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A bibliometric analysis of creativity in the field of business economics

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ABSTRACT

Creativity and its study in not a new topic. However, this concept has recently begun to be incorporated in business economic studies. The objective of the current study is to establish the results of creativity research in the scope of business economics. Using VOSviewer (Centre for Science and Technology Studies, Leiden University, Leiden, The Netherlands) and SciMAT (University of Granada, Spain) for the construction of scientific maps, the analysis of the most relevant studies in this field was conducted to establish how research has evolved in this area. The results show that initially, creativity was seen as an important skill of an individual and has gradually come to be recognized as a performance drive within organizations to serve as a basis for the development of various study models. The results presented in this study will enable future authors studying creativity to focus their studies more effectively.

1. Introduction

Over the last few decades, the interest in creativity within the scope of business has grown significantly, and the importance of creativity is related to the impact on the competitiveness of businesses (Berg, 2016; Groza, Locander, & Howlett, 2016). Teams with the best results in creativity tests will be more successful than those that score lower on such tests (Bobic, Davis, & Cunningham, 1999) (Oldham & Cummings, 1996). Creativity within organizations is defined as the root of innovation (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Amabile & Pratt, 2016; Valaei, Rezaei, & Wan, 2017), given that creativity triggers the generation of new and appropriate ideas, products, processes and solutions (Perry-Smith, 2006).

There is evidence to suggest that creativity as a trait is a characteristic of entrepreneurial success (Ludvig et al., 2016), is an important drive for the entrepreneurial process, helps the discovery of new business opportunities, and highlights the key role that innovation and entrepreneurship play as sources of economic growth (Tu & Yang, 2013). Individual creativity supplies the base for organizational creativity and innovation, and the results have been linked with business performance and survival (Shalley & Gilson, 2004).

Furthermore, science has been rapidly evolving, resulting in what has been called “information overload” and, more recently, “filter failure” (Huggett, 2013). The abundant scientific information associated with new information technologies has been an incentive for researchers to seek new ways to analyze these large volumes of information, giving rise to a new discipline: bibliometrics. Bibliometric methods are able to generate reliable and robust quality indicators (Gongora, 2010) useful for comparing or classifying large concepts, although they are not suitable for comparing particular researchers or making comparisons within groups of research (Devos, 2011).

Despite the recent growing interest in creativity, the current knowledge of bibliometric analyses regarding creativity is scarce. Recently, analyzed studies have not yet determined the quantity or quality of research in the scope of business economics. Although some studies have been conducted, these have been limited to specific questions. In a study by Feist and Runco (1993), 311 publications in the Journal of Creative Behavior between 1967 and 1989 were studied. Beghetto, Plucker, and MaKinster (2001) studied the 32 volumes published up to that date in the Journal of Creative Behavior. Kumar, Mondol, and Kumar (2013) analyzed the 12 volumes of the Journal of Creative Behavior between 2006 and 2008. Subsequently, Long, Plucker, Yu, Ding, and Kaufman (2014) looked at creativity, focusing on four journals specializing in creativity spanning different disciplines. More recently, Williams, Runco, and Berlow (2016) conducted an analysis on publications between 1990 and 2015 using research strings associated with creativity; the types of documents were limited to articles, reviews, and procedural documents.

Therefore, the purpose of the current study is to close this gap and to analyze the quality and quantity of creativity studies within the scope of businesses over time. This article presents a bibliometric analysis using the VOSviewer and SciMat software, as well as an analysis of research time intervals using the Web of Science data base. The main objective was to establish the quantity and main results of the research

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on creativity in the field of business economics, given the development seen in this area in the last few years.

1.1. Creativity

Creativity has been conceptualized as (a) individual personality traits that facilitate the generation of new ideas, (b) the process of the generation of new ideas, (c) the results of creative processes, and (d) favorable environments for new ideas and behavior (Alves, Marques, Saur, & Marques, 2007). This conceptualization has led to multiple definitions of creativity. For Torrance (1962), an important component of creativity is defined as the ability to detect gaps, propose various solutions to solve problems, produce new ideas, and recombine and sense a new relationship between ideas (Almeida, Prieto, Ferrando, Oliveira, & Ferrándiz, 2008). Another important supporter of creativity is Guilford (1967), who proposed the term "creativity" in the 20th century and postulates that creativity and intelligence are two separate concepts. For Guilford, creativity was understood to be a different form of intelligence, calling it divergent thinking, in contrast to convergent thinking, which was traditionally measured in common intelligence tests (Esquivias, 2004). In 1959, Parnes defined creativity as "the ability to find relationships between ideas previously unrelated and that manifest through new schemes, experiences or new products" (Vernon, Hocking, & Tyler, 2016). While there is no single definition of creativity, Runco and Garrett (2012) postulate that although the standard definition of creativity requires two components, originality and efficacy, it does not imply that this concept should be left unstudied. By 1971, the term was already associated with the business world, and Oerter stated that "creativity represents the group of conditions that lead to manufacturing products or to new ways that contribute to an enrichment of society" (Kritikou et al., 2008).

