




## Psychological capital and entrepreneurship: A systematic literature review of a growing research agenda

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### Abstract

**Purpose:** Psychological resources are determinant for the entrepreneur's individual performance. Psychological capital has been seen as one of the pillars of entrepreneurship and this is one of the reasons that the study of the relationship between these two constructs is emerging. The primary focus of this article is to analyze the development in the literature on entrepreneurship and psychological capital, as well as providing a set of avenues for future research.

**Design/methodology:** This systematic review used the PRISMA Protocol and the VOS viewer software for cluster analysis. The articles gathered for this article cover the annual period from 2013 to 2022 and allow the identification and analysis of the main themes on psychological capital and entrepreneurship.

**Findings:** The systematic analysis brought to light integrative relationships between the concepts of positive psychological capital and entrepreneurship, which allowed the construction of an overview of this spectrum of study. This resulted in four large groups of analysis that point the direction of the literature. The main contributions resulted in the presentation of principles and recent scientific ideas which consider psychological capital as a valuable resource for entrepreneurship.

**Originality/value:** This systematic review of the literature contributes to a more robust and grounded understanding of this relationship. In addition, this research provides an incisive understanding of psychological capital and the entrepreneurship research agenda with the aim of being a starting point for deepening knowledge about the synergies of studies on both themes. Finally, a set of future lines of study is also proposed.

**Keywords:** Psychological Capital, Entrepreneurship, Systematic literature review

**Jel Codes:** M130

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## 1. Introduction

Over recent years, entrepreneurship and its associated factors has become a central theme in several areas of study, because it is a process aimed at social transformation and development, supports economic growth, supply services based on stimulation of creativity and innovative ideas, as well as societal development (Duarte & Tibana, 2009; Kefela, 2012). This crescendo is not restricted to economic and business areas, as both psychology and sociology were attracted to the study of this phenomenon (e.g.: Baier-Fuentes, González-Serrano, Alonsodos-Santos, Inzunza-Mendonza & Pozo-Estrada, 2020). For instance, Psychology has focused on examining which characteristics and personal attributes individuals have, and which drive them to make the decision to become entrepreneurs (Baier-Fuentes et al., 2020; Maca-Urbano & Rentería, 2020; Sánchez-García, Vargas-Morúa & Hernández-Sánchez, 2018). It is known that entrepreneurial activity is a phenomenon that has been evolving around the world, as well as its study. The reasons are not only due to the fact that entrepreneurial activity makes valuable contributions to reducing unemployment, but also because it is one of the main vehicles for the implementation of sustainability in view of the economic competitiveness of society (OECD, 2019). Furthermore, entrepreneurial activity has evolved through the individual creativity leads to greater innovation, and more grass-roots change, or the power/use of technology or the interconnectedness provided by the internet too.

In an increasingly competitive business world, entrepreneurs are often compared to Olympic athletes, as they challenge themselves, break barriers and see opportunities, where most see barriers. According to Margaça, Hernández-Sánchez, Cardella and Sánchez-García (2021), for a better and deeper understanding of the individual as an entrepreneur, their idiosyncrasies, motivational needs, beliefs and desires should be considered. Another aspect to take into account concerns the possibility that psychological characteristics - particular psychological capital in particular - allow a more robust understanding of the creativity underlying the entrepreneurial process (Hu, Wang, Zhang & Bin, 2018). Hence, entrepreneurship has a preponderant role with regard to improving and promoting the quality of life of disadvantaged groups, building resilient infrastructure while promoting the inclusion, sustainability and innovation of any given industry.

In light of the cognitive prism, Psychological Capital is considered “an individual’s positive psychological state of development” (Luthans, Youssef & Avolio, 2007, p. 7), which is composed of four dimensions: 1) self-efficacy – having confidence to take on and put in the necessary effort to succeed at challenging tasks; 2) optimism – making positive attributions about succeeding; 3) hope – ability to redefine the path and be successful in the goals set; 4) resiliency – sustaining and bouncing back and beyond, when beset by adversity, to achieve the desired outcome (Luthans et al., 2007). Although there is still insufficient research, psychological capital is considered a very important individual trait for an entrepreneur (Hizam-Hanafiah, Yousaf & Usman, 2017). This resource generates a more positive appraisal, increasing their chances of success in their professional career (Luthans et al., 2007). That is, through this individual resource, entrepreneurs manage their business in a more balanced way, ensuring entrepreneurial success (Hizam-Hanafiah et al., 2017). As such, it is particularly relevant to study psychological capital and its relationship with entrepreneurship, as this personal dimension can help to increase career performance and personal satisfaction (Bockorny & Youssef-Morgan, 2019).

Psychological capital enables entrepreneurs to maintain their professional efforts, since high psychological capital translates into lower anxiety and stress, and they will be able to withstand the challenges involved in the entrepreneurial process (Bockorny & Youssef-Morgan, 2019). Baluku, Kikooma, Bantu and Otto (2018) stated that psychological capital influences entrepreneurial success and can be understood as positive reinforcement for making the decision to start an entrepreneurial activity (Villanueva-Flores, Diaz-Fernandez, Hernandez-Roque & Van Engen, 2021). Coined by Ming and Zuguang (2013), the concept of ‘entrepreneurial psychological capital’ reflects the characteristics that distinguish entrepreneurs from others. In the same line of reasoning, Pease and Cunningham (2016) created an integrative model of entrepreneurial psychological capital, contributing to advances in the theoretical understanding of entrepreneurship. In their work, these authors reinforce the need to include new variables (e.g.: creativity, courage, flow, etc.), as well as potential moderators (e.g.: gender), based on

the assumptions of Baron, Franklin and Hmieleski (2013), who concluded that the entrepreneurs' well-being depends on their psychological capital.

Current literature demonstrates that understanding entrepreneurship through the lens of psychological sciences allows for the determination of whether communities have a supply of individuals with entrepreneurial characteristics. This is a challenge for scholars, because it is necessary to constantly update the needs of individuals, which makes it essential to have a holistic understanding of how individual psychological characteristics can be determining factors for the decision-making, maintenance and success of the entrepreneurial activity. In view of the above, the principal aim of this study is to analyze the development of the empirical and theoretical research, and to provide an overview of the past, present and future of research on this interrelationship. Through this analysis, it is intended that a fruitful overview be obtained, the main lines of research clarified, weaknesses and potential may be obtained, as well as identify promising themes in this research field. For that purpose, it will be combining different bibliometric techniques.

Accordingly, the primary objective is to carry out a systematic review of the literature on Psychological Capital and Entrepreneurship in order to answer the following two Research Questions:

RQ1: What interpretive position in relation to entrepreneurship prevails in the empirical study of psychological capital and what are the possible implications for future work?

RQ2: How would the study of psychological capital allow the construction and implementation of educational programs with a view to strengthening and developing entrepreneurship?

