

# A Review of Academic Research on Entrepreneurship Skills: Applying Citation Analysis : Identification of Clusters and Themes

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## Abstract

The purpose of this paper was to categorize the literature on entrepreneurial skills using citation analysis. We analyzed 206 peer-reviewed articles sourced from Web of Science applying Citnet Explorer. Five clusters were revealed from the analysis on the basis of underlying idea or theme in each. We named them entrepreneurial motivation, transforming institutional structures, entrepreneurship education, entrepreneurial thinking, and entrepreneur-firm relations. Through this paper we argued that in order to better understand essential skills for entrepreneurs, each of these five themes need to be taken into account as they have a bearing on both the individual's disposition and the larger entrepreneurial ecosystem.

**Keywords :** Citation analysis, entrepreneurship, entrepreneurial skills, qualitative research

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Near the end of twenty-first century's second decade, expressions such as *Industry 4.0* (Lasi, Fettke, Kempf, Feld, T., & Hoffmann, 2014; Lu, 2017; Rübmann et al., 2015), *Gig Economy* (Friedman, 2014; Manyik, Lund, Bughin, Robinson, Mischke, & Mahajan, 2016, pp. 1-16), *Sharing Economy* (Cohen & Kietzman, 2014; Hamari, Sjöklint, & Ukkonen, 2016; Zervas, Proserpio, & Byers, 2017) etc. are often used to reflect on the time we live in. These and similar phrases attempt to capture the defining nature of the existing socio-economic conditions at different stages of evolution globally. As part of this ongoing evolution, *Industrial Economy* was replaced by *Service Economy* (Gershuny, 1977 ; Gershuny, 1981) as the definitive feature across the globe decades ago. Subsequently many observers/commentators prefixed pivotal words (before economy), such as 'information' (Boisot, 1998 ; Frenk et al., 1999; Morishima, Frenkel, Korczynski, Shire, & Tam, 2001), 'knowledge' (Adler, 2001; Eliasson, Fölster, Lindberg, Pousette, Taymaz, 1990; Powell and Snellman, 2004), 'network' (Nijkamp, 2010; Shapiro, Carl, & Varian, 1998), and 'experience' (Boswijk, Thijssen & Peelen, 2007; Pine, Pine, & Gilmore, 1999) in an attempt to capture the essence of the time. Without doubt, the world witnessed remarkable changes in the last three decades since the appearance of World Wide Web along with breakthrough technological developments and contemporary economic advances (Berger, 2003, Teece, 1992 ; Buhalis & O'Connor, 2005 ; Unwin & Unwin, 2009 ; Yang, Lee, & Lee, 2009; Yousefi, 2011).

Despite the changes of enormous scale that defined this period in human history, one aspect remained consistently relevant and central to value creation – “entrepreneurship” (Clark & Lee, 2006 ; Holcombe, 2007). It is impossible to describe the progress of the economy without acknowledging the integral role played by entrepreneurs in the process as it is the main driver behind the formal as well as the informal economy (Webb, Tihanyi, Ireland, & Sirmon, 2009).

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Williams, 2008). In this paper, we explored the landscape of entrepreneurship skills as represented in academic research applying citation analysis as our key technique. Our aim was to investigate and identify the most essential features linked to our subject of enquiry among numerous evident ones. Applying citation analysis, we attempted to locate relevant clusters within the realm of academic literature and also find a pattern that would emerge out of contents in these clusters.