Creativity is the ability to generate something new, whether it be a product, a technique, or a way to bring reality into focus, according to Gervilla (1980). Amabile et al. (1996) propose that due to growing turbulence, greater competition and unpredictable changes in jobs, it is important to encourage creativity in employees within organizations since it contributes fundamentally to an organization's competitive advantage.

Today, the concept of creativity is associated with achieving objectives, the presentation of new results, the emergence of new products (Santos, Uitdewilligen, & Passos, 2015), or the development of new and appropriate solutions (Agogue, Levillain, & Hooge, 2015).

As organizations face new and more complex challenges, the ability to respond in an innovative fashion is based on a group of supported actions that drive creativity (Gundry, Muñoz-Fernandez, Ofstein, & Ortega-Egea, 2016), and businesses find themselves having to adapt to correctly manage innovation projects to attain success, which has far-reaching consequences for long-term competitiveness (Behrens, 2016).

2. Methods

2.1. Bibliometric analysis

The current study is retrospective in nature and uses a bibliometric analysis of secondary data. This type of analysis generates useful information for researchers evaluating scientific activity (Rey-Martí, Ribeiro-Soriano, & Palacios-Marqués, 2016). A bibliometric analysis examines bibliographic material from an objective and quantitative perspective that proves useful in organizing information within a specific field (Albort-Morant & Ribeiro-Soriano, 2016); hence, a bibliometric analysis using key words allows the analysis of details in the main topics of research within a domain and relationships at the micro level (Chen & Xiao, 2016).

The current study consisted of the following steps: 1. definition of the field of study 2. selection of the database, 3. adjustment of research criteria, 4. codification of recovered material and 5. analysis of the information.

2.2. Choice of database

Document information was recovered from the Web of Science's SCI-Expanded by Thomson Reuters. The SCI-Expanded index includes 8471 journals with citations in 174 scientific disciplines, according to the Journal Citation Reports (JCR) of 2012 (Kun-Yang & Yuh-Shan, 2014). This database is multidisciplinary and is comprised of three citation indices: the Science Citation Index Expanded, Social Sciences Citation Index and Arts & Humanities Citation Index (Waltman, 2016). It has been established that the Web of Science has a significant advantage over other data bases because it includes social sciences literature (Norris & Oppenheim, 2007).

This study analyzes publications from 1975 to the current date of the analysis, since the first scientific publication regarding creativity in the field of business was in 1975. The key words included in the search were "creativity", "creatify", "creative", "creatively", "creativeness", "creativize", "creativa", and "creativities" using the Boolean operator "or" in the topic field. The results of this search yielded a total of 64,302 publications, which were filtered by the field "research areas = Business Economic", since this is the area of interest for the analysis, yielding 6747 documents. The database was filtered by "articles", obtaining a total of 5710 results, which were used to develop the current study. The search was conducted during the last week of August 2017.

2.3. Codification process

Once the search was conducted, a unique data base was created in a flat file containing the entire registry with the variables of author, language, year of publication, type of research, country, field of research, key words and cited references in each of the publications included in the search. The study time intervals were also defined to conduct a content analysis.

2.4. Indicators

In accordance with the indicator definitions proposed by Cadavid-Higuita, Awad, and Franco-Cardona (2012), the current study will utilize quantity indicators that measure the productivity of a researcher, journal or institution in terms of the number of publications. These quality indicators aim to measure the frequency with which a publication, author or journal is cited in other publications, whereas structural indicators measure connectivity among publications.

2.5. Software

Two tools were used in the analysis. (A) VOSviewer: A free access information technology program developed by Waltman and Van Eck (2012) for the construction and visualization of bibliometric maps. The main advantage of this program over most information technology programs available for bibliometric mapping is that it focuses on the graphical representations of the maps. This is particularly useful when visualizing large maps, making interpretation easy, and is mainly used in the creation of maps based on network data (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011; Dae-Hyun, Keuntae, Sangyong, & Soon-ki, 2016); and b) SciMAT: developed by the "SECABA" group from the University of Granada, which allows the construction of scientific maps as well as better visualization of the evolution within a scientific area (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2012).

VOSviewer is a computer program that was developed for creating, visualizing, and exploring scientific bibliometric maps. The program is available for free at www.vosviewer.com (Van Eck, Waltman, Dekker, & Van den Berg, 2010). VOSviewer permits the creation of term maps. A term map is a two-dimensional map in which the frequency of

occurrence of a particular term is defined by label size and the distance between two terms can be interpreted as an indication of the relatedness of these terms based on the number of co-occurrences of terms in the corpus file (Cardona & Sanz, 2015). The analysis made with this software considered countries, most cited authors, and keywords.

