

CARTOGRAFÍA DE LA MOTIVACIÓN EMPRESARIAL: UN ANÁLISIS DE CITAS CONJUNTAS A DOCUMENTOS

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RESUMEN

El objetivo principal de este estudio es explorar y cartografiar la estructura intelectual de la investigación en motivación empresarial. Con este propósito se han analizado los trabajos científicos publicados e incluidos en la base de datos ISI *Web of Science* (SSCI y SCI) relacionados con la motivación empresarial durante el periodo 1990-2010. Mediante el análisis de 4842 referencias citadas por 96 artículos científicos incluidos en la base de datos ISI *Web of Science*, y empleando técnicas de análisis de citas conjuntas a documentos y de redes sociales, se ha investigado la estructura intelectual de la literatura científica sobre motivación empresarial. De este modo se han podido identificar las publicaciones más relevantes y los autores más influyentes durante el periodo de análisis, así como a partir del estudio de las correlaciones y del análisis de citas conjuntas a documentos se ha podido perfilar la estructura intelectual de la investigación en motivación empresarial. Tres factores emergieron en el estudio y configuran la estructura de la investigación científica en motivación empresarial: (1) características psicológicas del empresario (teoría de la personalidad, la teoría de los rasgos ...) como variables o elementos significativos de la actividad empresarial, (2) la psicología cognitiva, o aspectos cognitivos relacionados con la identificación y explotación de oportunidades, y (3) la dimensión psicosociológica de la iniciativa empresarial.

PALABRAS CLAVE: Motivación empresarial, Bibliometría, Análisis de citas.

MAPPING ENTREPRENEURIAL MOTIVATION: A CITATION/COCITATION ANALYSIS

ABSTRACT

The main purpose of this study is to explore and map the intellectual structure of entrepreneurial motivation studies during 1990–2010 by analyzing 4842 cited references of 96 articles from journals in SSCI and SCI databases. In this article, co-citation analysis and social network analysis techniques are used to research intellectual structure of the entrepreneurship motivation literature. We are able to identify the important publications and the influential scholars as well as the correlations among these publications by analyzing citation and co-citation. Three factors emerged in this study are: (1) entrepreneur characteristics (personality theory, traits theory...) as variable or element significant to entrepreneurial activity, (2) cognitive psychology in the research for exploitation of an opportunity, and (3) psycho sociological dimensions of entrepreneurship.

KEY WORDS: Entrepreneurial motivation, Bibliometric, Citation analysis.

1.- INTRODUCTION

Entrepreneurship is important for several reasons. Entrepreneurship generates economic growth (Schumpeter, 1934). Entrepreneurship is a way for new companies to emerge and create employment (Birch, 1987). In recent years, entrepreneurship can be seen as a useful alternative to uncertain corporate careers (Venkataraman, 1997).

Although some researchers have criticized much of the existing empirical research on the role of human motivation in entrepreneurship (Aldrich and Zimmer, 1986; Carroll and Mosakowski, 1987), others (Shane et al., 2003) underline the importance of understanding the role of human motivation in the entrepreneurial process. We cannot ignore that human action is the result of motivational factors.

The aim of the present study is to identify the more influential documents and analyze the relational links between them, in order to appreciate the intellectual structure of entrepreneurial motivation. We explore and map the intellectual structure of entrepreneurial motivation by considering the works of a great number of researchers in the field over an extended period of time using bibliometric methods. The aim, following the suggestions of Ramos-Rodríguez and Ruiz-Navarro (2008) and Díaz et al. (2009), is to ascertain the intellectual structure of topic by focusing on and describing what appears, as it were, in the rear-view mirror.

We collected citation data over the 20-year period of 1990–2010 from every document included in ISI databases. The research method used is the citation and co-citation analysis. Using citation analysis, the interlinked nodes are discovered. From these nodes, the most influential publications and scholars in the entrepreneurial motivation field are identified. Then, co-citation analysis is conducted to map the intellectual structure of entrepreneurial motivation studies and to explore the knowledge nodes. Therefore, starting from the hypothesis that the bibliographic references cited in research papers are a reliable indication of their influence, the aim of the present study is to identify the more influential documents and analyze the relational links between them, in order to appreciate the intellectual structure of entrepreneurial motivation.

