

**Manuel Castriotta
Michela Loi**

**ENTREPRENEURSHIP
EDUCATION AND THE RISE
OF NEW ORGANIZATIONS**

**Mapping research
and future tendencies**

FrancoAngeli

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INTRODUCTION

This book covers two branches of entrepreneurship studies, namely entrepreneurship education and the emergence of new organizations. These two stages embody dynamics and processes that are likely to impact the foundations as well as the growth of an organization. Bryant (2012) considers educational courses as general events that contribute to the development of an individual's knowledge base. These events might be internalised in one's autobiographical memory and be at the origin of future decisions, behaviours and routines that will shape future organisations. Before coming into existence in fact, a set of complex processes and dynamics precede the rise of an organization. One person or a group might come up with an idea, and decide to pursue it. Others find themselves working hard to transform an opportunity into a valuable organization by accident, just because a colleague convinced them to join the adventure. Others have always imagined becoming an entrepreneur and, as if written in destiny, strive to develop their own business (Fitzsimmons and Douglas, 2011; Marvel, 2013). But what does it happen when a society presses their own citizens to become more entrepreneurial? What happens when the system of higher education is charged to train students to be enterprising persons? What kind of consequences stem from this emphasis which organizations have to face?

The “entrepreneurial” issue becomes a priority for a growing number of scholars and professionals, not just for those working on business issues. Many disciplines participate in the debate and devote their research interest to this subject (Fayolle, Landstrom, Gartner, and Berglund, 2016). A ferment of ideas, questions and criticisms emerges as a predominant characteristic of this debate. In this respect, Shane and Venkataraman (2000; p. 218) have identified three sets of research questions that organization scholars are concerned with when addressing the entrepreneurial phenomenon: (1) why,

when and how opportunities for the creation of goods and services come into existence; (2) why, when and how some people and not others discover and exploit these opportunities; and (3) why, when and how different modes of action are used to exploit entrepreneurial opportunities. The entrepreneurial issue might be a pervasive process in an organization, but at the same time an organization might be the source of an entrepreneurial spirit (Sørensen and Fassioto, 2011), stimulating the emergence of new organizations (Brush, Manolova, and Edelman, 2008; Lichtenstein, Dooley, and Lumpkin, 2006) or new organization styles (Courpasson, Dany, and Martí, 2016).

The development of this entrepreneurial spirit is at the heart of entrepreneurship education. All the reflections made in entrepreneurship and organization studies have an impact on the basic assumptions driving the teaching of this entrepreneurial spirit. In turn, entrepreneurship education nurtures new reflections that might have important consequences at the organizational level. What kind of impact should we expect at the organizational level for incumbents or new enterprises, if education stimulates creativity, diversity, heterogeneity, coopetition, sustainability and learning from one's own emotions and experience? Can we expect different impacts if education pushes for planning, for growing businesses, for technological innovation? Studying how entrepreneurship education develops in terms of its basic concepts and assumptions allows us to understand the roots of future organizations. We can also better sustain future managers in developing organizations where the creative dimension prospers and the entrepreneurial spirit is a valuable resource.

In looking at this entrepreneurial spirit, apart from delving into the training side, this book focuses its attention on the emergence of new organizations. We are aware that the entrepreneurial issue cannot be reduced to the simple creation of new businesses. Scholars have recently called on us all to embrace the diversity that characterises the field (Welter, Baker, Audretsch, and Gartner, 2017), even if new enterprises are well understood as being a central activity for entrepreneurship. However, we argue that addressing how organizations originate is a means to understand several issues. One issue might concern how the process of organizing impacts on the success of firm prototypes in accelerators or incubators. Another issue might concern the need for highlighting those organizational elements that are fundamental to seeing people becoming first members of a team and later colleagues in a society in which each of them assumes a specific organizational role.