SciMAT is an open source (GPLv3) software tool developed to conduct science mapping analyses in a longitudinal framework. SciMAT provides different modules that help the analyst conduct a science mapping workflow: a module dedicated to the management of the knowledge base and its entities, a module responsible for conducting the science mapping analysis, and a module to visualize the generated results and maps (Cobo et al., 2012). Based on the methodology proposed by Martínez, Díaz, Lima, Herrera, and Herrera-Viedma (2014) and Martínez, Cobo, Herrera, and Herrera-Viedma (2015), 4 strategic maps were built using SciMAT. The first map incorporates all the research developed, and the rest represent an analysis by time interval [1986 to 1996], [1997 to 2007] and [2008 to 2017] using the measures of centrality and density. By having three time intervals, trends in publication patterns can be seen.

The first time interval in which research regarding creativity in business begins is between 1975 and 1985, and no publication trends are seen. During the 1986–1996 time interval, there is a moderate increase in publications. From 1997 to 2007, the research shows an increasing trend, and the most commonly cited articles are found during this time period. The last time interval analyzed is from 2008 and onward, with a considerable and steady increase in the number of publications.

To perform the analysis, the following configuration in SciMAT was established: word as the unit of analysis, co-occurrence analysis as the tool to build the networks, equivalence index as the similarity measure to normalize the networks, and the simple centers algorithm as the clustering algorithm to detect the clusters or themes. A strategic diagram is divided into four quadrants. Motor themes are found in the top right quadrant, peripheral themes are found in the top left quadrant, emergent themes are found in the bottom left quadrant, and the bottom right quadrant contain the basic themes (Cobo et al., 2012). Motor themes are those that are well developed and important for the construction of the scientific field, given that they represent a strong centrality and high density. Peripheral themes correspond to themes that are internally well developed but are isolated from the other themes and have marginal significance in the development of the scientific field. These themes are characterized as being too specialized and peripheral. Emergent, or decadent, themes are those that are poorly developed and marginal and mainly represent emergent or disappearing themes. Basic themes are important themes for the scientific field but are not well developed — that is, the basic themes of the scientific field. Additionally, a third dimension can be included in the strategic map through a sphere where its volume can represent different bibliometric indicators, such as the number of documents associated with a theme, the number of citations received by documents associated with each topic, or the H-Index of the topic (Alvarez-Marin, Castillo-Vergara, and Geldes-Gonzalez, 2017).

3. Results

3.1. Descriptive analysis

The country with the most publications regarding creativity in the scope of business is the United States, followed by England with 751 articles. The largest number of citations is also found in the United States at 49,816 citations. The map in Fig. 1 shows the remaining countries that have cited the studied articles, and it is important to note, as the figure indicates, that the United States is the core for the relationships among various countries in Europe, North America and Oceania.

According to the analysis of the information, J. Zhou has published the most articles on the topic of creativity in business; however, T. Amabile has been cited the most due to having the highest indicator for number of citations.

Table 1 shows the 16 authors with more than ten studies published by a total of 9738 researchers. The Hirsch index, or h-index, has been included for each author, and it is a measure of the professional quality of the authors in the function of the number of times their scientific articles have been cited (Schreiber, 2015). Fig. 2 shows the author maps and the significance of J. Zhou and T. Amabile can be clearly appreciated.

The analysis includes the 20 most cited publications from the total number of publications on the topic (18,204 citations in 5710 articles), as seen in Table 2.

The most cited articles are “The Capabilities Of Market-Driven Organizations” by Day, 1994, published in the Journal of Marketing, where the author presents a program for the development of skills within organizations driven by the market by focusing on six steps. The publication “A Model of Growth Through Creative Destruction”, published in Econometrica by Aghion and Howitt (1992), describes a model of economic growth based on Schumpeter's process of creative destruction. The third most cited article, “Assessing the work environment for creativity” (Amabile et al., 1996), was published in the “Academy of Management Journal”, where the impact of organizational aspects on creativity was measured as job performance. This instrument, referred to as KEYS, was applied in a company in the United States with over 30,000 employees.

The Harvard Business Review, Creativity and Innovation Management, Journal of Product Innovation Management and Journal of Business Research have the highest number of publications on creativity. These journals have been mostly categorized in the areas of management, business and economics, and the highest number of agencies that have funded studies in the field are found in China and the United States.

For the purposes of content analysis, the study period was divided into 4 blocks (1975–1985/1986–1996/1997–2007/2008–2017). During the last two blocks, a gradual increase in the number of publications can be seen, and it is the time frame when the most cited studies were conducted. The 2008–2017 block elicited the most publications, and there are 427 publications in the year 2017 already. Fig. 3 shows the number of publications studied for each time block.

3.2. Content analysis

The strategic diagram (shown in Fig. 4) presents four motor themes, two peripheral themes, three emergent or decadent themes and one basic theme. Table 3 shows the results for each theme (number of documents, h-index, centrality and density values), with the size of the sphere representing the h-index for each research theme.

According to the strategic diagram, the first time interval (1986–1996) presents two themes, creativity and innovation. Creativity is a well-developed topic that is becoming a motor theme and represents research in the work environment, motivation, perceptions, system, work and support systems for decision-making, which are represented as a central node in attitudes and as another in systems or work environments. Innovation is a theme that is also beginning to become a motor theme, and research is focused on the work environment, firms, model, strategy, technology and cycles, which are represented as three nodes: the systems and work environment for innovation, organizational models for innovation, and strategy for innovation. Table 4 shows the results for each topic (number of documents, h-index, centrality and density values), and the strategic diagram is shown in Fig. 5.