Useful value added is offered by this paper, not only because it is the first to apply bibliometric techniques to entrepreneurial motivation research literature, but also because, in so doing, it complements and improves the findings of other studies that have approached the subject from the qualitative perspective. It is, however, no substitute for extensive reading and fine-grained content analysis (White and McCain, 1998; Ramos-Rodríguez and Ruiz-Navarro, 2008).

This paper starts with a brief review of the bibliometric methodology employed here. We then describe and justify our data source for the study. Next, we present the results of our analysis and describe the intellectual structure of the field. Last, we offer our conclusions, discuss the limitations of the study, and identify its implications.

2.- LITERATURE REVIEW

“Once a scientific discipline has reached a certain degree of maturity, it is common practice for its scholars to turn their attention towards the literature generated by the scientific community and, treating it as a research topic in its own right, to conduct reviews of the literature with a view to assessing the general state of the art. Normally, these types of study are considered as adopting the impressionist approach and their findings tend to reflect the subjective views of their authors” (Ramos-Rodríguez and Ruiz-Navarro, 2004:981). In contrast, *bibliometric* meta-analysis offers an objective view of a knowledge field.

The term *bibliometrics* refers to the mathematical and statistical analysis of patterns that appear in the publication and use of documents (Diodato, 1994). The techniques used in this paper are known as citation and co-citation analysis. Citation analysis is based on the premise that authors cite documents they consider to be important in the development of their research. Therefore, frequently cited documents are likely to have exerted a greater influence on the discipline than those less frequently cited (Culnan, 1987; Tahai and Meyer, 1999; Ramos-Rodríguez and Ruiz-Navarro, 2004).

In others words, Tseng et al. (2010) explain that cocitation analysis is the most widely used method to quantify the impact (importance) of certain research. When one scholar cites prior study of another, citation analysis provides a means of documenting this process. As Chandy and Williams (1994) pointed out, citations are viewed as the explicit linkages between articles that have common aspects. Many researchers have studied citations, the “raw data” of citation analysis. Cronin (1984), in particular, described the citation process as a detailed theoretical scrutiny that includes a review of the role and the content of citations. In general, a paper is cited in order to make a point that is relevant to the subject at hand (Small, 1978).

Citation can be viewed as legitimate object of research, and in fact, citation analysis has often proved itself as a meaningful tool that has been used widely in information science and other areas. Co-citation analysis is a bibliometric technique that information scientists use to “map” the topical relatedness of clusters of authors, journals, or articles, i.e., the intellectual structure of a research field. It involves counting documents from a chosen field – paired or co-cited documents, which appear frequently in the bibliographic reference lists of citing documents.

3.-METHODOLOGY

The purpose of this paper is to gain an impression of entrepreneurial motivation research by considering the works of a great number of researchers in the field over an extended period of time using bibliometric methods.

To reach the previous mentioned aims of this work, we have adopted the following sequence in our study.

- Selection: databases as the sources of motivation and entrepreneurship publications are selected.
- Data collection: selection of citing sample.
- Compilation of raw cocitation matrix: selection of documents cited with minimum mean cocitation frequency.

- Convert raw cocitations to correlation matrix.
 - Analysis of correlation matrix: Factorial analysis to identify main factors.
 - Mapping of correlation matrix: Key nodes in the intellectual structure of entrepreneurial motivation are identified and the structures developed. The intellectual structure of entrepreneurial motivation is mapped to describe the knowledge distribution process in motivation and entrepreneurship field.
 - Interpretation and comparison of methods for identifying research streams (factorial analysis and network analysis).