The methodology and the main findings will be elaborated on below. The achieved findings following the cluster analysis will be discussed and, finally, the conclusions of the analysis, respective limitations and paths for future research will be presented.

## 2. Review methodology

To systematically review the existing literature, the authors guided the principles outlined by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) Protocol (Liberati et al., 2009; Urrútia & Bonfill, 2010). This Protocol is an enshrined mechanism in the academic field because it allows the results to be replicated (Lourenço & Jones, 2006; Pittaway & Cope, 2007) and has contributed to the reduction of bias (Haque, Fernando & Caputo, 2021). The PRISMA method offers a superlative advantage through the coherence, clarity and transparency it brings to systematic reviews (Moher, Liberati, Tetzlaff & Altman, 2009) as well as meta-analysis studies. Figure 1 illustrates the PRISMA framework used in this study.

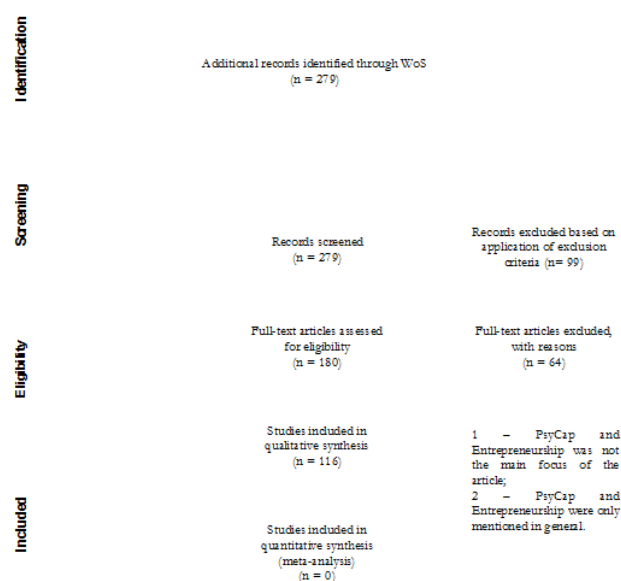


Figure 1. Flow Diagram – Prisma 2009

## 2.1. Search strategy

PRISMA guides its procedural strategy through a thorough search in relevant and reliable databases, in order to gather the set of published items linking psychological capital and entrepreneurship, with a view to fulfilling the previously established objectives. We collected articles from the Clarivate Analytics' Web of Science™ Core Collection, specifically: Social Science Citation Index, Emerging Sources Citation Index, Science Citation Index Expanded, and Arts & Humanities Citation Index. These sources are considered a wide database and hold a considerable series of scientific publications (Li, Burnham, Lemley & Britton, 2010), and bibliographic information.

In an initial phase, the Boolean search terms (type of search that allows combining keywords with operators - or modifiers - such as AND, NOT and OR) were applied, namely: "psychological capital" and "entrepreneurship", in order to identify the keywords. For the first term, the abbreviation "PsyCap" was used; and for the second concept, it included the asterisk, for the search engine to find all its variations of the word. The concepts "self-employ\*", "business\* owner", and "independ\* worker" were introduced, as they can be considered terms related to the action of the entrepreneurial process. Table 1 presents the characteristics of the bibliometric search review. No limitations were established regarding the geographic region, to identify which countries have the highest number of publications. However, limits were imposed on the source and type of document, as well as the language of publication (only English and Spanish). Finally, 279 articles were collected and exported to an Excel sheet, in order to assess in detail their correct fit with the objectives of this systematic review.

## 2.2. Quality assessment

According to Kraus, Breier and Dasí-Rodríguez (2020), journal articles are the most reliable sources, because these publications are verified and evaluated through an academic review process. As such, in this review, duplicate and irrelevant publications of the subject studied were removed, and original journal articles were prioritized. In order to guarantee data cleansing, the abstracts were carefully read and analyzed and if this was not clear, the article was completely reviewed. Subsequently, 162 documents with no bearing on the matter were excluded after document screening (see Figure 1). For instance, the article by Da, He and Zhang (2020) was excluded, because, despite relating PsyCap to work-related attitudes, it does not distinguish attitude towards entrepreneurship. At the end of the screening and to achieve the article's objectives, 116 articles were analyzed.

## 2.3. Inclusion criteria and qualitative process analysis

The 116 articles eligible for this review were gathered according to the following criteria: i) original publications; ii) rated in the area of business management, social sciences, management, business, interdisciplinary social sciences and psychology; iii) published in the period from 2013 to 2022 fourth trimester; and iv) published in English and Spanish. The final set of publications allowed access to the core of the literature on the two themes under study, as well as determining their trends in terms of the number of annual publications, journal title, country, citations, type and research method. The tool VOSviewer 1.6.16 (Van Eck & Waltman, 2010) was used for constructing and visualizing bibliometric networks, which allowed for the analysis of the main objects of study through subsequent clusters (Suchek, Fernandes, Kraus, Filser & Sjogren, 2021). Finally, the limitations found and the new lines of investigation were outlined.

## 3. Results

### 3.1. Descriptive analysis

The analysis of the set of articles allows for an understanding of the general overview of the research literature on psychological capital and entrepreneurship. Figure 2 shows the number of articles published each year. The last four years have shown a growing trend of publications, and 2022 is the year in which the most publications on the subject were published. This growth in interest in linking the two themes discussed here is revealed by the increase in the number of publications, however it is correct to say that this is a path with much to explore in

order to achieve academic robustness. In addition, it should be noted that this evolutionary trend may be due to the importance that has been given to the psychological dimension of entrepreneurship.

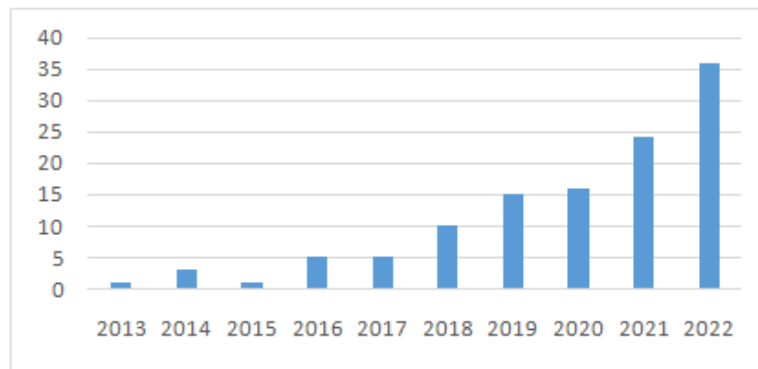


Figure 2. Temporal evolution of publications

Table 1 represents the main results regarding the level of productivity of scientific journals. Only journals that produced at least two publications-related area were considered. The ten journals that published the most in this field represent 53% of the entire knowledge base on psychological capital and entrepreneurship, i.e. a total of 63 articles. The *Frontiers in Psychology* and *Sustainability* are the most frequent sources. Nevertheless, most publications refer to entrepreneurship, business and management journals (40%), with *Psychology (miscellaneous)* the second major area that has published the most on the subject (almost 36%). This result reinforces the importance of studying psychological factors in the field of entrepreneurship and its multidisciplinary approach. Therefore, the entrepreneur must be understood as a whole, in the sense that behind the entrepreneurial process is a person. This reveals that individual and psychological factors are of fundamental value to understand how economic and entrepreneurial success is achieved.