For the time interval 1997–2007, topics of research interest within the area have dramatically increased, with innovation being a motor theme and the focus on creative research related to creativity, firms, model, networks, work and organization. Other motor themes include

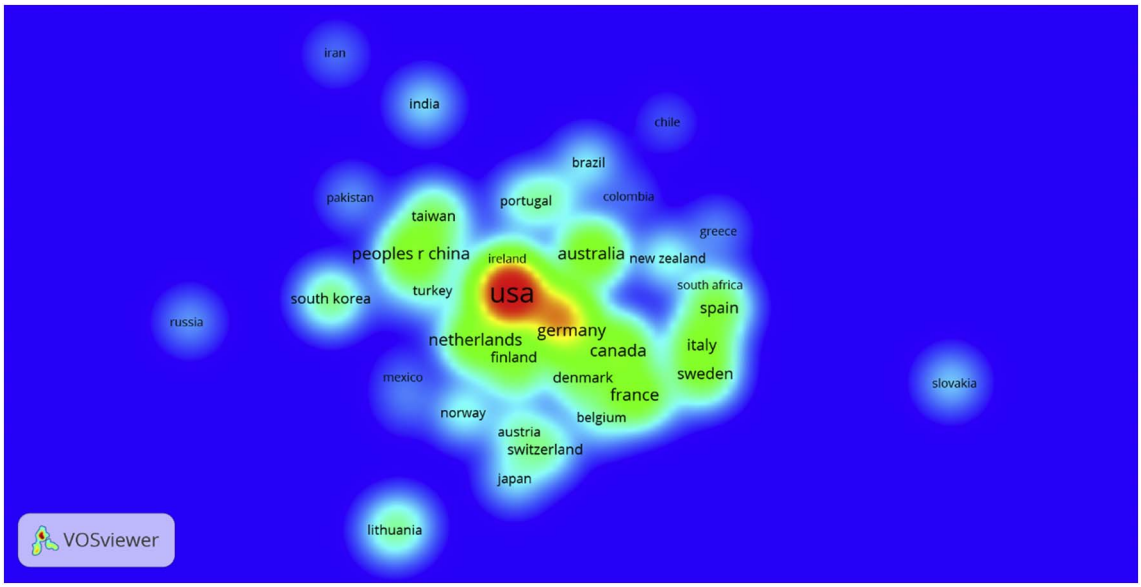

Fig. 1. Citations by country.
Source: Vosviewer – Own Elaboration.

Table 1
Authors.
Source: Own Elaboration.

Authors	No publications	No citations	h-Index	C/P
Zhou J	26	3247	16	124.88
Mumford MD	20	554	11	27.70
Shalley CE	15	2329	12	155.27
Kratzer J	14	413	10	29.50
Janssen O	13	1126	8	86.62
Van Knippenberg D	13	847	10	65.15
Choi JN	12	293	7	24.42
Amabile TM	11	4185	10	380.45
Cunha MPE	11	163	6	14.82
Florida R	11	681	7	61.91
Hoegl M	11	159	5	14.45
Baer M	10	651	8	65.10
Fuller J	10	540	8	54.00
Gilson LL	10	1181	8	118.10
Hirst G	10	510	8	51.00
Leung K	10	63	4	6.30

technological discontinuities, memory and market. Technological discontinuities are related to research with industry, advantage, complementary assets, dynamic capabilities, strategic alliances and absorptive capacity. In terms of memory, the topics developed include attitudes, analogy, state, support systems and group support systems. Last, the cluster pertaining to the market includes choice, risk, impact, orientation and hierarchy. Failure, behavior, strategy and knowledge are the four basic and transversal topics that showed significant development in the scope of creativity, although they are low in number. Emergent topics include motivation and systems. The motivation node was created from the study of rewards and perceptions, and systems were developed within the context of business and patents and were developed through a function of research in alliances and biotechnology. There are four well-developed but isolated themes. The first is heuristics, related to research associated with problem solving; the second is champions, which includes engineering and projects; the third is business cycles, which is related to investments and policies; and the last topic is work groups, which is comprised of teams, organizational culture and management teams. This period reflects the inclusion of creativity as a relevant factor for organizational performance, particularly in the development of new products in the generation of