Databases

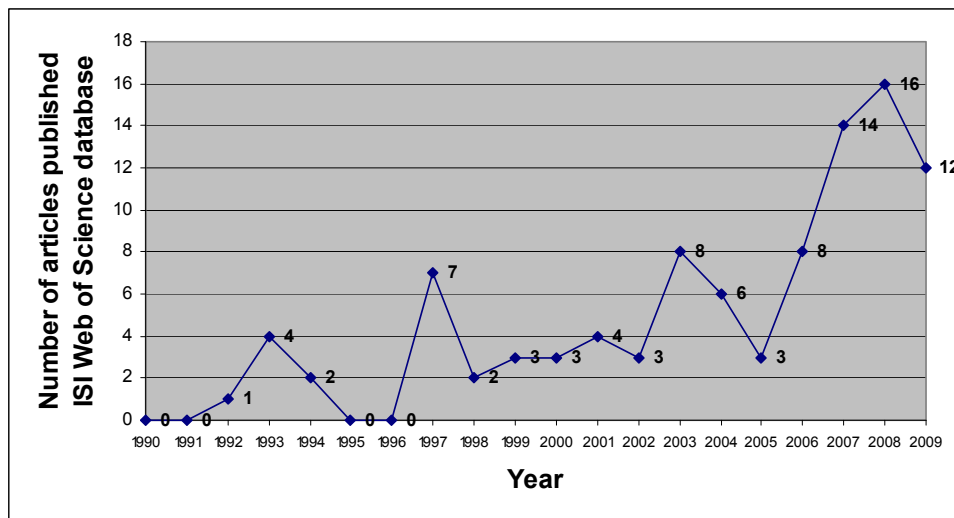
The first step in a study of a scientific field is to decide the limits of the data. According to Ramos-Rodríguez and Ruiz-Navarro (2004) instead of using books, doctoral theses, or scientific congress records as our source of scientific documents for the purposes of this study, we chose to use articles published in journals, because these can be considered ‘certified knowledge.’ This is the term commonly used to describe knowledge that has been submitted to the critical review of fellow researchers and has succeeded in gaining their approval.

While some bibliometric studies take a narrow focus by studying the publications in only a few selected journals (e.g. Busenitz et al., 2003; Ramos-Rodríguez and Ruiz-Navarro, 2004; Ratnatunga and Romano, 1997; Schwert, 1993), in this case we included a broad selection of journals in the economic and social fields. Because entrepreneurship research is essentially cross-disciplinary, a narrow choice of dedicated journals could have provided considerable bias. We used the Institute of Scientific Information Social Sciences Citation Index (ISI SSCI) to systematically select all articles related to entrepreneurship and motivation published during the period 1990 – 2010.

Data collection

A final set of 96 articles and 4842 cited references were obtained. (Their bibliographic information is available from the authors on request.). In figure 1 we present the evolution of the number of articles published during the analysis period. It is worth noting that there has been a serious increase of interest for the topic since the year 2006.

Figure 1. Evolution of the number of articles (citing sample)



Subsequently, we selected all references that had been cited by at least seven (6.7%) of these 96 articles¹.

We used a free software tool, SITKIS, programmed by Schildt (2005). Sitkis exports data from the ISI Web of Science database into a Microsoft Access database on a personal computer. The tool then allows the imported data to be manipulated and exported to different types of UCINET compatible (Borgatti et al., 2002) networks and Microsoft Excel-compatible tables.

¹ As there are no studies on the amount of citations that should be taken into account, we have opted for this number (after prove different amounts), above the threshold considered by other studies.

Since we also wanted show the results graphically, we used techniques that have been developed based on graph theory in social network analysis (Scott, 1991; Wasserman and Faust, 1994) to visualize the relationships such as the linkages among publications present in our co-citation data. The resulting graphs were produced using the NETDRAW software which comes with the UCINET package (Borgatti et al., 2002).

Top 32 key-cited documents are identified. Then a 32x32 co-citation matrix is developed. These data are imported to Ucinet software for social network analysis and factor analysis has been done using SPSS factorial analysis.

Key nodes in the network of knowledge in entrepreneurial motivation are identified and the structures developed. The intellectual structure of entrepreneurial motivation is mapped to describe the knowledge distribution process in entrepreneurial motivation area.

We use r-Pearson as a measure of similarity between document pairs, because it registers the likeness in shape of their co-citation count profiles over all other documents in the set.