Articles	Journals	<i>h</i> -index	Impact Factor	Research Field
41	<i>Frontiers in Psychology</i>	133	3.88	Psychology (miscellaneous)
5	<i>Sustainability</i>	24	1.06	Environmental Sciences; Social Sciences
3	<i>International Journal of Entrepreneurial Behavior &amp; Research</i>	75	6.91	Business and International Management
2	<i>Entrepreneurship: Theory and Practice</i>	169	3.35	Business and International Management
2	<i>Journal of Entrepreneurship in Emerging Economies</i>	21	0.58	Economics, Econometrics and Finance
2	<i>Journal of Small Business Management</i>	120	1.36	Business, Management and Accounting
2	<i>Small Business Economics</i>	142	2.63	Business, Management and Accounting
2	<i>Education and Training</i>	71	0.61	Business, Management and Accounting
2	<i>Journal of Business Venturing</i>	196	5.83	Business and International Management
2	<i>International Small Business Journal - Researching Entrepreneurship</i>	93	1.82	Business and International Management

Table 2. Scientific journals

Figure 3 demonstrates how publications on psychological capital and entrepreneurship are distributed by country. Publications connecting psychological capital and entrepreneurship are centered on an eastern country and a western country, China and the United States of America, respectively, representing 47% of all publications. It can be concluded that developed countries present greater interest in these research topics, possibly because they give greater and due importance to psychological resources for entrepreneurship. However, further analysis reveals that a set of countries that have published on this field of research are both developed countries (e.g.: Australia, United Kingdom) and developing countries (e.g.: India, Congo).

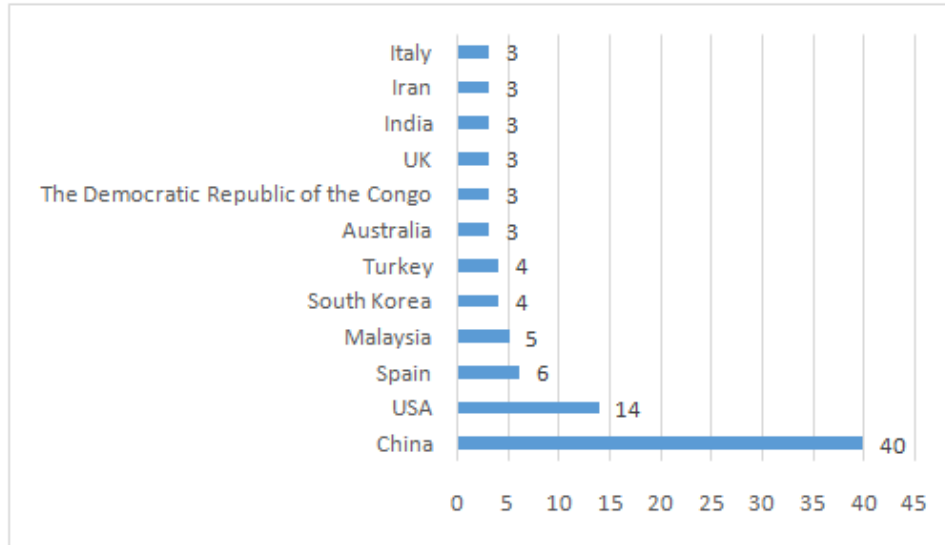


Figure 3. Most contributory countries

Table 3 presents the frequency of citation by author. From the set of 116 selected articles, it was gathered a total of 360 authors, which reveals an average of approximately three authors per article. It should also be noted that only 7% of the authors published two or more articles related to the research topic. This demonstrates that in addition to being a recent field of research, it is also fragmented and the collaboration between authors is dispersed.

Articles	Authors	Author Metrics		Affiliations
		<i>h</i> -index	Citations	
3	Memili, E.	30	3494	University of North Carolina at Greensboro, USA
3	Villanueva-Flores, M.	6	126	University of Cadiz, Spain
3	Ephrem, A.	3	66	Université Officielle de Bukavu, DRC
2	Welsh, D.	41	6183	University of North Carolina at Greensboro, USA

Table 3. List of authors with more publications and respective metrics

The remaining analysis refers to the research methodology, as well as the type of sample. An analysis of frequencies revealed a high number of studies that used a quantitative methodology (84%), followed by a non-empirical method (9%). The qualitative methodology presented the lowest value, almost 7%. The samples of each article were grouped into three different categories: 1) Entrepreneurs/business owners, which represents the most used group in quantitative analysis; 2) university students, the most recruited in quantitative research in qualitative analysis; 3) Projects/employees, which are also most used in quantitative research; and 4) Female entrepreneurs, a sample that appears highlighted in the quantitative analyses. These results can be analyzed in Table 4.

ResearchMetod.	%	Sample	%
Qualitative	7%	University Students	3
		Entrepreneurs/business owners	1
Quantitative	84%	University students	32
		Female entrepreneurs	5
		Entrepreneurs/business owners	46
		Projects/Employees	22
Non-empirical	9%		

Table 4. Description of the type of methodology and sample



The theories found can be seen in Figure 4. The analysis of the set of articles gathered made it possible to assess the profound heterogeneity of theoretical approaches. In order to better understand and systematize the literature, the main theories were grouped into four major dimensions that refer to the main approaches in entrepreneurship: behavioral, psychological, social and strategical. The most recurrent theory is the Theory of Planned Behavior, because it is the most used theory for the study of entrepreneurial intentions.

