggests that theoretical construction is a form of 'disciplined imagination,' where the creation of concepts is not merely a creative exercise but also requires rigor and structured methods. It advocates for the analytical structuring of phenomena through the development of innovative theories (Alvesson & Karreman, 2007, 2011; Morgan, 1997; Weick, 1989).

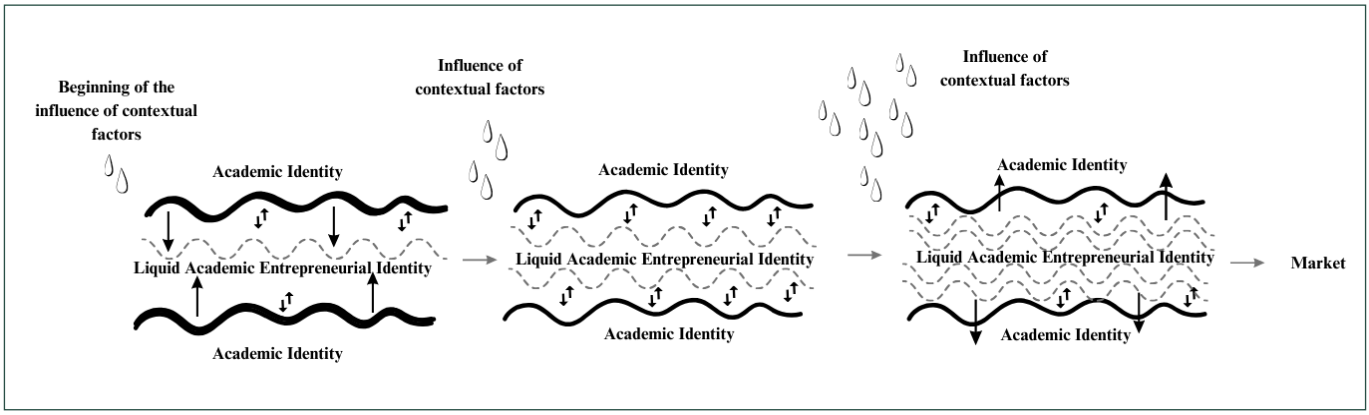
According to Weick's (1989) arguments, the metaphorical application of 'disciplined imagination' can be seen as a representation of academic identity, which, despite its need for creativity, must be anchored in systematic and rigorous practices. In the context of entrepreneurial identity, this metaphor can be applied to the creative and innovative process within the boundaries of a practical and organized reality, akin to the construction of a new venture that balances innovation with the necessity of operating within norms and structures (Alvesson & Kärreman, 2007).

Considering the metaphorical theoretical framework, a metaphor is proposed that highlights the practical awareness of the construct analyzed in this research. The entrepreneurial identity of academics can be seen as a fluid and temporary state, a role assumed as contextual, social, and opportunistic factors emerge (Bauman, 2000, 2013; Donoso-González et al., 2022; Guo et al., 2019; Hayter et al., 2021; Nielsen & Gartner, 2017; Turner & Gianiodis, 2018), akin to a river that follows the course dictated by its banks. The riverbanks, solid strips of land that delineate the riverbed, represent points of connection between water and land, playing a crucial role in defining the fluvial space. Similarly, the perception of group identity continuity acts as a secure anchoring point for the 'self.' This solid foundation facilitates the transactional nature of identities, allowing individuals to navigate more flexibly between different roles and social contexts (Sani et al., 2007; Smeekes & Verkuyten, 2017; Tajfel & Turner, 1979; Zou et al., 2019). They are influenced by factors such as the dynamics of the watercourse, precipitation, and processes of erosion and sedimentation (Christofoletti, 1980), thereby regulating the flow of water and maintaining the fluvial system (Tricart, 1977).