## What is Entrepreneurship Skill?

Before we explore the extant research on entrepreneurship skill, we should formally define the term *Entrepreneurship*. Identifying a universally acceptable definition is challenging due to the diverse ways of approaching, perceiving, and presenting the term. In their influential work titled *Defining Entrepreneurship*, Cunningham and Lischeron (1991) cited important yet varied perspectives offered in previous work such as a founder of a new business (Gartner, 1985); an innovator (Schumpeter, 1934); an exploiter of an opportunity (Peterson, 1985); a developer of a niche market or strategy to satisfy specific needs (Garfield, 1986). Highlighting the limitations of each of these definitions cited, Cunningham and Lischeron (1991) affirmed: "There exist a number of schools of thought which view the notion of entrepreneurship from fundamentally different perspectives. The term has been used to define a wide range of activities such as creation, founding, adapting, and managing a venture... With such a variation in viewpoints, it is not surprising that a consensus has not been reached about what entrepreneurship is." In another significant attempt to propose an appropriate and standard definition, Kao (1993) proposed the following definition: "Entrepreneurship is a process of making changes; doing something different, thus creating wealth for the individual and adding value to society." Subsequently, studying past work "in pursuit of a universally acceptable definition" of the concept of entrepreneurship, Sikalieh, Mokaya, & Namusonge (2012) concluded that the multiple efforts to define it were inadequate in isolation – they should rather be treated as complimentary. In a recent study aimed to reach a definition of entrepreneurship from a multidisciplinary perspective, Gamez-Gutierrez and Abril (2019, pp. 1–22) proposed to rather identify characteristic features of an entrepreneur as evidenced from the fields of economics, sociology, psychology, and management.

Therefore, the task of identifying an entrepreneur or answering the question who is an entrepreneur is integral to defining entrepreneurship. In a prominent article to address this question, Gartner (1985) essentially stressed the critical ability or tendency of entrepreneurs to create organizations which gave them a distinct identity. However, this definition is not acceptable to all experts. Some of them have termed it exclusionary and suggested both trait and behavioral approaches to understand the concept of entrepreneurship (Carland, Hoy, & Carland, 1988). According to an alternative illustration, an entrepreneur is someone who undertakes a wealth-creating and value-adding process, through incubating ideas, assembling resources and making things happen, Kao (1993). McKenzie, Ugbah, and Mothers (2007) synthesized earlier research with the same objective and proposed: *Entrepreneurship involves individuals and groups of individuals seeking and exploiting economic opportunity*. We did not attempt to summarize or synthesize the discourse regarding the definition in this paper.

In a similar vein, we wanted to point out that experts (both academic and managerial) could not reach a consensus on the definition of *Skill* due to varying approaches and perspectives in understanding it. At least four distinct ways of conceptualizing skill were identified (Attewell, 1990), viz. Positivist, Ethno methodological, Weberian, and Marxist. In another synthesis of multi-disciplinary approaches (including Economics, Sociology and Psychology), Green (2011) proposed a framework where skill was conceptualized as a personal quality which had three Greenwood characteristics: productive (it adds value), expandable (it can be enhanced through training and development), and social (it is determined socially).

In view of diverse (and at times contrasting) definitions offered for the two key words involved in our research, we will understand *Entrepreneurship Skill* as the ability to create something new with value – devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards (Hisrich, Peters, & Shepherd, 2005, p. 8).

## Application of Citation Analysis

Bibliometric analysis as a choice of research methodology is increasingly becoming common (Dzikowski, 2018; Feng, Zhu, & Lai, 2017). The analysis frequently focused on the network of keywords in publications or bibliographic coupling between the journals. The visualization and analysis of direct citation networks received limited attention (Eck & Waltman, 2017).

In one of the earliest research articles which took a critical look at citation analysis, Garfield (1979) addressed the commonly raised adverse opinions against the method and concluded that when properly used, citation analysis could become an objective measure for evaluation of scientific research which was becoming too large and complex. MacRoberts and MacRoberts (1989) suggested applying caution while applying this method in view of the multiple inherent problems which could supply erroneous results of the analysis. In spite of cautions and limitations, increasing use of citation analysis as an acceptable research technique was evident and acknowledged (Adam, 2002; Moed, 2006). In fact, researchers from diverse fields of study endorsed the application of this method systematically to make important conclusions (Bush, Epstein & Sainz, 1997; Smith, 1981; Summers, 1984).

We propose that the application of advanced software tools for citation analysis prevents and rectifies the crucial limitations of this method. We find support for this argument from research evidence established by scholars from diverse fields of study (Botha, Lilford, & Pitt, 2011; Grant, Stiehler, & Boon, 2013; Gomez-Jauregui, Gomez Jauregui, Manchado, Otero, 2014; Pettersen, 2008; Zhang, Chen, Wang, & Ordóñez de Pablos, 2016).