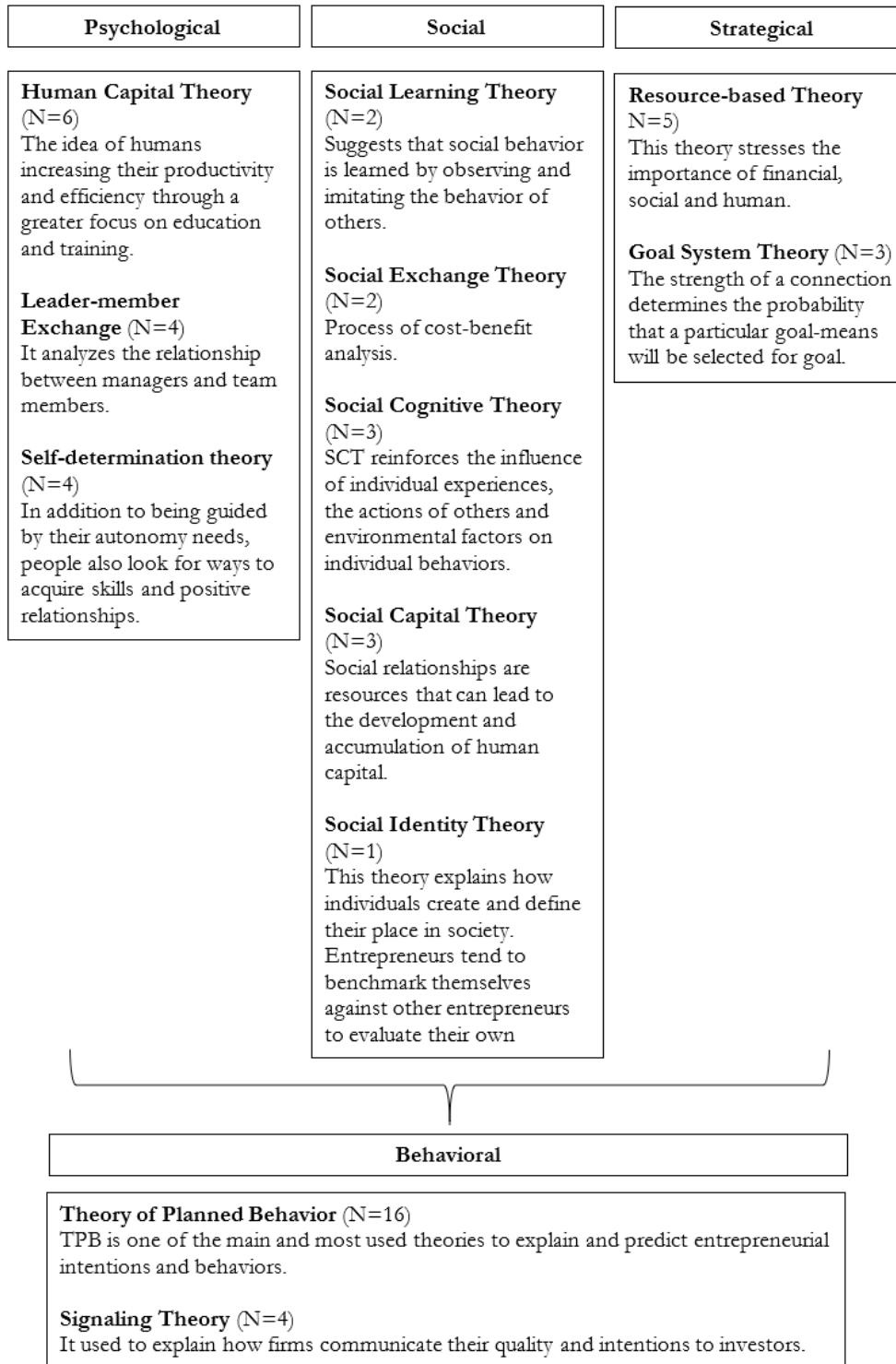


Figure 4. Theories used in the articles reviewed

### 3.2. Cluster Analysis

Cluster analysis was possible through the use of the VOSviewer software. These analyses to find main relationships between the psychological capital and entrepreneurship was performed. In order to analyze the topics with greater relevance in this field of research, an analysis of clusters was carried out. At first, three co-occurrences per keyword were used, which resulted in four different areas of main interest. This result highlights the multidisciplinary nature of this research area.

Previously, a cluster analysis was carried out, with only one co-occurrence for each keyword, in order to visualize the key trends of research in this field. A total frequency of 279 items was found, grouped into 31 clusters. The two topics that have been most analyzed are the psychological capital and the entrepreneurship, but also: entrepreneurial outcomes, social capital, entrepreneurial performance, efficacy, and innovativeness. Figure 5 presents the intensity between the keywords; the larger the circle, the greater the intensity of the relationship between the groups of items.

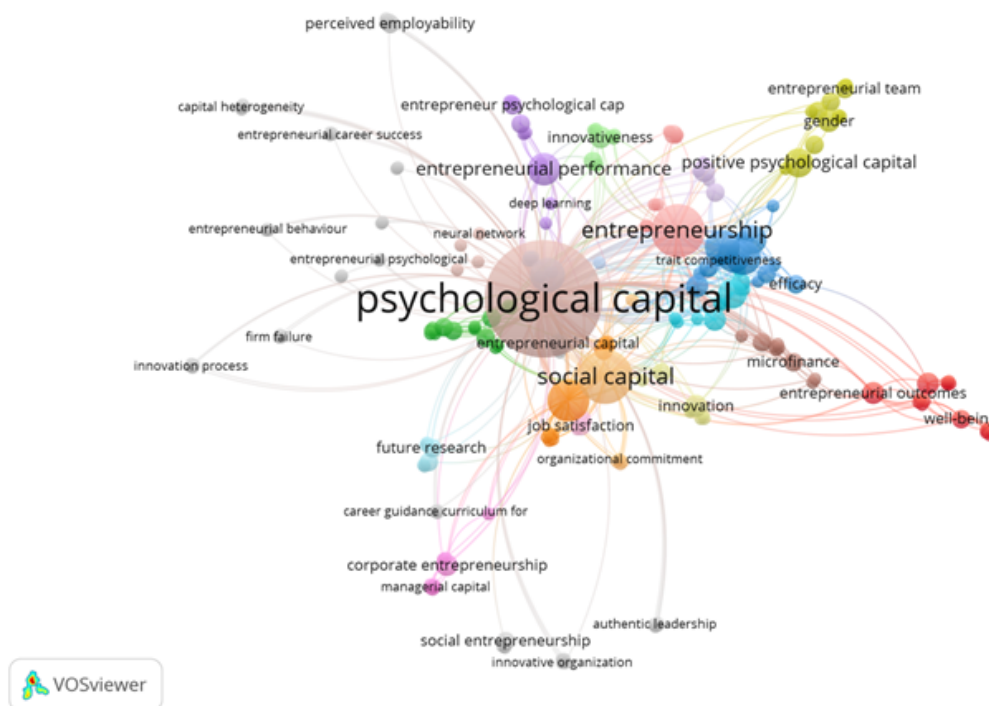


Figure 5. Psychological Capital and Entrepreneurship map (threshold: three co-occurrence per keyword)

Both areas under study are multidisciplinary which represent a high scope. Thus, the following analysis was reduced to a minimum of three co-occurrences. This analysis resulted in a total of eighteen items grouped into four clusters, represented in Figure 6.