The co-citation correlation matrix was factor analyzed using varimax rotation, a commonly used procedure, which attempts to fit (or load) the maximum number of authors on the minimum number of factors (McCain, 1990).

4.- RESULTS

Citation and Cocitation analysis

From the citation sample, the most cited and influential documents titles between 1990 and 2010 are: McClelland's (1961) "The Achieving Society", followed by Gartner's (1989) "Who is an entrepreneur? Is the wrong question", and Shane and Venkataraman (2000) "The promise of entrepreneurship as a field of research", and Gartner's (1985) "A Conceptual Framework for Describing the Phenomenon of New Venture Creation" (see Table 1).

Table 1. Top 32 highly cited documents in motivation and entrepreneurship studies 1990–2010

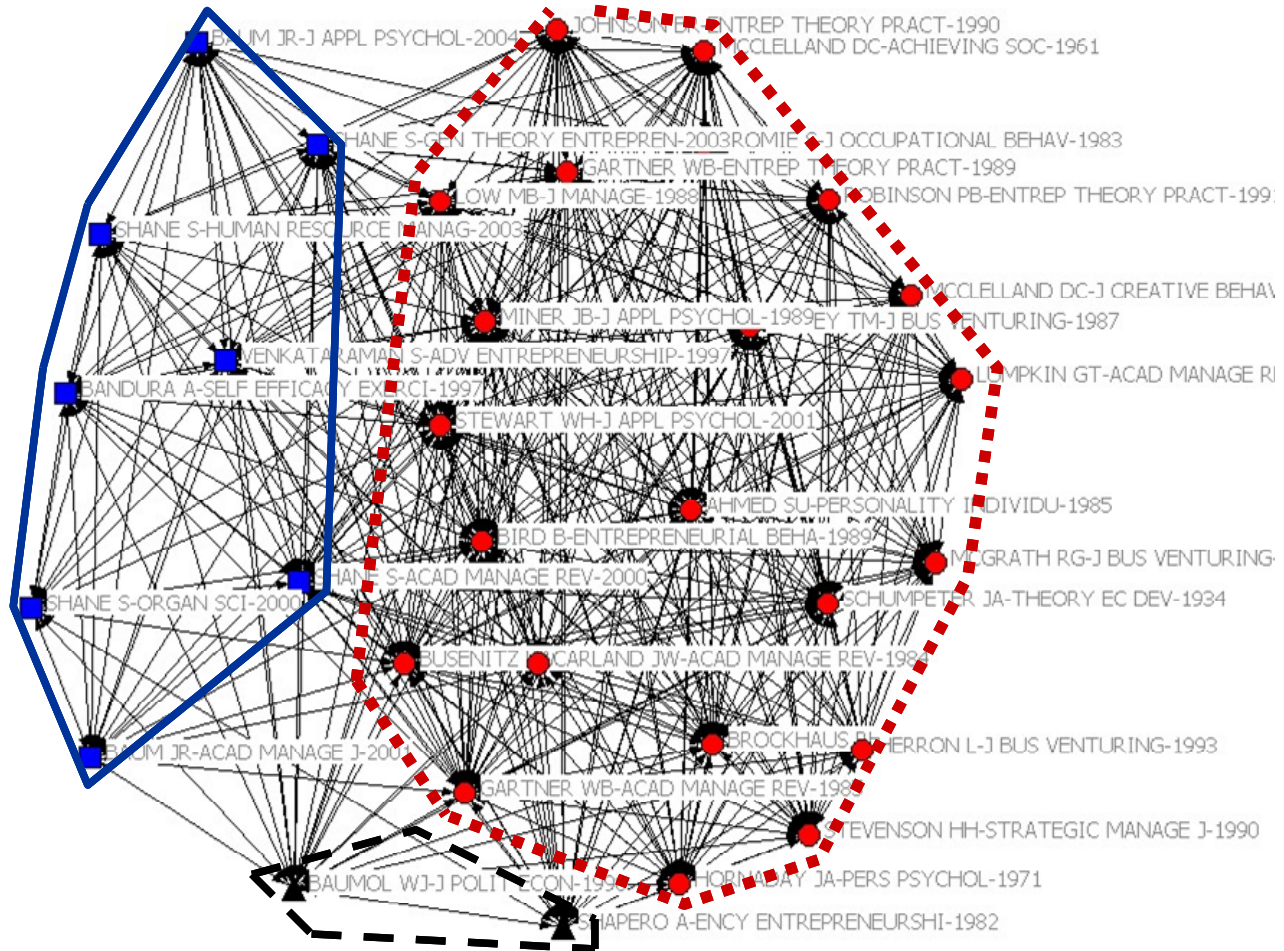
No	Freq	Year	Author	Full citation index for journals
1	22	1961	MCCLELLAND DC	ACHIEVING SOCIETY
2	20	1989	GARTNER WB	ENTREP THEORY PRACT, VSUMMER, P47
3	19	2000	SHANE S	ACAD MANAGE REV, V25, P217
4	15	1985	GARTNER WB	ACAD MANAGE REV, V10, P696
5	12	1971	HORNADAY JA	PERS PSYCHOL, V24, P141
6	12	1988	LOW MB	J MANAGE, V14, P139
7	11	2001	BAUM JR	ACAD MANAGE J, V44, P292
8	11	1987	BEGLEY TM	J BUS VENTURING, V2, P79
9	11	1934	SCHUMPETER JA	THE THEORY OF ECONOMIC DEVELOPMENT
10	10	1985	AHMED SU	PERSONALITY INDIVIDU, V6, P781
11	10	1986	BROCKHAUS RH	ART SCI ENTREPRENEUR
12	10	1984	CARLAND JW	ACAD MANAGE REV, V9, P354
13	10	1996	LUMPKIN GT	ACAD MANAGE REV, V21, P135
14	10	2003	SHANE S	HUMAN RESOURCE MANAG, V13, P257