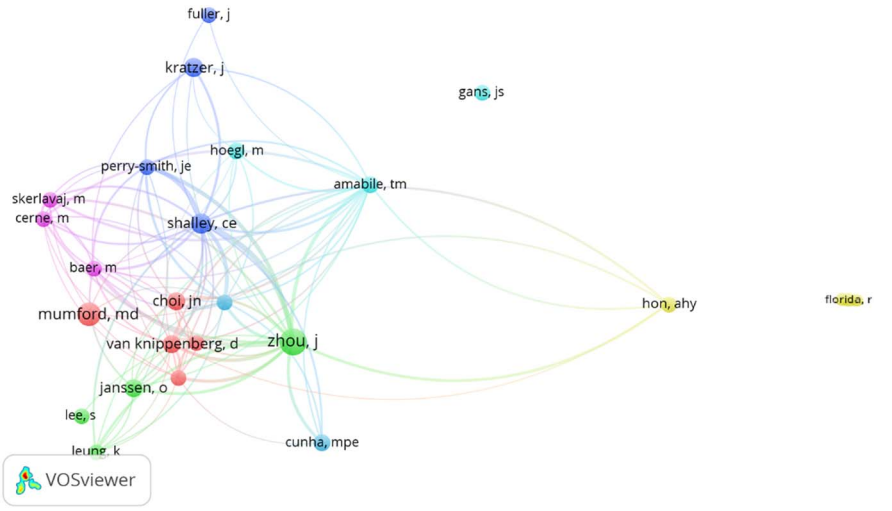

Fig. 2. Authors.
Source: VOSviewer – Own Elaboration.

Table 2
Most cited publications.
Source: Own Elaboration.

Title	Journal	Year of publication	Number of citations
The capabilities of market-driven organizations	Journal of marketing	1994	2081
A model of growth through creative destruction	Econometrica	1992	1843
Assessing the work environment for creativity	Academy of management journal	1996	1467
Determinants of innovative behavior - a path model of individual innovation in the workplace	Academy of management journal	1994	1181
Toward a theory of organizational creativity	Academy of management review	1993	1160
A model of creativity and innovation in organizations	Research in organizational behavior	1988	1118
What firms do? Coordination, identity, and learning	Organization science	1996	1110
Employee creativity: personal and contextual factors at work	Academy of management journal	1996	1022
Buzz: face-to-face contact and the urban economy	Journal of economic geography	2004	849
Communities of practice: the organizational frontier	Harvard business review	2000	815
Innovation - mapping the winds of creative destruction	Research policy	1985	814
Demography and design - predictors of new product team performance	Organization science	1992	739
Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy	Academy of management journal	2000	593
The role of tacit knowledge in group innovation	California management review	1998	575
When job dissatisfaction leads to creativity: encouraging the expression of voice	Academy of management journal	2001	542
The social side of creativity: a static and dynamic social network perspective	Academy of management review	2003	487
Creative self-efficacy: its potential antecedents and relationship to creative performance	Academy of management journal	2002	464
How to kill creativity	Harvard business review	1998	460
An examination of leadership and employee creativity: the relevance of traits and relationships	Personnel psychology	1999	448
Innovativeness, novelty seeking, and consumer creativity	Journal of consumer research	1980	436

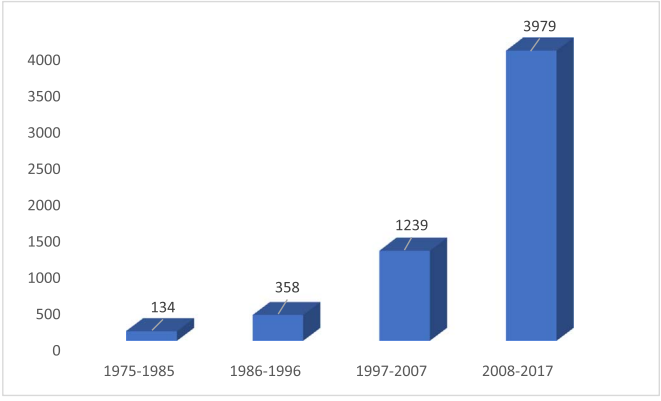

Fig. 3. Number of articles by time block.
Source: Own Elaboration.

innovation. Table 5 shows the result for each topic (number of documents, h-index, centrality and density values). The strategic diagram is shown in Fig. 6, with a highlight on the high h-index in topics related to innovation. Given these results, it appears that this time period has contributed the most to research in the area.

The final time interval analyzed, 2008 to 2017, presents a total of 11 themes, which are shown in Fig. 7, and the detailed results for each theme are shown in Table 6. There are 4 motor themes, with innovation having the highest h-index. There are three nodes—cities, industry and creative industries—that are expected to combine and become one motor theme in the future. The last motor theme is motivation, and its research encompasses aspects such as incentives, promotion, behavior, work, achievement orientation, and self-evaluation. Basic topics include culture and background, both of which are related to organizational development issues such as values, communication, attitudes, environment and impact. During this time period, the study of creativity management begins to emerge from the development of systems or strategies within organizations, and their impact is associated with employee performance and organizations focused on consumers, and the concept of creative industries and cities is seen as an important theme.

Fig. 4. Strategic map.
Source: SciMAT – Own Elaboration.

Table 3
Topics strategic map.
Source: Own Elaboration.

Topics	Documents	h-Index	Centrality	Density
Innovation	1608	105	36.81	12.41
Cities	119	22	8.71	7.55
Behavior	176	35	10.25	1.59
Communities	69	20	9.06	2.28
Strategy	61	21	6.85	0.71
Impact	61	18	3.40	2.25
Culture	41	12	5.93	0.67
Science	19	7	1.73	0.94
Careers	13	6	2.94	1.18
Teams	17	11	3.01	0.68

Table 4
Topics strategic map 1986–1996 period.
Source: Own Elaboration.