In this representation, these factors take on the role of funding calls, grants, programs, networks, crises, and social and institutional pressures. However, the researcher's identity functions as the riverbed. According to Christofoletti (1980), the riverbed is divided into two parts: the smaller bed, occupied by water under normal conditions, and the larger bed, which is flooded during periods of high water and adapts to the natural conditions of the watercourse. This fluvial structure responds to factors such as erosion, sedimentation, and variations in water volume over time (Tricart, 1977). Similarly, the academic identity, when adapting to the dynamics of its context, assumes characteristics of fluidity and adaptability. The larger bed, for instance, can be interpreted as the central academic identity (Guo et al., 2019), which responds to external conditions and enables the transition to the Liquid Academic Entrepreneurial Identity (Bauman, 2000, 2013; Donoso-González et al., 2022; Guo et al., 2019; Hayter et al., 2021; Nielsen & Gartner, 2017; Turner & Gianiodis, 2018).

This fluidity, however, is only possible due to the stabilizing function of the riverbanks, which can be associated with the perception of group identity continuity. This perception provides individuals with a sense of belonging and security, anchoring the academic 'self' and allowing them to take risks in other roles within dynamic environments (Sani et al., 2007; Smeekes & Verkuyten, 2017; Tajfel & Turner, 1979; Zou et al., 2019). Thus, the interaction between stability and fluidity in the riverbanks and the riverbed reflects the necessary balance for the coexistence of multiple identities in a context of constant transformation.

When favorable factors for entrepreneurship, such as economic incentives, support networks, or favorable sociocultural conditions, are introduced (Al Haddad et al., 2021; Bednarikova et al., 2020; Corrêa et al., 2021; Mueller & Conway Dato-on, 2013), this Liquid Academic Entrepreneurial Identity gains volume, expanding and adapting to the opportunities and challenges of the environment. Just as the larger bed accommodates excess water during floods, the entrepreneurial identity can expand, shaping itself to the demands and dynamism of the context in which it operates, as illustrated in Figure 5 below.



Source: Developed by the authors

Figure 5. Liquid Academic Entrepreneurial Identity.

Still within the evolutionary context of the Liquid Academic Entrepreneurial Identity (Figure 5), contextual factors expand their influence as contact with the academic entrepreneurial identity evolves into elements shaped by opportunities. Thus, it is highlighted that, in the initial metaphorical levels, represented in the framework as the course of a river, the predominance of the academic identity's strength is demonstrated. External contextual influences evolve through interaction with the academic identity, driven by the expansion of entrepreneurship-stimulating opportunities. Consequently, the metaphor presented in the framework illustrates the increased fluidity of the river, where academic and entrepreneurial identities transcend the containment barriers of the banks, carrying both external and internal entrepreneurial opportunities into the market environment.

Furthermore, an investigative theoretical contribution is proposed to anchor the behavioral understanding of academic identity and the Liquid Academic Entrepreneurial Identity, built upon opportunities and external influences in environments conducive to the development of innovations.

These researchers, therefore, do not crystallize the entrepreneurial identity as a permanent state but rather incorporate it momentarily, adjusting to external demands. When financial incentives or specific opportunities come to an end, they return to their original state — the academic identity, which remains solid and central to their careers.

This proposition opens a new research direction for future studies, which could investigate the construction of Liquid Academic Entrepreneurial Identity through the lens of the theoretical dimensions of social entrepreneurial identity (Fauchart & Gruber, 2011), the perception of group identity continuity (Sani et al., 2007; Smeekes & Verkuyten, 2017; Tajfel & Turner, 1979; Zou et al., 2019), and the transactional nature of this identity (Bauman, 2000, 2013; Donoso-González et al., 2022; Guo et al., 2019; Hayter et al., 2021; Nielsen & Gartner, 2017; Turner & Gianiodis, 2018). To achieve this, a qualitative and exploratory approach is recommended, such as theory-building based on multiple case studies (Alvesson & Sandberg, 2020; Eisenhardt & Graebner, 2007; Strauss & Corbin, 1998), utilizing theoretical sampling (Eisenhardt, 2021) to compare cases and identify similarities and differences in basic social motivations, self-assessments, and frames of reference (Fauchart & Gruber, 2011). This approach aims to provide empirical evidence for the concept of Liquid Academic Entrepreneurial Identity.