We address these two research streams with the aim of mapping the evolution of their studies, from their origins until the most recent results. We intend to overview these topics by showing their concepts, their constituting theories and schools of thought. By complementing previous works that have

typified state-of-the-art research in this field, this book offers a dynamic perspective. In fact, it seeks to gather changes over time, in terms of the relevance scholars have attributed to each single component of these topics. The advantage of looking at the evolution of such ideas is that we can better outline the original assumptions and earliest conceptual points of view, and distinguish them from the most recent perspectives. This allows inferences to be made about current feelings and future trends in more detail. Further, it sets apart those perspectives that scholars have progressively abandoned from those ones maintaining scholars' attention. Our claim is that original and current perspectives have different values in representing a theoretical structure of a field, even if they are both useful to understand its conceptual boundaries. This distinction is even more important if a field has gone through changes over time and researchers have modified their assumptions.

This dynamic overview provides scope for achieving the objectives of this book:

- Distilling the emerging meanings that scholars are attributing to entrepreneurship education and to the emergence of new organizations. We specifically outline the components of these two topics with the aim of synthesizing their complexity.
- Identifying the scientific and practical challenges to be seized by the community of scholars and professionals. This is instrumental to understanding the theoretical and practical implications depending on the emerged representations of the two fields.

Bibliometrics is the methodological approach that we used to carry out our analysis of the literature. It offers many different techniques to map science, depending on one's research objectives. Further, it is useful to reduce field complexity, by making it possible to overcome some basic cognitive limits that might prevent a researcher from dealing with a huge corpus of studies. Tables and figures help us to discuss the findings we have found in reviewing these fields.

The primary target of the book is the scientific community of organisation and entrepreneurship studies. The theoretical reflections throughout the book rely upon studies published in the most impactful scientific journals during the last 25 years. Interested scholars will find a rich and selective bibliography containing classic and recent contributions that are writing the history of these two research streams. The overview that we have tried to draw, we believe, could be of interest to both expert and novice scholars. The former will find a most updated picture of the field, while novices will discover basic assumptions and inputs that might stimulate their interest in pursuing

research in these fields. Both will find possible lines of future research that we hope will nurture the debate in organization studies.

Policy makers, educators and professionals are also an important audience of this book. Our reflections have relevant practical implications that we have translated into challenges for society in general and specifically for universities. These latter have a role to play in fostering the entrepreneurial spirit among students and in creating an ecosystem where this spirit can flourish.

The book divides the exploration of these topics into three main chapters, with a final section that discusses some essential understandings woven throughout the book.

Chapter 1 presents an overview of the methods and procedures used in bibliometrics. We address some of the most widely adopted search techniques, namely co-word analysis, co-citations and bibliographic coupling. Inspired by recent developments in this discipline, a hybrid approach that combines at least two techniques is shown. The aim is to synthesise the research goals that each of these techniques allows one to achieve and the contributions they might provide in entrepreneurship. This presentation is thought to help readers understand the authors' discussion regarding the studies on entrepreneurship education and the emergence of new organizations.

Chapter 2 is focused on entrepreneurship education. We present an overview of this field by looking at its conceptual evolution during the last 25 years of research. We show the point in time that entrepreneurship education became a legitimated construct that embodies a tacit meaning for the entrepreneurship community. Further, it examines the intellectual structure of this field, delimiting the schools of thought that are shaping its foundations from an empirical and theoretical viewpoint. Finally, it casts light on the most recent research fronts, showing specifically whether new directions emerge with respect to the themes representing the theoretical core of the topic.

Chapter 3 covers studies on the process of starting a new organization. The aim is to delve into the ambiguity of terms that are used to deal with this topic and to connect each of them with clusters of concepts that best embody the meanings the community has been attributing to them. This exercise provides the authors a chance to resolve the semantic question "Is the community using the same terms with the same meanings?". Semantic confusion might well characterise emergent fields. As previous studies have shown, possible semantic divisiveness might be preventing the forming of a shared knowledge, causing all efforts devoted to building up a common framework to vanish. In this vein, we try to lay the foundations of the base of an

emerging organization from a theoretical point of view. By making connections among different conceptualizations and research fields, we have the objective to exploit the richness coming from studies' diversity and to contrast narrow views of the topic.