Topics	Documents	h-Index	Centrality	Density
Creativity	10	9	2.42	7.56
Innovation	8	7	3.70	6.49

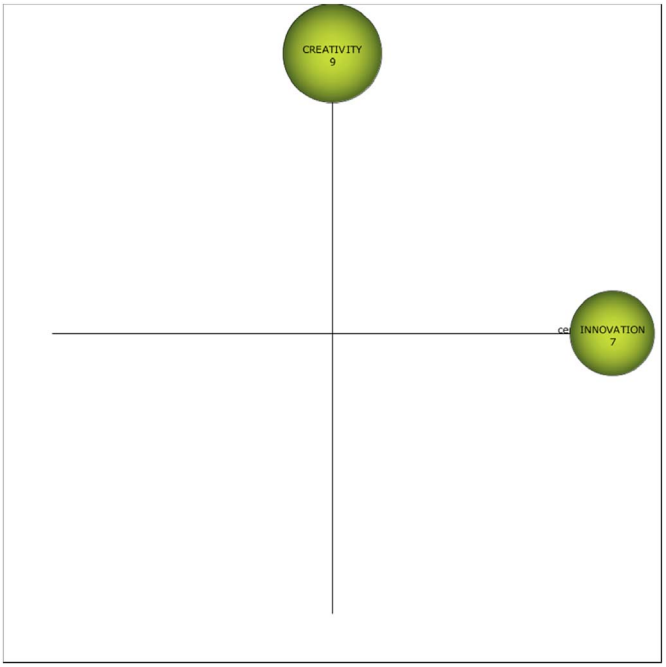

Fig. 5. Strategic map 1986–1996.
Source: SciMAT – Own Elaboration.

Table 5
Topics strategic map 1997–2007 period.
Source: Own Elaboration.

Topics	Documents	h-index	Centrality	Density
Technological-discontinuities	13	11	14.42	18.85
Innovation	222	81	39.42	11.86
Behavior	16	13	7.29	2.69
Memory	7	6	7.75	7.54
Strategy	15	15	12.30	1.94
Knowledge	21	14	9.47	1.57
Market	10	9	4.71	3.62
Failure	8	7	5.62	2.78
Work-groups	8	8	4.25	6.32
Systems	6	6	2.99	1.10
Heuristics	3	3	2.63	20.00
Champions	4	4	1.04	10.19
Business-cycles	4	3	1.77	5.48
Motivation	4	4	2.96	3.44
Patents	3	3	1.92	3.24

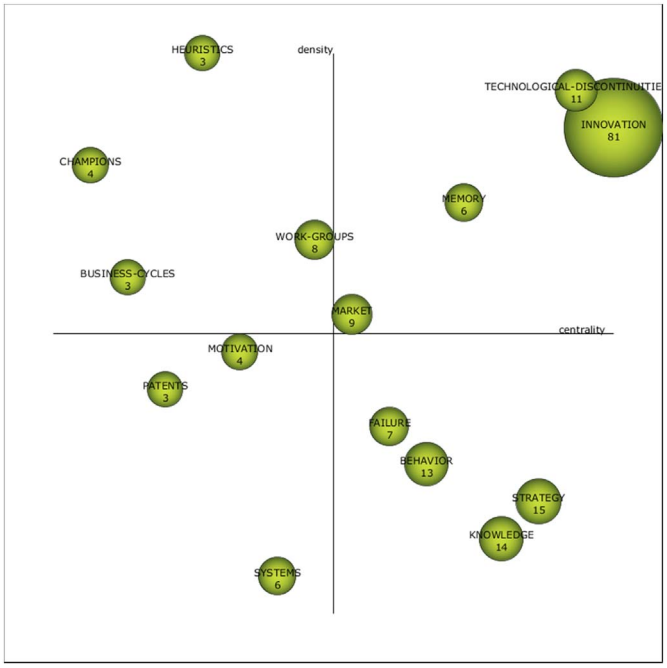

Fig. 6. Strategic map 1997–2007 period.
Source: SciMAT – Own Elaboration.

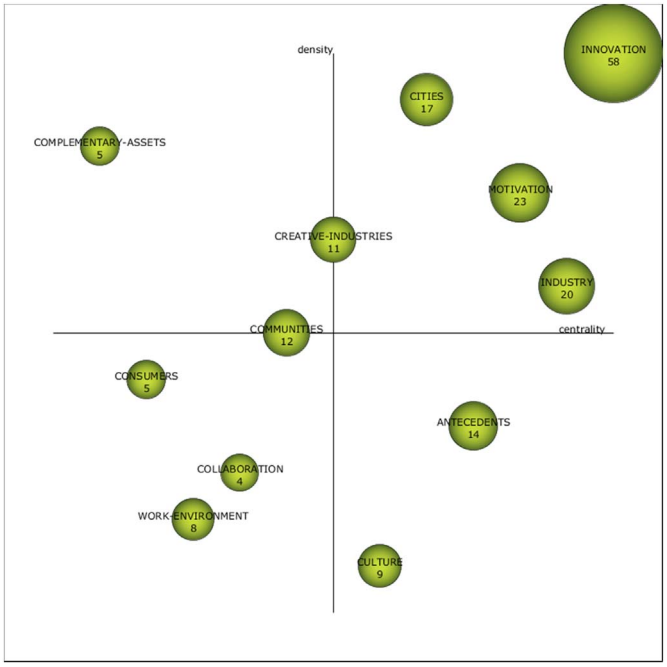

Fig. 7. Strategic map 2008–2017 period.
Source: SciMAT – Own Elaboration.