Beyond this future research proposal, and inspired by works such as Ahmed et al. (2022) and Stephan (2018), which structure their future research agendas through thematic axes with clear statements of actionable research questions and the most appropriate methods, the following research agenda has been structured. It describes additional research directions, with the four clusters derived from the co-citation network serving as its structuring axes:

Cluster 1 — Education and construction of entrepreneurial identities

The study of entrepreneurial identity has highlighted its centrality as a driving factor of entrepreneurial behavior, shaped by specific values, beliefs, and behaviors (Murnieks et al., 2014; Nielsen & Gartner, 2017). In the academic context, there is a growing need to define and differentiate academic entrepreneurial identity, considering its unique characteristics compared to traditional entrepreneurial identity. This future research topic proposes investigations into how education can enhance essential components such as entrepreneurial passion, self-efficacy, and cognitive internalization in educational environments. Entrepreneurial passion, described as the core emotion driving entrepreneurial actions, is influenced by internalized values and educational interventions (Zainuddin & Mukhtar, 2022). Self-efficacy, or the belief in one's ability to achieve entrepreneurial goals, is strengthened through social support and educational practices that foster confidence and competence (Liñán et al., 2011; Middleton et al., 2019). Moreover, the cognitive internalization of entrepreneurial values occurs in learning environments that promote specific behaviors, as evidenced by Middleton et al. (2019) and Vanevenhoven and Liguori (2013).

Thus, research questions that can be outlined include:

(1) What are the key components that define academic entrepreneurial identity?

(2) How can entrepreneurial passion be stimulated and strengthened through educational practices?

(3) What is the impact of social and educational support programs on the development of self-efficacy among academic entrepreneurs?

(4) How can learning environments be designed to promote the cognitive internalization of entrepreneurial values and behaviors?

To address these questions, the research can follow a mixed-methods approach. In the first phase, a qualitative study involving interviews and narrative analysis would help identify the core components of academic entrepreneurial identity and the conditions that facilitate its development. In the second phase, longitudinal quantitative studies could analyze the impact of educational programs and social interventions on the development of entrepreneurial passion, self-efficacy, and value internalization. Finally, multiple case studies in educational institutions could provide insights into effective educational practices. As expected contributions, it seeks to differentiate this concept from traditional entrepreneurial identity, expanding opportunities for application and further research.

Cluster 2 — Personality and drivers of entrepreneurial intention

The study of personality and its impacts on entrepreneurial intention highlights specific characteristics, such as the traits within the Big Five theory, which are identified as key determinants of entrepreneurial intentions (Bazkiaei et al., 2020; Biswas & Verma, 2022). Another significant factor is perceived control, which refers to an individual's belief in their ability to overcome entrepreneurial challenges, directly influencing their confidence to undertake entrepreneurial ventures (Israr & Saleem, 2018). Additionally, perceived feasibility, defined as the cognitive evaluation of the likelihood of success in entrepreneurial behaviors, plays a crucial role in shaping entrepreneurial intentions by aligning personal aspirations with perceived realities (Israr & Saleem, 2018).

This topic proposes research aimed at investigating whether academic entrepreneurial identity is intrinsically formed or triggered by external factors. Longitudinal studies can be employed to explore how specific events, such as participation in funding calls or programs like I-Corps, contribute to the formation of this identity. By examining these processes, important questions arise, such as:

(1) How do the personality traits from the Big Five theory influence the formation of academic entrepreneurial identity?

(2) What are the impacts of perceived control and perceived feasibility on sustaining entrepreneurial intentions among academics?

(3) Can specific external events, such as training programs or financial support, sustainably trigger or strengthen academic entrepreneurial identities?

To address these questions, research can adopt a methodological approach that integrates quantitative and qualitative techniques to provide a comprehensive and detailed understanding of the phenomena under investigation. For the influence of Big Five personality traits on the formation of academic entrepreneurial identity, a cross-sectional quantitative study is appropriate, utilizing standardized instruments such as the NEO-PI-R to measure personality traits (Costa & McCrae, 1992), specifically in relation to entrepreneurial orientation (Bazkiaei et al., 2020). Structural equation modeling (SEM) can be employed to test relationships between variables and identify how specific traits, such as extraversion and conscientiousness, are related to the construction of entrepreneurial identity (Hair et al., 2019).