15	9	1997	BANDURA A	SELF EFFICACY EXERCI
16	9	1990	JOHNSON BR	ENTREP THEORY PRACT, V14, P39
17	8	2004	BAUM JR	J APPL PSYCHOL, V89, P587
18	8	1990	BAUMOL WJ	J POLIT ECON, V98, P893
19	8	1989	BIRD B	ENTREPRENEURIAL
20	8	1997	BUSENITZ LW	J BUS VENTURING, V16, P165
21	8	1983	CROMIE S	J OCCUPATIONAL BEHAV, V4, P317
22	8	1993	HERRON L	J BUS VENTURING, V8, P281
23	8	1989	MINER JB	J APPL PSYCHOL, V74, P554
24	8	2000	SHANE S	ORGAN SCI, V11, P448
25	7	1982	SHAPERO A	ENCY ENTREPRENEURSHI, P72
26	7	1987	MCCLELLAND DC	J CREATIVE BEHAV, V21, P219
27	7	1990	STEVENSON HH	STRATEGIC MANAGE J, V11, P17
28	7	1991	ROBINSON PB	ENTREP THEORY PRACT, V15, P13
29	7	1992	MCGRATH RG	J BUS VENTURING, V7, P441
30	7	1997	VENKATARAMAN S	ADV ENTREPRENEURSHIP, V86, P145
31	7	2001	STEWART WH	J APPL PSYCHOL, V86, P145
32	7	2003	SHANE S	A GENERAL THEORY OF ENTREPRENEURSHIP: THE INDIVIDUAL-OPPORTUNITY NEXUS.

Then a co-citation matrix (32x32) is created, representing the correlations among different publications.

Social network analysis tools can be used to graph the relations in the co-citation matrix and identify the strongest links and the core areas of interest in entrepreneurial motivation.

The diagram in Figure 2 provides a clear picture. Taking the co-citation matrix and grouping the documents using factor analysis of the correlation between the entries determines which documents are grouped together. According to this, the closeness of documents points on such maps is algorithmically related to their similarity as perceived by citers.