## Method

To achieve our research objective, we used Citnet Explorer software. As evidenced in previous research (Eck & Waltman, 2010; Eck & Waltman, 2017) on its specialty, we relied on this software to find citation-based clusters in the field of entrepreneurship skills.

We used the Web of Science database for our research. Our search in the database with keyword “entrepreneurship skills” produced 206 research articles published in peer-reviewed journals. We used this result as input for CitNet Explorer and received citation analysis results as output from the software.

CitNet Explorer, which is the abbreviation for 'citation network explorer' is a tool that analyses large citation networks. Some of the applications of this tool entail development of research field over a period of time, delineating research areas, and analyzing how the researcher builds on previous publications. Each node in the citation network represents a publication, and each edge represents the citation relation between the publications. The citation network must satisfy two constraints. First, a publication from a preceding year is not allowed to cite a publication from a subsequent year. For example, a publication from the year 2015 cannot cite a publication from 2017. The second constraint is that the citation network is acyclic. It is not possible to have a citation from publication 1 to publication 2 and then again back from publication 2 to publication 1. This is done to avoid redundancies when computing the citation score for the publications. The citation score for a publication is the number of citations of the publication within the citation network being analyzed. All the publications analyzed are assigned to a group. Colors are used to indicate the group to which a publication is assigned to.

Each publication in the network is assigned to a location in the horizontal and vertical dimensions of visualization. The vertical dimension represents the years of publications of the papers. In the horizontal dimension, the publications are positioned based on their closeness to each other (Eck & Waltman, 2017). Developing such clusters indicates the publications within the cluster represent the commonality of themes within them.

We have used the keyword “entrepreneurship skills” to identify the peer-reviewed articles available on the topic in the Web of Science database. For the purpose of analysis, publications that are cited by at least 10 other publications are considered.

# Findings

The results indicated that research articles corresponding to our keyword (entrepreneurship skills) emerged from several broad fields of study. However, the majority of these titles belonged to the field of business economics. Other fields that included a significant number of papers were education, environmental science and ecology, social sciences (including psychology and sociology), development studies, and public administration. The timeline of about quarter-century (1994 – 2019) associated with the publication of the research articles indicated a steady rise in the number since 2011.<sup>1</sup> Please refer to Figure 1 for a graphical representation of year-wise publications.

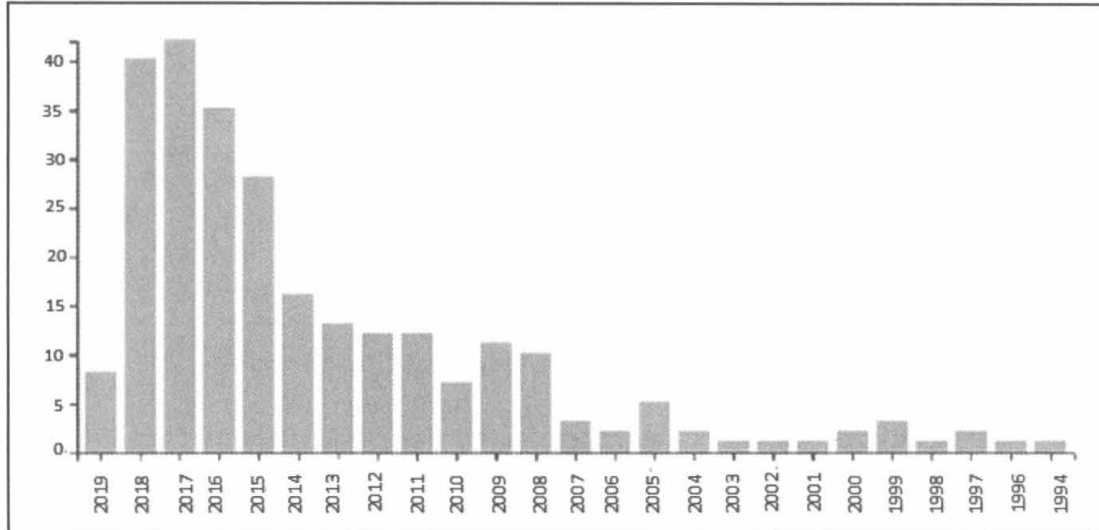


Figure 1. Research Papers Published on the Subject “Entrepreneurship Skills” (1994–2019)