To explore the impact of perceived control and perceived feasibility on entrepreneurial intentions, controlled experiments can be used to manipulate scenarios with varying levels of perceived control and feasibility, enabling a causal analysis of these variables. Longitudinal studies are also recommended to track how these perceptions evolve over time in educational or training programs, providing insights into temporal dynamics. Structured surveys, such as the perceived behavioral control scale (Ajzen, 1991; Liñán et al., 2011), can be employed to capture broader data on participants' beliefs at different stages of their entrepreneurial journeys.

Finally, investigating the role of external events, such as training programs or financial support, can benefit from multiple case studies and longitudinal approaches. These strategies enable the assessment of the impact of such events on the formation and strengthening of entrepreneurial identities over time. Qualitative methods, such as interviews and narrative analyses, can complement quantitative studies by deepening the understanding of how participants experience and interpret these events (Creswell & Poth, 2016; Patton, 2014). This combination of methods ensures that both subjective nuances and general patterns are captured, contributing to a more comprehensive and robust understanding of the formation of academic entrepreneurial identity.

The expected outcomes include the identification of mechanisms that align personality traits and perceptions with the strengthening of entrepreneurial intention, as well as providing data for the design of policies and programs aimed at promoting enduring entrepreneurial identities in the academic context. This will enable the development of targeted interventions that facilitate entrepreneurship as an integrated practice within academia.

Cluster 3 — Contextualized learning, cognitive flexibility, and social engagement

Future research can explore the importance of alternative contexts and networks in the development of entrepreneurial competencies. Contextualized learning, cognitive flexibility, and social engagement emerge as key elements in shaping entrepreneurial skills and identities, especially in non-traditional settings (Turner & Gianiodis, 2018). Practical experiences in out-of-routine environments provide unique opportunities to interact with stakeholders, solve complex problems, and build support networks that strengthen both entrepreneurial identity and motivation (Gianiodis & Meek, 2020). Furthermore, engagement in diverse social networks and exposure to innovative contexts foster greater cognitive flexibility, which is essential for adapting to the dynamic challenges of entrepreneurship.

In this scenario, some research questions to be explored can be outlined:

(1) How do alternative contexts (such as hackathons or incubators) contribute to the development of specific entrepreneurial competencies?

(2) In what ways does interaction with external stakeholders and networks influence the construction of entrepreneurial identity and motivation to undertake entrepreneurial ventures?

(3) What is the impact of experiential learning in non-traditional settings on promoting cognitive flexibility and adaptability in future entrepreneurs?

A qualitative approach is well suited to exploring how alternative contexts and networks shape the development of entrepreneurial competencies. Case studies enable the investigation of specific initiatives, such as hackathons and incubators, highlighting how these experiences foster interactions, learning, and networks (Yin, 2018). Additionally, interviews and narrative analyses help to understand how participants experience these contexts and build meaningful networks (Creswell & Poth, 2016).

Cluster 4 — Competencies and identities within context

Emotional competencies and hybrid identities support the development of entrepreneurial behaviors, becoming more evident in contexts where multiple cultural,

social, and professional influences interact. Fernández-Pérez et al. (2019) and Bonesso et al. (2018) emphasize that competencies such as emotional regulation, confidence, and empathy enable entrepreneurial behavior, allowing individuals to manage the complexity and uncertainty associated with entrepreneurship. Furthermore, the concept of hybrid identities, as discussed by Guo et al. (2019), highlights the cognitive ability to navigate between distinct social roles, such as those of academic and entrepreneur, reconciling conflicting values and expectations. This navigation process is critical in academic contexts, where traditional norms often contrast with market demands.