The last part of the book discusses the prevailing lessons learned from this overview. We speculate about future tendencies to suggest lines of interest for future work.

Cagliari, July 16th 2017

1. HOW TO MAP ENTREPRENEURSHIP EDUCATION AND NEW ORGANIZATIONS STUDIES*

In an attempt to better illustrate the grounds at the roots of the research design driving this monograph, in this section we first present a general overview of bibliometrics by telling the historical reasons for its birth, as well as its methodological complementary positioning compared to literature reviews and meta-analysis; second, we describe the most prevalent and adopted science mapping techniques, the critical issues they face, their main features and specialities, we conclude with a deep reflection on the potential for conscious and simultaneous adoption of multiple techniques, known as the hybrid approach; third, in order to provide an operational tool, we highlight the methodological science mapping workflow, describing the criteria for the sample filtering, selection, analysis, and visualization.

1.1. A bibliometric overview

Bibliometrics is a tool built for systematizing science and measuring its impact (Pritchard, 1969; Small, 1973). It explores the relationships between bibliographic data through mathematical and statistical methods (Boyack, Klavans, and Börner, 2005).

This tool was born around 1950 under the auspices of Merton's studies, which sought to offer researchers a way to react to and manage the strong expansion of science. In those years the world's scientific output began growing steadily and, according to scholars of scientometrics, the expansion became so fast as to make it impossible for the human mind to have any form of control or holistic comprehension (Garfield, 1964). In fact, due to limited

* Although this chapter is the result of authors' joint reflection, section 1.1 is attributed to Michela Loi, whereas sections 1.2 and 1.3 are attributed to Manuel Castriotta.

rationality, memory, reasoning, and the ability to process significant amounts of data, the human cognitive ability would have failed to handle and detect knowledge structures and their evolution (Pritchard, 1969; Ferreira, Fernandes, and Kraus, 2017). Furthermore, the aforementioned data processing limitations would have likely and unnecessarily duplicated scholars' studies and frustrated their efforts for scientific progress (Small, 1977).

Starting with these considerations, researchers began to look for potential solutions capable of overcoming the above-mentioned human limits. Eugene Garfield (1964) had the idea of standardizing the content of scientific publications in order to systematically analyse information as keywords, abstracts, titles, authors' names, years of publication, institutions, areas of interest, etc. The standardization of the scientific production structure, through bibliographic elements coding, made possible the statistical analysis of large amounts of homogeneous data (Small, 1977). From that time until now, the standardization of the bibliographic data of scientific production has grown steadily and has greatly contributed in facilitating the extraction and analysis of data (Ferreira et al., 2017).

In this vein, citations, summarized in the bibliographies of articles, book chapters, and monographs, were immediately considered bibliographic records of a special nature (Garfield, 1964). For some authors, citation implies excellence or the measure of the impact of a scientific article, while for others it may have both positive and negative connotations (Acedo, Barroso, and Galan, 2006; Gmur, 2003). Everyone agrees that citations are made for scientific progress (Cobo, Lopez-Ferrera, Herrera-Viedma, and Herrera, 2011). In fact, each scholar builds their own scientific contribution through previous scientific works. Each scientific publication must cite a variable number of references in their bibliographies that underline the logical reasoning followed by the author. From this point of view, and for the aforementioned reasons, a bibliography can be seen as the digital, unique fingerprint of a scientific publication. Furthermore, citations link the *citing* document to the *cited* document. For this reason, citation analysis has the potential for chronologically drawing scientific topic trends (Van eck and Waltmann, 2010). Today, the sum of standardized information incorporated in scientific literature and publications is called bibliographic data, and the analysis of this data is generally comprehended in bibliometric methods. Consequently, by collectively analysing citations, bibliographic data, and the references production process, it is possible to extract a huge amount of information about scientific publications and their landscapes.