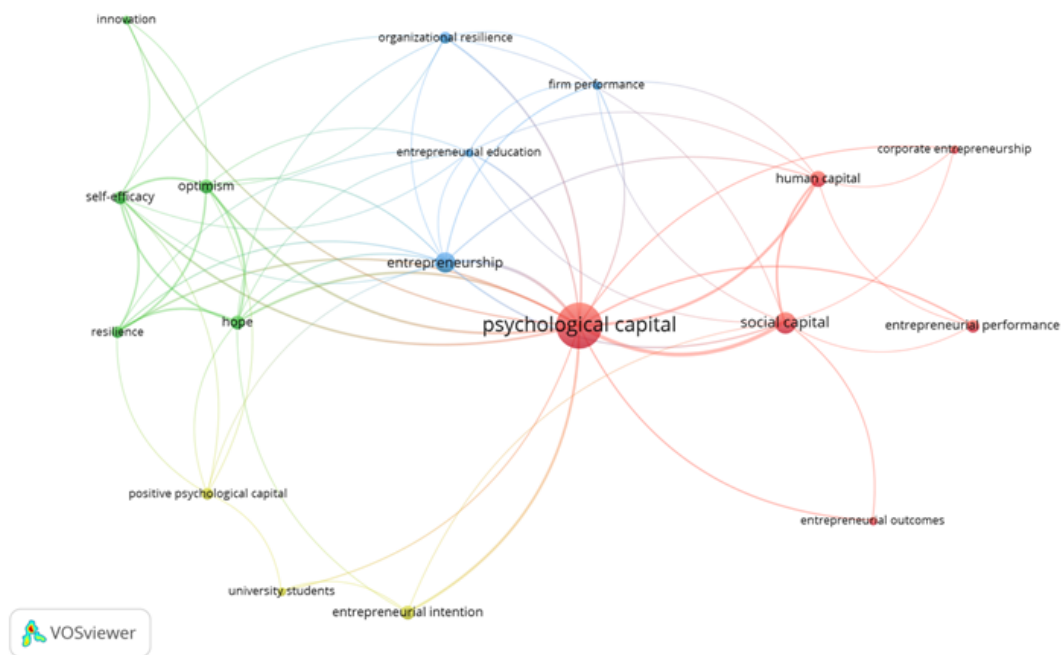


Figure 6. Psychological Capital and Entrepreneurship map (threshold: three co-occurrence keyword)

Table 5 presents the summary of associated keywords and clusters, and provides a complete state of the art interconnecting of psychological capital and entrepreneurship resulting from bibliometric and cluster analyses. Cluster analysis allows the identification of the four highlighted themes, which will be analyzed below according Van Eck and Waltman (2014). It is possible to assess this importance through color (which emphasizes the different relationships between them) and through distance (which indicates the intensity of the relationships) (Urrutia & Bonfill, 2010).

Cluster	Items/Keywords	% articles	Example
Cluster 1	Corporate entrepreneurship; entrepreneurial outcomes; entrepreneurial performance; human capital; psychological capital; social capital;	46%	Tian (2022). The influence of work values of college students on entrepreneurial intention: The moderating role of psychological capital.
Cluster 2	Hope; innovation; optimism; resilience; self-efficacy	25%	Tang, Baron and Yu (2021). Entrepreneurial alertness: Exploring its psychological antecedents and effects on firm outcomes.
Cluster 3	Entrepreneurship, entrepreneurial education; firm performance; organizational resilience	16%	Abubakar, Mourgan, Al Kharusi and Elfitori (2022). Impact of entrepreneurial education, trait competitiveness and psychological capital on entrepreneurial behavior of university students in GCC.
Cluster 4	Entrepreneurial intention; positive psychological capital; university students	13%	Calvo and Garcia (2020). The influence of psychological capital on graduates' perception of employability: the mediating role of employability skills.

Table 5. Summary of the cluster analysis

#### Cluster 1

The first cluster, in red, is composed of the following keywords: corporate entrepreneurship; entrepreneurial outcomes; entrepreneurial performance; human capital; psychological capital; social capital - which is represented in 46% of the keyword co-occurrences.

A large number of articles in this first cluster highlights that human values play a decisive role in maintaining the competitive advantage. Along this line, this cluster expands on the general approach of the applicability and interrelationship of the two concepts under study due to the fact that it demonstrates the importance of this capital for both attitude and entrepreneurial performance. From a simplistic point of view, this interrelationship works because the entrepreneur, before being a profit-generating agent, is a person with personal desires and beliefs. Furthermore, this capital is important at all stages of the entrepreneurial process (Baluku, Kikooma, Otto, König & Bajwa, 2020), and represents an important influence on how individuals perceive motivations, business support, performance and business results (Bockorny & Youssef-Morgan, 2019; Digan, Sahi, Mantok & Patel, 2019). Psychological capital is considered a positive psychological state, which influences individual development and performance and, according to Luthans, Luthans and Luthans (2004), is distinct from social and human capital, but an extension of "economic capital". It should also be noted that it is characterized by inclusion of the positive dimensions: hope, self-efficacy, resilience, and optimism (Luthans et al. 2007). According to Luthans et al. (2007), the four dimensions that characterize and compose psychological capital are formed into an acronym "HERO": Hope (feeling of belief in the favorable outcome of goals and ability to readjust strategies), (self-)Efficacy (ability and great determination to meet the intended objectives and overcome barriers, Resilience (ability to react to difficulty and maintain balance), and Optimism (general disposition to have confidence in the future). Psychological capital can be developed and has at its root the cognitive functions that determine a certain attitude/behavior (Tang, 2020). Hasan, Hatidja, Guampe and Maruf (2019) concluded that positive psychological capital significantly influences entrepreneurial skills, when fostered by learning entrepreneurial techniques. Furthermore, it was also possible to conclude that positive psychological factors are important in the formation of entrepreneurial skills, and are essentially moving beyond economic, human, and social capital (Luthans et al., 2004). The literature is clear on the need to align the research focus on psychological capital (Khurram, Jafri, Ikram & Fiaz, 2019) and its benefits for entrepreneurship in particular (Luthans et al., 2007; Luthans, Youssef-Morgan, Sweetman & Harms, 2013). For instance, a study conducted with a sample of Ugandan SME entrepreneurs (Baluku et al., 2018) concluded that their performance was strongly and positively influenced by psychological capital and, in addition, that this is a common denominator to entrepreneurial motivation and success (Ephrem et al., 2021). Keshvarz, Farahani and Saldehi (2017) go further and refer to psychological capital as the "newest organizational intangible asset" (p. 81) as one of the main sources of [corporate] entrepreneurship. The concept of social capital is often understood as a mechanism of psychological support, which provides information that is not available to other people, influences others based on the power and resources accessible to the entrepreneur and, in addition, still confers social legitimacy (Lin, 2001; Lux, 2017). For this reason, according to Lux (2017), research carried out in this area points to a positive relationship with entrepreneurial performance, and translates into a source of sustainable competitive advantage (Hernández-Carrión, Camarero-Izquierdo & Gutiérrez-Cillán, 2017), due to it being crucial for improving economic results. According to Semrau and Hopp (2016), social capital, in its financial aspect, revealed a positive interaction with the human capital of entrepreneurs. For instance, the results arrived at by Neira, Calvo, Fernández and Portela (2017) demonstrate that, during an economic crisis, social capital can be seen as a source of support and overcoming difficulties for the entrepreneur. The success of an entrepreneurial activity is facilitated by social capital (Stam, Arzlanian & Elfring, 2014). In addition, social capital can predict who starts an entrepreneurial activity and, above all, who will be able to sustain it and achieve success. To summarize, positive entrepreneurial psychology is closely linked to the theory of the execution of the entrepreneurial process, with regard to the individual's cognitive schemes and their influence on the interpretation of the context (Andersson, 2011). It is extremely important to highlight the need for substantive scientific contributions to demonstrate the connections and influence between psychological capital and the topic of entrepreneurship (Newman, Obschonka, Schwarz, Cohen & Nielson, 2014).