Figure 2. Cocitation network of entrepreneurial motivations studies 1990-2010



The most influential scholars in the motivation and entrepreneurship studies between 1990 and 2010 are grouped together. Three factors were extracted from the data, and together they explain over 79.4% of the variance in the correlation matrix (see Table 2). Table 3 lists the three most important factors along with the authors that had a factor loading of at least 0.7. As is usual in this type of analysis, documents with less than a 0.7 loading were dropped from the final results (Hair et al., 1998). We tentatively assigned names to the factors on the basis of our own interpretation of the documents with high associated loadings. Our interpretation of the analysis results is that the entrepreneurial motivations comprises three basic sub-fields: entrepreneur characteristics (personality theory, traits theory...) as variable or element significant to entrepreneurial activity, cognitive psychology in the research for exploitation of an opportunity, and psycho sociological dimensions of entrepreneurship.

Table 2. Total Variance Explained of top three factors

Factor	Total	Pct. of var.	Cumulative %
1	21.272	66.5	66.5
2	2.863	8.9	75.4
3	1.279	4.0	79.4

In Figure 2² and Table 3, Factor 1 shows the main research focused on the psychological characteristics of entrepreneur. In this approach entrepreneur is the basic unit of analysis and the entrepreneur's psychological traits and characteristics the key to explaining entrepreneurship. Note that in this approach entrepreneurship is associated to new venture creation. New venture creation integrates four major perspectives in entrepreneurship: characteristics of individual(s) who start the venture, the organization which they create, the environment surrounding the new venture, and the process by which the new venture is started. Within this group, the majority of the documents consider the psychological factors of entrepreneurial behaviour as main factors of analysis. In contrast, Gartner (1989) argues that "the attempt to answer the question "Who is an entrepreneur?" which focuses on the traits and personality characteristics of entrepreneurs, will neither lead us to a definition of the entrepreneur nor help us to understand the phenomenon of entrepreneurship" (Gartner, 1989:48).

Table 3. The top 32 document factor loadings (varimax rotation) at 0.7 or higher

	F1	F2	F3
	Characteristics of entrepreneur	Cognitive psychology of entrepreneurial opportunities	Psycho sociological dimensions of entrepreneurship
GARTNER WB_1989	0.826		
GARTNER WB_1985	0.778		
MCCLELLAND DC_1961	0.776		
BUSENITZ LW_1997	0.773		
CROMIE S_1983	0.765		
AHMED SU_1985	0.764		
JOHNSON BR_1990	0.764		
BEGLEY TM_1987	0.764		
CARLAND JW_1984	0.761		
ROBINSON PB_1991	0.758		
MINER JB_1989	0.740		
HORNADAY JA_1971	0.737		
BIRD B_1989	0.734		
HERRON L_1993	0.728		
LOW MB_1988	0.727		
MCCLELLAND DC_1987	0.718		
MCGRATH RG_1992	0.717		
STEWART WH_2001	0.713		
BROCKHAUS RH_1986	0.710		
LUMPKIN GT_1996			
SHANE S_2000		-0.882	
BANDURA A_1997		-0.876	
BAUM JR_2004		-0.862	
BAUM JR_2001		-0.857	
VENKATARAMAN S_1997		-0.854	
SHANE S_LOCKE EA_COLLINS JC_2003		-0.832	
SHANE S_2003		-0.831	
SHANE S_2000		-0.800	
SCHUMPETER JA_1934			
STEVENSON HH_1990			
BAUMOL WJ_1990			
SHAPERO A_1982			0.910

²In Figure 2 we use a circle to mark the documents associated factor 1, a square to highlight the documents associated with the second factor and a triangle for documents representing the third factor.

Within the research domain of personality traits and entrepreneurship, the concept of need for achievement (nAch) is key. McClelland (1961) argued that individuals who are high in nAch are more likely than those who are low in nAch to engage in activities or tasks that have a high degree of individual responsibility for outcomes.

McClelland pointed out that entrepreneurial roles are characterized as having a greater degree of these task attributes than other careers; thus, it is likely that people high in nAch will be more likely to pursue entrepreneurial jobs than other types of roles.