Moreover, social and cultural capital emerges as a factor in shaping intentions, behaviors, and social networks (Al Haddad et al., 2021; Bednarikova et al., 2020; Corrêa et al., 2021; Mueller & Conway Dato-on, 2013). Cultural, social, and economic norms influence opportunity perception, network formation, and entrepreneurial motivation. In light of this, the following question is proposed for future studies: How do emotional competencies influence the formation of hybrid identities in academics who become entrepreneurs? The most suitable methodological approach to address this research question would be qualitative, employing in-depth interviews (Patton, 2014) to explore individual experiences and emotional competencies, such as emotional regulation, empathy, and confidence. For analysis, content analysis (Bardin, 2016) could be utilized alongside empirical saturation (Guest et al., 2006) to examine the influence of these factors on the formation of hybrid identities in academics who reconcile the roles of researcher and entrepreneur.

Beyond what has already been proposed, another gap identified in the evaluated studies unfolds: the lack of instruments to measure academic entrepreneurial identity. Studies such as Wickam et al. (2020) and Donoso-González et al. (2022) highlight the entrepreneurial skills acquired through educational programs but do not provide tools to assess how these skills translate into a consolidated identity. The development of specific scales to measure this identity would be crucial for advancing the understanding of this phenomenon.

Finally, the impact of academic entrepreneurial identity on the success of entrepreneurial initiatives remains underexplored. Although studies such as Murnieks et al. (2014) emphasize the importance of passion in entrepreneurial behavior, and others, such as Israr and Saleem (2018), Bazkiaei et al. (2020), and Biswas and Verma (2022), highlight the contribution of personality traits to entrepreneurial intention, there is still a lack of research on how academic entrepreneurial identity influences outcomes such as technology transfer, startup creation, social impact innovations, or contributions to sociotechnical transitions (Geels, 2011).

This agenda seeks not only to advance theoretical knowledge but also to provide pathways for developing practical tools aimed at designing more effective entrepreneurial policies and programs, fostering the engagement of scientists. Furthermore, it can contribute to a broader understanding of the dynamics between identity and entrepreneurial practice in academic contexts.

FINAL CONSIDERATIONS

The process of searching and selecting documents returned 431 articles related to the topic, which were analyzed using the bibliometric package, the web application biblioshiny. It is worth noting that in recent years, there has been a considerable increase in publications, with an average annual growth rate of 15.02%. The theory of behavior studied by Ajzen (1991) seems to serve as a broad umbrella for many research studies related to the analyzed theoretical field. Among the 431 articles, this work is referenced in 116, representing 26.92% of the entire analyzed database, making it a guiding theoretical lens among researchers in the field.

During the analysis of the geographical origin of the authors, Brazil ranked second to last, indicating one of the lowest levels of international contribution within the investigated theoretical field. This finding highlights a significant weakness in Brazilian researchers' output and publications but also presents a substantial opportunity for them to intensify international collaborations and increase the visibility of their research.

Regarding the most cited works, the article by Liñán et al. (2011) stands out with 314 citations to date. The authors investigate which elements of a cognitive approach, considering personality traits, play an influential role in the personal decision to start a business.

The biblioshiny tool enabled other analyses, including the clustering analysis of the documents with the themes present in the theoretical field of the database, selecting articles related to innovation and identity. Another relevant analysis was the abstract analysis of the 431 papers, in which articles related to the topic were also selected. The emerging works from bibliometric mining, cluster analysis of themes, and abstract analysis were selected, and the co-citation network was created using Research Rabbit. To understand the co-citation network, a content analysis was performed to identify individual-level cognitive variables that contribute to understanding the construction of academic entrepreneurial identity.