Our citation analysis performed through Citnet Explorer indicated the presence of five clusters. Based on the main content of research articles in each cluster, we tried to identify a theme which broadly connected the articles. Accordingly, we named those clusters. In the following subsections within this section, we present a brief overview of each cluster on the basis of the main research papers that featured in those. We identified compelling narrative emerging out of the research papers allocated to specific clusters and highlighted them. We did not include every paper allocated to a cluster by the software in our discussion. Please refer to Figure 2 for the five clusters that emerged out of the analysis.

## 1) Cluster 1-Entrepreneurial Motivation

From our analysis of the research articles in the first cluster, two innate themes on entrepreneurial motivation emerged: prerequisites for entrepreneurial activity and necessary skills for the same.

A crucial limitation that could discourage people from the entrepreneurial function is financial constraint along with the risks involved. Evans and Jovanovic (1989) observed that financially privileged people accepted the risks associated with entrepreneurship more effectively. Underlining the importance of social ties or networks, Davidson and Honig (2003) observed that having parents or close associates as entrepreneurs could act as strong predictors for an individual's inclination towards entrepreneurship. Irrespective of the risk and uncertainty involved, entrepreneurs experienced higher level of satisfaction from their work and life as compared to salaried employees (Blanchflower & Oswald, 1998). They also experienced more freedom in their roles (Hamilton, 2000).

<sup>1</sup>Please note here that this research accounted for relevant publications on the subject available in Web of Science up to June 2019.

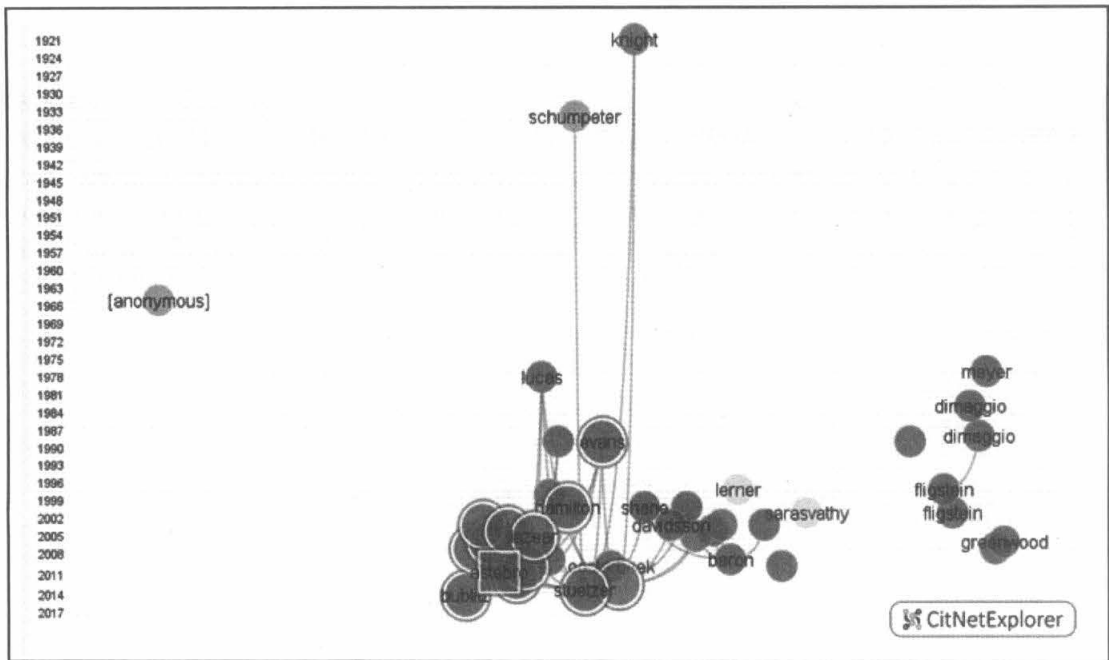


Figure 2. Five Clusters Derived as Output of Citation Analysis

Possession of broad-based skills as a crucial requirement for entrepreneurship (jack-of-all-trades) was highlighted by Lazear (2002, 2004) along with varied work and educational backgrounds. Significantly, this requirement was critically evaluated in research studies later. It received both support (Astebro and Thompson, 2011; Hartog, Van Praag, & Van Der Sluis, 2010; Wagner, 2006) as well as opposition (Bublitz & Noseleit, 2014; Silva, 2007). Entrepreneurs also possessed the valuable capability of converting technological advancements to business opportunities (Shane, 2000).