Johnson (1990) conducted a traditional review of 23 studies, which varied regarding samples, measurement of nAch, and definitions of entrepreneurship. Based on this group of studies, Johnson concluded that there is a relationship between nAch and entrepreneurial activity—in this case, nAch distinguished firm founders from other members of society.

Risk-taking propensity is another motivation of interest, which emerged from McClelland's (1961) original research on entrepreneurs. McClelland claimed that individuals with high achievement needs would have moderate propensities to take risk. McClelland is especially interesting for entrepreneurship research because the entrepreneurial process involves acting in the face of uncertainty.

Other motivational traits that have received attention are tolerance for ambiguity and locus of control. Begley and Boyd (1987) found that firm founders scored significantly higher in tolerance for ambiguity than did managers, defined as nonfounders working in business.

With regard to locus of control, McClelland (1961) explains that individuals who are high in nAch prefer situations in which they feel that they have direct control over outcomes or in which they feel that they can directly see how their effort affects outcomes of a given event. Begley and Boyd (1987) found that locus of control did not distinguish between founders and managers.

Most researchers, in this group, have assumed that traits and motives have direct effects on outcomes and this may be true to some extent.

Brockhaus and Horwitz (1986), according to their review of studies on the psychology of the entrepreneur, indicate that the combination of personality traits might be more crucial than the possession of a single trait. They add their belief that the environment had a major impact on the entrepreneurial process.

Hornaday and Aboud, (1971) carried out one of the first major studies of personal values of entrepreneurship. They supported that a consideration of personality characteristics of entrepreneur must lead to an examination of their value systems. Value orientation is defined as a generalized and organized conception of nature. This includes an understanding of man's place world.

Factor 2 represents the cognitive psychology in the research for and exploitation of an opportunity. This factor is explained by eight documents by Shane and Venkataraman's (2000, p. 218) which adopt the definition of entrepreneurship as the process by which "opportunities to create future goods and services are discovered, evaluated, and exploited". As these authors have explained, this definition does not require viewing entrepreneurs as the founders of new organizations.

"[E]ntrepreneurship is a process that begins with the recognition of an entrepreneurial opportunity and is followed by the development of an idea for how to pursue that opportunity, the evaluation of the feasibility of the opportunity, the development of the product or service that will be provided to customers, assembly of human and financial resources, organizational design, and the pursuit of customers" (Shane et al., 2003:275). From this point of view motivation influences the transition of individuals from one stage of the entrepreneurial process to another. In some cases, all of the motivations might matter. In other cases, only some of the motivations might matter.

Motivations are not the only things that influence these transitions. Cognitive factors, including knowledge, skills, and abilities (KSAs), certainly matter. All action is the result of the combination or integration of motivation and cognition.

Another differential aspect of this second factor underlines the importance to look for indirect effects of motivational traits. Bandura (1997) has argued that locus of control is not a strong, direct predictor of performance in a task; and studies have shown that the effects of self-efficacy mediate the effects of locus of control when self-efficacy is added to the equation. Therefore, locus of control effects reported in the entrepreneurship literature might be proxying unobserved self-efficacy.

Baum, Locke, and Smith (2001) studied goal setting and found that growth goals were significantly related to the subsequent growth of architectural woodworking firms. Baum et al. (2001) also studied the role of passion in entrepreneurship. When they entered passion for the work as a separate variable along with 29 other variables from five domains (personality, situational motivation, skills, strategy, and environment), passion had a direct significant effect on firm growth.

Baum et al. (2001) consider the indirect effects of motivation in the setting of entrepreneurial action when studied the growth of small companies in the architectural woodworking industry. They included variables from five separate domains: traits and motives (which comprised passion for the work, tenacity, and drive), skills and abilities, situation-specific motivation (e.g., goals, self-efficacy), business strategies, and environmental factors. They combined the measures within each domain into single indexes and related these indexes to each other and to venture growth. All the domains played a role in venture growth but the effects of motives were all indirect. Motives worked through skills, situation-specific motivation, and strategies to affect growth.

Ventakaram (1997) support the view that psychological traits and cognitive conditions will have a greater explanatory power if they are treated as interacting variables.