In this scenario, bibliometrics is a tool built for systematizing scientific knowledge by investigating scholars' written communications through math

and statistical support (Alvesson and Sandberg, 2011; Boyack, Klavans, and Börner, 2005; Pritchard, 1969).

Bibliometrics aims to increase scholars' awareness of a search area by reducing data complexity and making reading and interpretation possible (Mc Cain, 1990). It emerges as a tool that can provide scholars with a multi-faceted array of descriptive statistics and science mapping tools (Zupic and Cater, 2015).

The aggregate study of relations between bibliographies, citations, and lexical content such as words or keywords allows scholars to map the scientific positioning of articles, authors, institutions, disciplines, and research areas as a whole (Loi, Castriotta, and Di Guardo, 2016). Specifically, bibliometric maps are images generated through the study of the relationships between standardized metadata contained in scientific publications such as citations, bibliographies, keywords, institutions, nations, authors, etc. (Cobo et al., 2011; Di Stefano, Gambardella, and Verona, 2012; Loi et al., 2016).

Figuratively speaking, bibliometric approaches can be portrayed as doors opening onto a panoramic view of a discipline which offer a complementary glimpse with respect to traditional qualitative literature reviews, and which usually aim at understanding scientific results (Zupic and Cater, 2015). For these reasons, bibliometric approaches offer a complementary outlook with respect to the traditional qualitative literature reviews and meta-analyses (Ferreira et al. 2016; 2017; Zupic and Cater, 2015; Cobo et al., 2011; Glänzel, 2001; Vogel and Guttel, 2013). Given its subjective nature, qualitative literature reviews are particularly influenced by authors' selection processes and interpretations and usually focus on narrow topics (Christoffersen, 2013; Ferreira et al., 2017; Zupic and Cater, 2015). Meta-analyses, on the other hand, are usually employed to reconcile narrower research areas in which the fragmentation of the results is strong (Ferreira et al., 2017; Zupic and Cater, 2015). In this vein, bibliometrics is deemed to be particularly suitable for systematizing more extensive scientific literature, especially when applied to multidisciplinary research streams, and is characterized by an objective approach in an attempt to avoid subjective bias (Nerur, Rasheed, and Natarajan, 2008; Di Stefano et al., 2012; Ferreira et al., 2017).

For these reasons, the use of bibliometrics is consistent with this work, which tries to analyze an extensive multidisciplinary area at the intersection of entrepreneurship education and new organizations studies.

1.2. Science mapping techniques

Bibliometric methods are usually subdivided in performance and science mapping analysis (Zupic and Cater, 2015). Performance analysis seeks to evaluate the research and publication impact of individuals and institutions. Science mapping aims to reveal the structure and dynamics of scientific fields (Zupic and Cater, 2015).

Due to this conformation, structure, and chronological links, bibliographic data, in particular bibliographies and citations, could be analyzed through multivariate and network analysis aimed at drawing scientific literature cartographies, maps, and landscapes (Cobo et al., 2011).

According to Zupic and Cater (2015), the five most adopted bibliometric and science mapping techniques are: co-word analysis, citation analysis, co-citation analysis, bibliographic coupling analysis, and co-authorship analysis. These techniques can be applied to different analysis units such as words, documents/articles, authors, institutions, and research areas. In this search, we focus on co-word analysis, co-citation analysis, and bibliographic coupling analysis; the units of analysis will consist of words and documents. (For a closer look at the other techniques and units of analysis, see Cobo et al., 2011; Zupic and Cater, 2015).

1.2.1. Co-word analysis

Co-word analysis is built on the hypothesis that a paper's keywords provide an appropriate description of its content (Callon, Courtial, Turner and Bauin, 1983). It is a proven bibliometric method extensively applied in scientometric research to map and interpret the conceptual structure of knowledge in a scientific discipline (Benavides-Velasco, Quintana-García, and Guzmán-Parra, 2013; Dehdaridad, 2014; Murgado, 2015; Ravikumar, 2015; Romo-Fernandez, 2013; Ronda-Pupo, 2012; Cuccurullo, Aria, and Sarto, 2016; Muñoz-Leiva, 2015; Wang, Lai, Zuo, Chen, and Du, 2016; Yan, Lee, and Lee, 2015; Yang, Wu, and Cui, 2012). It is an excellent tool to delineate and emphasize the relationships occurring among themes, and it could be seen as the reference point in order to identify new directions for future research (Benavides-Velasco et al., 2013).