### *Cluster 2*

The second cluster, in green, comprised 25% of the co-occurrence of the keywords: hope; innovation; optimism; resilience; self-efficacy. If entrepreneurship is understood as a phenomenon at the organizational level, it is possible to conceive a representation of the elements of the organizational system that are related to entrepreneurial behavior (Covin & Slevin, 1991). At a time when competitiveness reigns, organizations are also

looking for an entrepreneurial personality with a view towards innovation. In the study by Worthington and Kasouf (2018), psychological capital is proposed as a moderator of entrepreneurial perceptions and of the innovation process. A recent study conducted by Arshi, Islam and Gunupudi (2021), gathered a sample of entrepreneurs, in two moments, and concluded that the (physical, social, health) risks associated with the characteristic stress of organizational activities can be addressed through resources such as psychological capital. The study by Gao, Wu, Wang and Zhao (2020) also supports these findings, insofar as psychological capital is assumed as a business improvement strategy alongside creative innovation. For instance, the study conducted by Li, Liang, Yu and Dang (2020) concluded that the four components of psychological capital (hope, optimism, effectiveness and resilience) have a marked influence on innovative behaviors. When an individual gets engaged with entrepreneurship it reflects a self-determined behavior, which allows him to express and satisfy a set of needs. Thus, this self-determined action is based on several values that help the person to make decisions regarding his behavior. In other words, as acknowledged by Kirkley (2016), there is a specific value-set associated with entrepreneurial behavior. For this it is necessary to understand the individual as a whole, the biological, psychosocial and contextual interactions. For instance, Lux, Macau and Brown (2020), concluded in their study that mental resources - hope, efficacy, resilience, and optimism - have a stronger effect on performance when the environment is innovative and conducive to opportunities. In addition, these authors emphasize that this type of business environment, combined with psychological capital, helps entrepreneurs to seek partnerships that promote innovation. In this sense, positive psychological capital is a positive mental state, which provides and answer to “who are you?”, and is associated with a positive effect on new venture performance (Hmieleski, Carr & Baron, 2015).

#### *Cluster 3*

Cluster 3, in blue, represents 16% of the co-occurrence of keywords, and is composed of the following set of concepts: entrepreneurship, entrepreneurial education; firm performance; organizational resilience. In this cluster, the emphasis shifts to entrepreneurial education. Considering the need to create new education strategies for entrepreneurship, several authors (e.g.: Daim, Dabic & Bayraktaroglu, 2016), based on Shapero's Model (1982), focus their research on factors that directly influence entrepreneurial behavior. The study conducted by Cui (2021) concluded that entrepreneurial education positively influences entrepreneurial behavior and, simultaneously, the four dimensions of psychological capital. Lux et al. (2020) explored entrepreneurial education as a predictor of success. According to Bae, Qian, Miao and Fiet (2014), entrepreneurial education comes from the theory of human capital, because it comprises the skills, experiences and knowledge that the individual acquires formally or informally. Hence, entrepreneurial education is seen as a personal resource directly related to business performance and performance. Entrepreneurial education as a personal resource teaches entrepreneurs to find the right path with regard to knowledge of legislation/regulation, seeking funding, establishing partnerships, which reflects the promotion of cognitive and motivational outcomes capable of creating successful entrepreneurial activities. Finally, it should be noted that resilience is a learned skill. In this sense, the literature points to the creation of transversal training programs, the purpose of which would not only be the creation, as well as the management of a resilient entrepreneurial activity.

#### *Cluster 4*

The fourth and last cluster, represented by yellow color, is composed of the following concepts: entrepreneurial intention; positive psychological capital; university students. This cluster also constitutes almost 13% of the co-occurrence of the keywords. The relationship between entrepreneurial intentions and psychological capital is a growing research topic (Tian, 2022). Entrepreneurial behavior is a core construct to broader understanding entrepreneurship, and is characterized by a set of skills, whose genesis is the intention (Krueger, Reilly & Carsrud, 2000) and intention can be a valid indicator of the transition from decision making to the actual creation of entrepreneurial behavior (Kautonen, Van Gelderen & Tornikoski, 2013). Na, Ahmad, Zhang and Han (2022) concluded that young students are a segment of society that has high rates of entrepreneurial intention, and plays an important and innovative role in entrepreneurship. In addition, it was found that psychological capital increases and influences future entrepreneurial decisions (Na et al., 2022; Tian, 2022). The study carried out by Tian (2022) revealed that the dimensions of psychological capital are significantly and

positively correlated with the entrepreneurial intention of university students. Based on the premise that high levels of psychological capital mean a greater propensity to undertake, it is reasonable to say that entrepreneurs face the challenges of entrepreneurship in a more positive way, which is a predictor of success. Students who reveal this type of behavior demonstrate more confidence in the decision-making process and better problem-solving skills. In recent years, there have been several studies that analyze entrepreneurial behavior (Vasconcelos, Silveira, Pedron & Andrade, 2020; Gonçalves de Lima, Nassif & Garçon, 2020; Bird & Schjoedt, 2017; Jong, Parker, Wennekers & Wu, 2015; Daim et al., 2016; Miralles, Giones & Gozun, 2017). From these, it is possible to infer that entrepreneurial behavior underlies all the idiosyncrasies of the individual and is much more than the mere economic/managerial/organizational activity generated by the entrepreneur. Psychological theories seem to play a relevant and supporting role that allows to understand the entrepreneurial intentions and behaviors not only in its economic/organizational aspect. Furthermore, its application permits an evolutionary and more realistic approach to transforming intention into a concrete behavior.

#### 4. Discussion

In recent years, the literature on the relationship between both concepts, psychological capital and entrepreneurship, has grown considerably, especially in China, which is the country with the largest number of publications in this area. Interestingly, only the United States and Spain emerge as the western countries with the most publications; the third country with the most published research on the subject is India. Research on entrepreneurship and psychological capital in different countries is still at an embryonic stage (Brandt, Gomes & Boyanova, 2011), and there is a greater importance in studying them locally. This gap does not allow us to onclusions with a definitive character, although, it is possible to assume that any differences that may exist are due to different personality patterns, which vary according to culture. For instance, comparatively studying this phenomenon in Western and Eastern countries, considering their respective economies and cultures, will help to understand in a more consistent way: the differences in the entrepreneurs' individual integration; how the development of training programs is driven; and entrepreneur-oriented people.