Factor 3 represents the psycho sociological view of entrepreneurial activity. Two documents are representative for this factor: Shapero and Sokol (1982) and Baumol (1990).

Shapero and Sokol (1982) try to explain why some groups; countries or regions are more entrepreneurial than others. These differences are partially attributable to social and cultural variations. The culture constitutes the “mental programming”, distinguishing members from one group to another. Such mental programming consists of patterns of ideas and especially their attached values, which are conserved and passed down from generation to generation. Culture matters.

Finally, Baumol (1990) supports that public institutions clearly play a fundamental role and, through their policies, can strengthen the development of productive or unproductive activities.

5.- CONCLUSIONS

The purpose of this study is to explore and map the intellectual structure of entrepreneurial motivation studies during 1990–2010 by analyzing 4842 cited references of 93 articles found in SSCI and SCI databases. We are able to identify the important publications and the correlations among these publications by analyzing citation, co-citation and social network analysis.

Since publications and citation practices provide an empirical basis for understanding and transmitting the norms in a field, researchers can also benefit from understanding the citing processes and outcomes because they both reveal the evolution of thoughts in a discipline and provide a sense of the future. As an area of research evolves, theories are continuously advanced and compete until paradigms emerge.

A factor analysis of the co-citations suggests that the field of entrepreneurial motivation includes three different concentrations of interest between 1990 and 2010: (1) entrepreneur characteristics (personality theory, traits theory...) as variable or element significant to entrepreneurial activity, (2) cognitive psychology in the research for exploitation of an opportunity, and (3) psycho sociological dimensions of entrepreneurship.

We hope to advance the rigor and useful results from research on motivation and entrepreneurship. We coincide with the ideas of Shane et al. (2003:276) when they state “that motivated entrepreneurs are important to the entrepreneurial process, then the inclusion of human motivation in the theories of the entrepreneurial process is crucial”.

We think that this method provides researchers a wide spectrum of inter-connected (web-like) nodes laden with concepts, and theories from where scholars and thinkers can start their own exploration. The contribution of this article is to provide a valuable research direction in the entrepreneurial motivation area and proposed an objective and systematic means of determining the relative importance of different knowledge nodes in the development of the entrepreneurial motivation.

Social network analysis tools can be used to graph the relations in the co-citation matrix and identify the strongest links and the core areas of interest (Pilkington and Teichert, 2006).

Even though this body of research has the merit of offering valuable insights into the intellectual structure of studies on entrepreneurial motivation, it has its limitations of which some are inherent to the used methodology, as quoted in previous work where they have been used (Ramos-Rodríguez and Ruiz-Navarro, 2004; Tseng et al., 2010): (1) compiling citations, it is impossible to distinguish the motives for which they were made: whether the author's intention was to refer to previous works and build up a theoretical framework, or to criticize the document, display the author's knowledge, adorn the text or, simply, to mention one of his/her own works. In contrast to this, missing references to certain works may be a result of obliteration, in other words, the omission of references to works that have become taken for granted to such a degree by the scientific community that they are no longer expressly cited, or, worse still, are for some obscure reason deliberately omitted; (2) this technique permits the classification of only a very small fraction of the documents cited and interpretation of the resulting maps is inevitably subjective; and (3) it is worth noting that the research method of this article could not exclude the phenomenon of self-citation.

In order to overcome the limitations associated with citation analysis, future research is encouraged to combine citation analysis with content analysis which is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. The results from this analysis provide one perspective of the field of entrepreneurial motivation and are used to suggest future research directions to address issues related to better understanding of communication and social networks in the field to convey better provision of entrepreneurial motivation issues.

Finally, in accordance with Ramos-Rodríguez and Ruiz-Navarro (2004:1002) we think that "studies such as this provide a quantitative analysis of the state of the art as a complement to, but never a substitute for, traditional qualitative methods of reviewing the literature. They can be used as a tool to identify the authors, documents, and journals most widely read among the researchers in a given discipline and also to detect relational links between them. The researcher can therefore use these methods to identify the relevant literature in any area of research, map its intellectual structure, and thus obtain a view of the field reflected in the behavior of its actors themselves".

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