Using the words of Cobo et al. (2011; p. 147), we can say that “co-word analysis is a practice that combines both science mapping tools and performance analysis tools to analyse a research field, detect and visualize its conceptual structure, such as particular topics/themes or thematic areas”.

The theoretical framework is a representation of how cognitive elements are related to one another (Small, 1999). This tool is meant to analyse the relationships occurring among structural elements (i.e., groups of publications, authors, concepts/words), find out how they relate and influence each other, and take into consideration their part in important questions the research field asks (Cobo et al., 2011) and circumscribe research areas to determine its cognitive structure and its evolution (Noyons, Moed, and Luwel, 1999).

As a matter of fact, the use of co-word analysis gives us an operative advantage thanks to the power of words, which are meant as the most important vector of the concepts of science (Engelsman and Van Raan, 1994).

From an operational perspective, two words that co-occur within the same paper are an indication of a link between the themes they refer to (Cambrosio, Limoges, Courtial, and Laville, 1993). The actual existence of many co-occurrences around the same word or pair of words points out to a locus of conceptual alliance within papers that may correspond to a research theme (Ding, Chowdhury, and Foo, 2001).

It is possible to extract words from various corpus as titles, abstracts, keywords proposed by the authors or by the scientific databases, and full-text documents.

Being a powerful tool, co-word analysis enables scholars to apply this method in many subjects and disciplines, such as information retrieval (Ding et al., 2001), nanotechnology (Kostoff, Stump, Johnson, Murday, Lau, and Tolles, 2006), international scientific studies (Hou, Liu, Chen, Jiang, Yin, and Pang, 2006), human genomics (Musgrove, Binns, Page-Kennedy, and Thelwall, 2003), medical informatics (Wagner and Leydesdorff, 2005), management science (Yue, 2012) and knowledge management (Ponzi, 2002; Hou et al., 2006; Sedighi and Jalalimanesh, 2014), regardless of the source.

Concentrating on the actual methods of operation of the co-word analysis, the co-occurrence of two words in the same article is an indicator of how these two concepts are related (Cambrosio et al., 1993). In addition, the objectivity of this method enables us to avoid subjective biases that commonly affect qualitative reviews of the literature (Zupic and Cater, 2015) by providing a quantitative approach that introduces a systematic, transparent and reproducible review process (Zupic and Cater, 2015).

1.2.2. Co-citation analysis

Co-citation analysis is based on the count of the number of times two documents are cited together (Small, 1973). The surrounding assumption is

that the two co-cited articles are similar (Rowlands, 1999). The greater the number of researchers making the same co-citations between two articles, the greater the level of the similarity between the two concerned papers (Accedo et al., 2006; McCain, 1990). The co-citation method is the appropriate bibliometric tool for systematizing the prevalent literature of a topic; i.e., the set of the most influential scientific contributions that have received greater impact and relevance (Di Stefano et al., 2012; Zupic and Cater, 2015). It aims at supporting researchers in the design, selection, and definition of the boundaries of an area of research interest (Small, 1973).

Bearing in mind that the citations behaviour observation is at the basis of this analysis (Loi et al., 2016) and in agreement with Verbeek, Debackere, Luwel, and Zimmermann (2002), and Ferreira et al. (2017), the preliminary assumptions behind co-citation analysis are: (i) citation implies use; (ii) citation reflects excellence, significance, and impact; (iii) citations are made to improve research; (iv) a cited document is related to the document that cites it (citing); and (v) all citations are equal.