From the results obtained, it is possible to highlight the following important aspects: only 7% of the authors contributed and published more than two articles. Regarding the collaboration among authors, the average number of authors per article was three, which reinforces the notion that this field is recent and in development. In view of this reality, the need for a systematic analysis of the set of scientific publications must be met, not least because this research revealed a lack of robust studies, which reveal that it requires an extension of this type of study. Furthermore, cluster analysis showed that researchers focused on a variety of topics. This panorama takes shape after an analysis of co-occurrences and four clusters are extracted.

Studies on entrepreneurial outcomes and human values are those that make up the first and those with the most co-occurrences cluster, both in samples of entrepreneurs and students (key words: corporate entrepreneurship; entrepreneurial outcomes; entrepreneurial performance; human capital; psychological capital; social capital). This group with 46% of the frequency of keywords, in addition to representing the area with more relationships with others, plays a prominent role on the map. The results obtained are sufficient to infer that the publications addressed reveal the scientific interest in the elements responsible for the triggers of organizational and entrepreneurial behavior, in particular, regarding the influence of human, social, and psychological capital. Hence, it becomes evident that psychological capital is taking a prominent position among successful entrepreneurs. Setting the stage for the study of this psychological dimension also led to greater understanding of how it can be constructed and improved.

According to Cluster 1, human values are an important propellant to entrepreneurship. The relevance of psychological factors by the entrepreneur reveals that the problem-solving strategy is no longer focused on weaknesses, but on a positive leadership perspective, focusing on people's strengths and psychological capabilities. This paradigm shift also allows for an entrepreneurial change, especially in this unprecedented time in which we live and work. The traits, states and values associated with individual sphere endow the entrepreneur with (positive) psychological strength and capacity, which impacts the entrepreneurial formulation and performance, and management strategies. The states underlying psychological capital (e.g.: resilience, hope) can

be learned and, in addition, through them the entrepreneur becomes able to recover from adversity, finding more progress and stability in challenging situations.

Secondly, Cluster 2 explains the innovation based largely on four psychological capital dimensions. Knowing the person behind the entrepreneur allows for exploring 'who is' this person and 'how' the several activities associated with the creation of new and innovative entrepreneurial activities emerge. The four dimensions of psychological capital play an important role and drive innovative behavior. These findings underline that there is a specific value set, an individual phenomenon, which results in the creation of an innovative business.

Afterwards, Cluster 3 reveals that the studies discussed are consensual regarding the fact that entrepreneurial education is crucial to organizational performance. It indicates that formal or informal education provides the entrepreneur with constant renewal and improvement of skills and experience. In addition, entrepreneurial educational programs can influence the way the individual deals with the entrepreneurial process and the underlying barriers. Several studies have recognized that education is a vital path for the entrepreneurial process and success, as this resource is instrumental in providing access to required resources and mechanisms for the creation and success of new ventures.

The fourth and last theme is represented by Cluster 4, which emphasizes the requalification of psychological capital as entrepreneur intention. Hence, it is crucial to underline that positive psychological capital states (i.e.: behaviors, thoughts and actions) can be learned and developed. In reality, positive psychological capital encompasses a series of personal characteristics, which can influence the decision-making to become an entrepreneur. In particular, psychological capital is recognized as a mediator and determinant of intentions and attitudes in university students. Additionally, this resource offers mechanisms to face the adversities and requirements related to entrepreneurship.

In general, past and current lines of research regarding the connection between the psychological capital and entrepreneurship constructs were mapped in this systematic review framework. The proposed research questions are answered through this comprehensive framework on this interconnection evident in the scientific publications addressed, defining their general position in the literature.

#### **4.1. Limitations**

This revision study raises the awareness and offers insights regarding the relationship between psychological capital and entrepreneurship by distilling the articles in the existing literature. However, it is important to reveal the limitations that could be addressed in future studies. The first lies in the constantly changing dynamics of science, which implies that various bibliometric indicators can change over time. In other words, in recent years, especially in 2020, several authors have published on the topic discussed here. However, it is difficult to verify whether they will continue to research it. Still, this article proposes to offer an advanced and comprehensive milestone regarding published works on entrepreneurship and psychological capital. Considering the inclusion criteria for the search for appropriate publications, the bibliometric performance indicators were reduced only to the analysis of scientific articles. Also, despite the attempt to include the correct keywords, it is necessary to recognize the tendency to omit others of relevance. Finally, although cluster analysis is a widely used method (e.g.: Gaviria-Marin, Merigó & Popa, 2018; Vallaster, Kraus, Lindahl & Nielsen, 2019) it provides a limited number of data, considering only the keywords, based on similarity and co-occurrence.

#### **4.2. Avenues for future research**

The compilation of the analyzed articles allowed us to conclude that most of them concern quantitative or qualitative studies. Based on this finding, it is suggested that in future studies a mixed method approach should be considered, compensating for the limitations and weaknesses of both.

Previous studies have concluded that the enhancement of psychological capital is possible through training and learning, in order to face, with resilience, the adverse conditions of entrepreneurship. Thus, future research can



focus on how the construction and implementation of educational programs can influence the improvement and strengthening of psychological capital in entrepreneurship.

According to the review, one of the states associated with psychological capital concerns optimism. Although this is a factor that provides a positive result in the business environment, it is necessary to consider its negative aspect. Too much optimism and overconfidence can hamper organizational flow. Thus, researchers may consider investigating these factors in order to uncover their effective impact.

Considering the applicability and interrelationship between psychological capital and entrepreneurship further, future studies may focus on the study of psychological capital before and during the entrepreneurial process. That is, on the one hand, to understand whether psychological capital dictates entrepreneurial behavior and, on the other, if it mediates the entrepreneurial process (and success). Furthermore, considering the nature of the results, it is important that future research analyze whether context and culture influence the development of the individual's psychological capital. Accordingly, comparative analyses between different countries/cultures are expected, in order to deepen the understanding of the role of non-economic variables in the success of an entrepreneurial activity. In addition to the need for more robust studies on psychological capital and entrepreneurship, we underline the need for longitudinal studies (e.g.: Ephrem et al., 2021). In the case of psychological states, this type of approach is recommended, as it allows for the observation of behavioral oscillations in individuals.

The four clusters that were extracted from the systematic review for this article represent a confirmed distribution. Finally, considering the pressing need for new studies that connect psychological capital and entrepreneurship, we present in Table 6 a parallel panorama for each cluster with a future research agenda in mind.