4. Discussion

Fourteen of 20 of the most cited documents in the area of interest were generated before 2000, which is reflected in publications during the 1997–2007 time interval with high h-index values. The most cited documents have a direct relationship with the study of creativity in work environments within organizations, indicating the importance that organizations contribute to creativity.

At the end of the analysis, the most developed topic and the one that is most importance for the construction of the scientific field was found to be innovation, given that it represents strong centrality and high density. When analyzing the topic network, it was possible to conclude that research is focused on creativity performance and innovation within organizations (something that can be appreciated in the keyword map of the research analyzed, shown in Fig. 8) and is measured through work, employees, development of technology. The studies with the most citations are those by Scott and Bruce (1994), Woodman, Sawyer, and Griffin (1993) and Kogut and Zander (1996).

Research on the topic of behavior is related to aspects pertaining to employees and the organization, in which creativity is a relevant factor, and studies by Janssen and Van Yperen (2004), and Gong, Huang, and Farh (2009) received the most citations. The third motor theme is

Table 6
Topics strategic map 2008–2017 period.
Source: Own Elaboration.

Topics	Documents	h-Index	Centrality	Density
Innovation	1084	58	33.09	12.36
Cities	89	17	5.34	9.21
Industry	104	20	10.05	1.92
Motivation	128	23	8.15	2.57
Creative-industries	59	11	5.02	2.26
Antecedents	50	14	7.71	0.87
Communities	33	12	4.66	1.41
Culture	30	9	5.32	0.60
Collaboration	19	4	3.84	0.87
Work-environment	25	8	2.14	0.70
Complementary-assets	8	5	0.43	8.51
Consumers	13	5	0.54	1.24

"cities", with the main axes being related to creative industries and cities, policies included in different geographical locations, and the impact on those economies, as evidenced by studies conducted by Florida, Mellander, and Stolarick (2008), Storper and Scott (2009), and Boschma and Fritsch (2009). The fourth motor theme is "communities", which is related to the tools, networks, skills to address new challenges in the business world such as open innovation, social networks, users and consumers. Studies with the most citations were from Poetz and Schreier (2012), Fleming, King, and Juda (2007), and Afuah (2000).

Transversal themes are focused on strategy and organizational culture, and topics that have been extensively developed, although still isolated, include competition and the impact of organizations.

In terms of emergent topics, it is possible to conclude that the study of creativity has been included into the research on knowledge transference at universities, particularly in the development of the third mission in the area of nanotechnology. The study of "teams" is an analysis of work groups and their participation in creative projects.

When the research is analyzed by time period, there are three well-defined time intervals. As was expected in the first stage of the research, the concepts being developed were fairly broad, and the main studies include those by Scott and Bruce (1994), Webster and Martocchio (1992), Aghion and Howitt (1992) and Woodman et al. (1993). These studies address organizational models to improve business results, and in these models, creative skills prove to be an important competence for the development of organizations.

For the second time period studied, models seek to measure the performance of a more specific characteristic in company activities, and the most cited studies during this period include those by Zhou and George (2001), Tierney and Farmer (2002), Tierney, Farmer, and Graen (1999), De Dreu and West (2001), George and Zhou (2001), Shin and Zhou (2003) and Uhl-Bien, Marion, and Mckelvey (2007).

The last time period establishes creativity as part of innovation and as a large motor theme with high centrality and density values. The development of the research reaches a deeper level in terms of models and organization performance, entrepreneur profiles and their motivations. Studies on the attitudes of employees also become relevant, particularly their innovation and creativity, the influence of leading styles regarding creativity, the development of new products, and innovations with the development of creativity, creative industries and cities. The most cited studies are those by Enkel, Gassmann, and Chesbrough (2009), Gong et al. (2009), Argote and Miron-Spektor (2011), Florida et al. (2008), Storper and Scott (2009) and Poetz and Schreier (2012).