The application of this logic to a large number of articles yields to identifying the so-called intellectual structure of a topic, which symbolizes the way in which scholars, by the action of citing, shape science and organize the available literature (Boyack and Klavans, 2010; Castriotta and Di Guardo, 2016; Garfield, 1972, 1979; Loi et al., 2016; McCain, 1990; Nerur, Rasheed, and Natarajan, 2008; Ramos-Rodriguez and Ruiz-Navarro, 2004; Small, 1973, 1977).

Two different types of co-citation analysis, namely exogenous and endogenous, can be distinguished depending on the focus with which a pull of selected papers (unit of analysis) is analysed. As far as the exogenous co-citation is concerned, co-citation analysis relies on citations received by the unit of analysis and accounts for the extent to which the included papers are co-cited by the whole scholar community. In this case the focus is external of the unit of analysis, since it is the community of scholars' behaviour that is specifically considered. This analysis identifies the "Knowledge Base" of a discipline, which corresponds to the contributions having a major impact in a discipline. Most studies in management have adopted this methodological approach (Braam, Moed, and Van Raan, 1991; Di Stefano et al., 2012; Vogel and Guttel, 2013).

As far as the endogenous co-citation is concerned, co-citation analysis takes into account to what extent authors of a selected unit of analysis have co-cited similar works. In this case, the focus is internal, since it is the behaviour of authors included in the unit of analysis that is specifically considered. This leads to discovering the "theoretical foundations" of a discipline,

which correspond to the theoretical background upon which the most impactful contributions have been built (Acedo et al., 2006). This co-citation has been adopted in the entrepreneurship field to shed light on the theories and approaches that guide most entrepreneurship studies (Cornelius, Landström, and Persson, 2006; Grégoire, Noel, Déry, and Béchar, 2006; Schildt, Maula, and Keil, 2006).

Operationally, co-citation is based on the number of times two documents are cited together by “third” articles (Small, 1973). If two articles are listed simultaneously in the bibliography of a more recent “third” article, there is a relationship between them (Nerur et al., 2008; Di Guardo and Harrigan, 2012). For some authors, this relationship is logical in nature; in fact, bibliographies contain both the sources and the reasoning components that lead an author to build his own scientific contribution (Loi et al., 2016). For other authors, the relationship is similarity (Acedo et al., 2006; McCain, 1990; Rowlands, 1999) or, to a lesser extent, antithesis (Gmur, 2003). For still other authors, the aforementioned two articles share the same broad research questions without necessarily sharing the same opinion (White and Griffith, 1981). Whatever the reasons and taking into consideration an aggregate point of view, the accumulated number of co-citations helps identify the strength and the interrelationships of the most influential scientific contributions (Small, 1977; White and McCain 1998; Castriotta and Di Guardo, 2016). In this vein, the method exploits the scholars’ aggregate citation behaviour in order to draw the intellectual structure of a field (Di Guardo and Harrigan, 2012; Loi et al., 2016). The latter symbolizes the way in which scholars, by the action of citing, shape science and organize the available literature (Bojack and Klavans, 2010; Castriotta and Di Guardo, 2016; Garfield, 1979; Loi et al., 2016; McCain, 1990; Nerur et al. 2008; Ramos-Rodriguez and Ruiz-Navarro, 2004; Small, 1973, 1977).

The intellectual structure is visualized through a knowledge map in which the composition of the selected scientific contributions, its positioning, distances, and connections are represented in detail (White and Mc Cain, 1998). Furthermore, since the aggregate citing behaviour is unobtrusive, co-citation analysis can detect hidden correlations between variables as scientific contributions or authors, called, because of its latent nature, “invisible colleges” or “schools of thought” (Crane, 1972; de Solla Price, 1963; Small, 1977). The greater the number of times two articles are co-cited, the more likely they are to belong to the same invisible college, sometimes referred to as a school of thought (Crane, 1972).

According to the aforementioned premises, co-citation analysis is broadly legitimate in management, innovation, entrepreneurship, and bibliometric