Cluster	Future Lines
Cluster 1	The entrepreneur's human capital and social skills increase the ability to recognize new business opportunities, knowledge and core competencies. Entrepreneurial success depends on personal intangible resources, which is a challenge for academics. Therefore, future research should consider the relationship between different capital resources and their influence on the pursuit of non-economic and societal goals, and on the entrepreneurial process as a whole.
Cluster 2	There is a growing interest in entrepreneurial behavior and factors associated with the individual phenomenon, such as the search for opportunities and competitive advantages. In recent times, events such as the global pandemic crisis have brought another focus to research, such as the resilient and overcoming strategies of small businesses and also the beginning of innovative entrepreneurial activities. Thus, in future studies it is crucial to focus on the influence of external changes, namely with regard to decision-making and individual management strategies.
Cluster 3	Especially concerning entrepreneurs' psychological strengths, entrepreneurial educational programs transform the corporate environment, because it allows a new understanding of the elements that increase performance, which translates into an organization with high interpersonal effectiveness. Gather several Positive Organizational Psychology Theories, especially with regard to studies on positive leadership, job crafting (physical and cognitive changes associated with work), sense of meaning and contribution to the common good.
Cluster 4	Positive psychological capital can be seen as a source of rigor and answers to the daily challenges associated with the role of leader-entrepreneur. Future studies should focus on building strategies that increase productivity and efficiency, as well as employee satisfaction and motivation. In addition, the study of psychological variables as contributors to a more sustainable entrepreneurial consciousness is of special interest.

Table 6. Research Agenda

Complementarily, in Figure 7, we set up a guideline to delineate further research. It is possible to formulate new and concrete research opportunities and insights, via these proposals. We present several theoretical approaches, target population, promising methodology, as well as perspectives and different levels of impact.



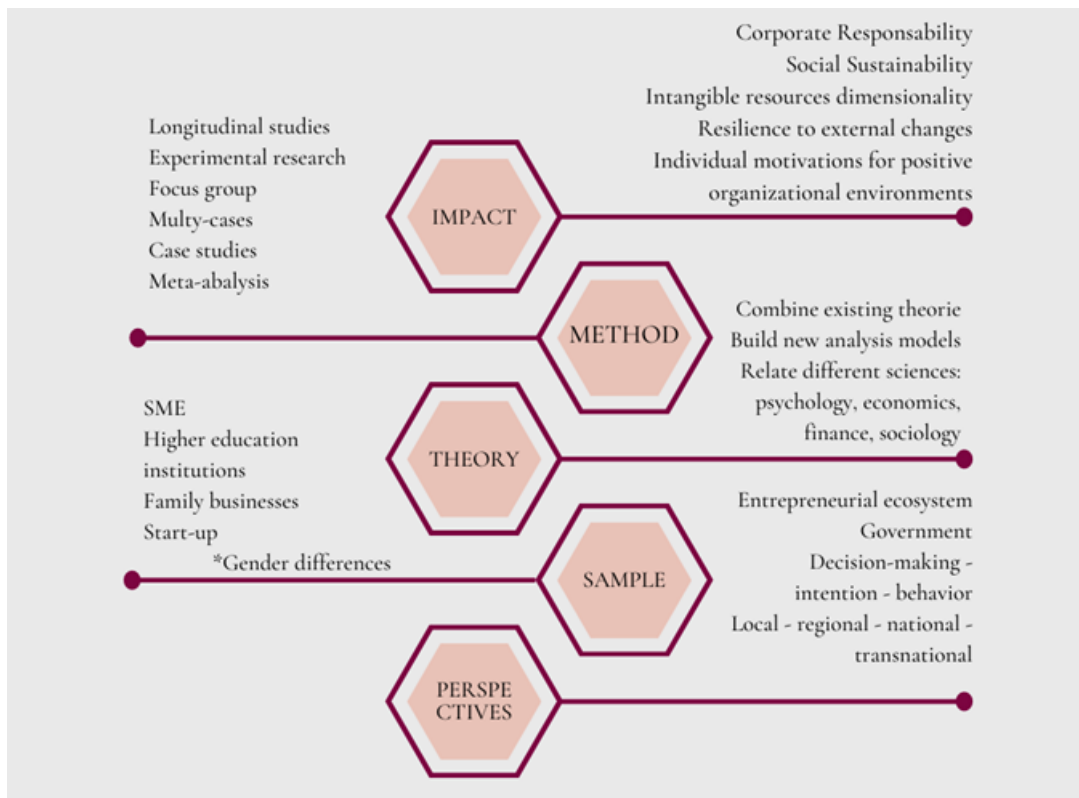


Figure 7. Guidelines for future research

## 5. Conclusions

The systematic literature review presented in this article offered an overview of the studies carried out that connect psychological capital and entrepreneurship. The accurate and rigorous review (Pahlevan-Sharif, Mura & Wijesinghe, 2019), through VOSviewer (van Eck and Waltman, 2010) and PRISMA (Liberati et al., 2009), reinforced the assertion that the entrepreneur's psychological capital is one of the most important contributors of entrepreneurial management and success.

Based on the premise that psychological capital is contextual and influenced, it is possible to argue that entrepreneurs have in advance (or acquire) advantages such as psychological capital. The interconnection between psychological capital and entrepreneurship should be an important issue for academia and professionals. This systematic literature emerges as a bottom line to future researchers to deepen the understanding about this relationship, with the aim of providing new and impactful perspectives into the knowledge of this phenomenon.

Our results offer a new understanding of the importance of shifting the trend from the economic to the psychological. This type of study, which is fortunately beginning to gain prominence in the economic and organizational domain, has new implications for the literature. In addition, it reveals the gaps that exist in it, allowing the construction of new research paths to strengthen the relevance of psychological capital in the entrepreneurial process.

PsyCap came to be recognized as an impact factor in improving organizational performance, which is also reflected in the individual innovation and creativity. An entrepreneurial education program, on the one hand, allows testing the aptitude for an entrepreneurial career and, on the other hand, constant improvement. By concretely answering the research questions, this work allows to conclude that the design and implementation of training programs based on PsyCap will improve both individual and organizational productivity, by reinforcing its four components. Furthermore, these types of programs are a component of moderation and mediation of perception and behavior. Regarding the implications for policy and practice, it is possible to list two main axes: 1) new research trends – the results arrived at here will allow the researchers to access relevant information on the

subject, namely other authors who study this theme and create research networks (Mulet-Forteza, Genovart-Balaguer, Mauleon-Mendez & Merigó, 2019); and 2) public and private institutions – through the results of this article, responsible political and administrative authorities will be able to prioritize projects that address this issue, creating more positive organizational contexts, as it influences innovation and sustainability.

This systematic literature review used the method of scientific mapping to recognize psychological capital and entrepreneurship as a path to outline the growing theoretical approaches. With the results achieved in this review, the authors intend to stimulate and direct a path for future research, by providing a theoretical basis. This systematic review study brings new contributions to the entrepreneurship research field by providing a rare relationship between psychological capital and entrepreneurship, which have been largely examined in separate research streams. Specifically, the results point to positive psychological capital emergence in entrepreneurship research in many different contexts and in recent years. In total, these findings shed new light on the personal characteristic's emergence process in the entrepreneurship spectrum study.

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