5. Conclusions

The analysis has shown that creativity is a relevant topic, particularly in the last several years, and in complex environments, organizations require organizational management for the development of these skills. It has been possible to show the development of the research from a broad perspective to a more specific analysis, showing

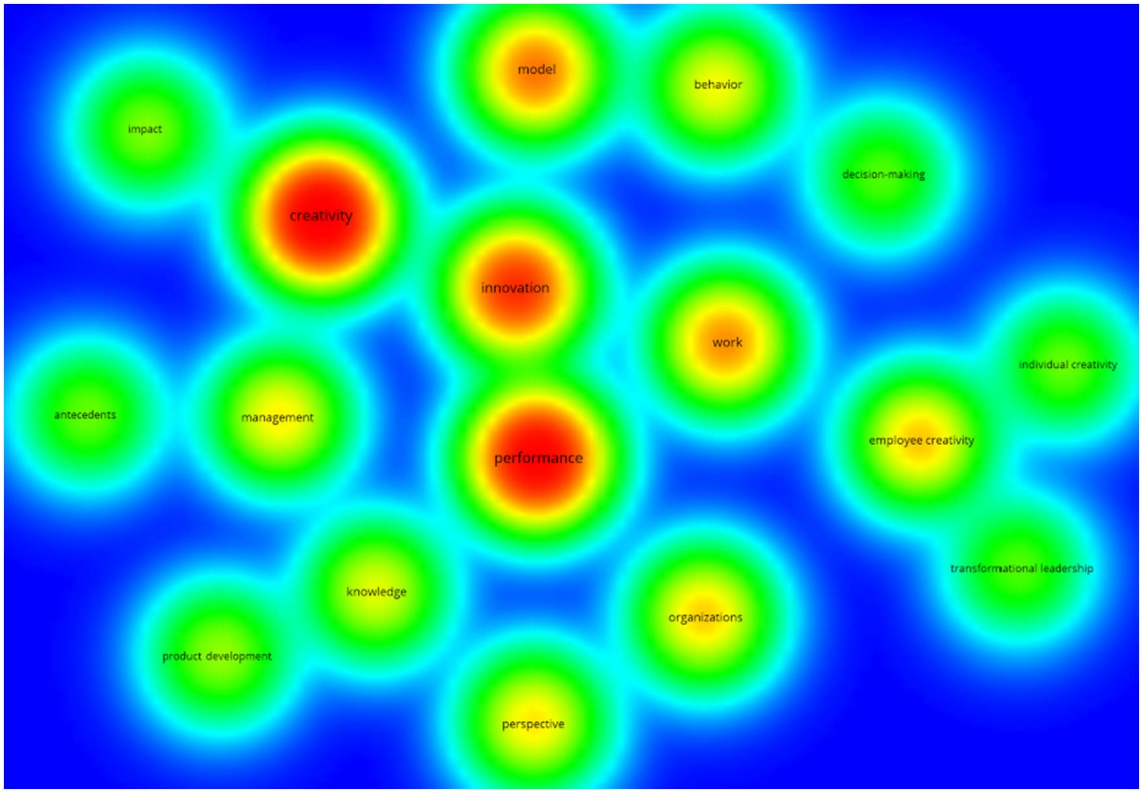

Fig. 8. Keywords strategic map.
Source: VOSviewer – Own Elaboration.

creativity initially as an individual skill to eventually conceptualize as a relevant factor for the development of organizations and businesses. It appears as if the basis of the research on creativity has already been developed and that it currently focuses on branches that detail creativity and its relationship with individuals, organizations and environments.

The current study presents the evolution of the scientific research regarding creativity in businesses between 1976 and 2017 according to the available publications through the Web of Science. This study analyzes the trend, taking into account a general vision and three distinct time intervals over time, focusing on the quality of research during the 1997–2007 period, with the greatest amount of research being conducted in the 2008–2017 time interval. The country with the greatest number of publications is the United States, which makes North America the most productive continent, with Europe taking second place. As expected, the English language is the most common language in the research because it is considered the universal language and gives authors the greatest opportunity to present their publications.

The journals with the largest number of articles are the Harvard Business Review with 112 publications, Creativity and Innovation Management with 107 publications and the Journal of Product Innovation Management with 90 publications. Although there are many other journals that publish articles related to creativity, not all are in the area of business.

The analysis proves that creativity is a relevant topic at a global level. However, in Latin America and the Caribbean, the study and development of creativity is still in its infancy. The number of publications is limited, which can be explained by the fact that these countries do not possess sufficiently developed ecosystems to drive innovation and creativity. When one considers that innovation is key for the development of competitiveness in the current economic system, it is clear that the generation of knowledge becomes key because creativity acts as the drive for these processes.

The most frequent lines of research are those that tend to understand the phenomenon of creativity and the variables that influence economic performance. According to the current analysis, it is thought that the study field should address two main axes. The first axis should focus on the study of creativity in terms of training professionals, given that the resulting impacts on organizations are evident, and it is expected that universities would consider these competencies when training their students in a comprehensive manner. The second axis that should be addressed is creativity evaluation and performance systems within organizations. Although currently there are diverse instruments to measure individual creativity, there is still room to develop measures and indicators for the creativity of organizations based on management indicators.

Future research should be aimed at the analysis of creativity studies in terms of training future professionals in various areas, the evaluation of the development of skills through company training courses, and the development of a creativity evaluation system within organizations. Another consideration is the use of other databases for the analysis, such as Google Scholar, which includes citations available in sources other than the Web of Science.

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