The analysis revealed that social psychology is the predominant theoretical framework (Ajzen, 1991; Krueger et al., 2000; Shapero & Sokol, 1982), providing

the foundation for exploring entrepreneurial intentions, perceived behavioral control, and social norms. However, an emerging perspective from evolutionary psychology shifts the focus to the development of behavioral and cognitive patterns aimed at enhancing adaptation and survival (Bazkiaei et al., 2020; Biswas & Verma, 2022; Israr & Saleem, 2018; Murnieks et al., 2014; Vanevenhoven & Liguori, 2013; Nielsen & Gartner, 2017). This perspective aligns with the findings in Clusters 2 and 4, which examine personality traits, emotional and social competencies, and their roles in the construction of entrepreneurial identity. Furthermore, the interaction between the entrepreneurial process and identity construction, highlighted in Clusters 1 and 3, is critical for understanding academic entrepreneurship, particularly in hybrid contexts where individuals navigate multiple roles.

Despite its findings, this study also has limitations. The analysis period extended only until the first half of 2022, potentially excluding recent developments. Moreover, the analytical tool used may have overlooked important nuances, limiting a more comprehensive understanding of thematic relationships. Additionally, this research focused strictly on academic entrepreneurs in technology transfer contexts, excluding terms such as 'startup,' 'venture,' and 'venture creation.' Finally, the theoretical field exhibits fragmentation, with disparate approaches to the academic entrepreneur's identity and its influencing factors. This is particularly evident in Cluster 4, which could be further strengthened by incorporating the entrepreneurial social identity theory (Fauchart & Gruber, 2011). With its three dimensions — motivation, self-assessment, and frame of reference — this theory could serve as a valuable framework for understanding the construction of entrepreneurial identity among scientists and act as theoretical cement for this cluster, addressing the fragmentation of concepts in its studies.

Other directions for future research include updating the database and incorporating broader temporal horizons, which could provide more recent insights. Complementary methodologies, such as qualitative analyses or advanced bibliometric approaches, could help capture overlooked nuances and deepen the understanding of thematic relationships. Including broader terms like 'startup,' 'venture,' and 'venture creation' could enrich the conceptual framework and explore intersections with other entrepreneurial contexts. Furthermore, a unified conceptual approach is recommended to consolidate the theoretical field. As a theoretical contribution, based on the theoretical foundations of transnationality and group identity, we recontextualize the contribution of Fauchart and Gruber (2011), highlighting that their dimensions — basic social motivation, self-evaluation, and frame of reference — interact with the transitional nature of the academic-entrepreneurial identity (Bauman, 2000, 2013; Donoso-González et al., 2022; Guo et al., 2019; Hayter et al., 2021; Nielsen & Gartner, 2017; Turner & Gianiodis, 2018). The constant alternation between academic and entrepreneurial roles reflects a fluid identity, anchored in the perception of continuity within the group identity (Sani et al., 2007; Smeekes & Verkuyten, 2017; Tajfel & Turner, 1979; Zou et al., 2019), which facilitates the transition into entrepreneurship. In this context, we propose that the academic entrepreneur combines both scientific and practical motivations, engages in continuous self-evaluation between academia and the market, and navigates between academic and practical impact metrics. Furthermore, we suggest the metaphor of a river as an analogy for the fluidity of the liquid academic-entrepreneurial identity, sustained by the transnationality of individual identities and the perception of group identity, reinforcing the construction and reconstruction of the academic identity (Ebaugh, 1988; Petriglieri, 2011).

Despite its limitations, this study provides valuable contributions to the understanding of academic entrepreneurial identity, reaffirming social psychology, particularly through the entrepreneurial social identity theory, as a fundamental framework for comprehending scientists' entrepreneurial identities and the formation of their entrepreneurial intentions. Additionally, it highlights evolutionary cognitive psychology as a promising perspective that can expand theoretical possibilities by exploring how behavioral and cognitive patterns adapt and evolve in entrepreneurial contexts.

From the standpoint of its relevance and practical applicability, the study suggests strategies for designing entrepreneurial education programs that integrate technical, emotional, and social dimensions. It emphasizes the importance of support networks and social capital in strengthening entrepreneurial identity and provides guidance for public and institutional policies by highlighting the role of emotional and social competencies. Additionally, it fosters debates and initiatives to promote technology transfer and entrepreneurship within academic environments. These contributions advance theoretical insights and practical applications, offering a more integrated and strategic understanding of academic entrepreneurship.

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