## (2) Cluster 2 - Transforming Institutional Structures

In this cluster, the focus is on the institutional factors important to drive the 'entrepreneurial culture' in the society at large. Entrepreneurs require specific skills, education, and traits to become successful. At the same time, institutional structures such as governments and legacy organizations also have a bearing on the entrepreneurial character of the society. Formal organization structures belonging to the post-industrial society were typified by rigid structures and bureaucratic decision-making (Meyer & Rowan, 1977). Other institutional factors such as the rule of law and regulatory framework of a country also had a significant influence on formation of new businesses (Agostino, Nifo Trivieri, & Vecchione, 2019). Dimaggio (1983) argued against such institutional structures. Dimaggio and Zuckerman (1988) posited that individuals and organizations themselves were capable of creating new organizations through *endogenous* changes to existing organizations.

Taking this argument forward, Fligstein (2001) called for rethinking the role of individuals in creating new forms of organizations. Rather than merely acting as agents of legacy structures, these individuals exhibited social skills through which they were capable of motivating others to change the established structures and create local social orders. This change was brought about through collective action where these individuals are able to demonstrate social skills to get disparate groups to cooperate with each other. Such individuals were called 'institutional entrepreneurs'. The resultant organizations were cross-disciplinary in nature, combining several professions in their workforce. For such organizations, stability was transitory in nature. Consequently, developments like social upheavals, technological disruptions, competitive discontinuities, and regulatory changes prompted these organizations to change and also to initiate change in their industry. This was termed as 'institutional entrepreneurship'.

Such organizations were characterized by working with many clients and a flexible management structure (Greenwood, & Suddaby, 2006). The knowledge management within such organizations was centralized and was used to align the interests of the owners and managers (Eisenhardt, 1989). In bringing about such endogenous changes to legacy organizations in making them more flexible and result-oriented, the institutional entrepreneurs within such organizations used their social skills to create a common identity for all stakeholders associated with the organization (Fligstein, 1997).

More importantly, contexts such as universities and other higher education institutions act as hubs to promote peer support that strengthened entrepreneurial activity. This then steers the discussion to the role of education in developing entrepreneurial skills and thinking.

### **3) Cluster 3 - Entrepreneurship Education**

This section is essentially about the important observations made by Kuratko (2005) in a research paper titled “The emergence of entrepreneurship education: Development, trends, and challenges”, which was heavily cited by other researchers later on. The paper provided direction to entrepreneurship education in terms of what should be taught, and how it should be taught. Entrepreneurship as a field of study being broad, pragmatic, and integrative; the larger purpose of the entrepreneurship education programs should be to make potential entrepreneurs aware of barriers to initiating their entrepreneurial careers and ways to overcome these barriers. In this direction, the programs should include skill development modules for negotiation, leadership, new product development, creative thinking, and exposure to technological changes. The pedagogy should include student business start-ups, computer simulations, behavioral simulations, interviews with entrepreneurs, environmental scanning, field trips, audio-visual /media-driven lectures, creation of business plans, and a program that captures the cross-disciplinary nature of the field.

### **4) Cluster 4 - Entrepreneurial Thinking**

After discussing both entrepreneurial motivation and entrepreneurial education, it is important that we note a crucial research finding by Oosterbeek, Praag, and Ijsselestein (2010), who did not find education to be a significant determinant of skill and motivation! The explanation to entrepreneurial motivation and thinking was earlier offered by Baron (2004) earlier through a cognitive perspective. The author was trying to find answers to three questions :

- a) Why do some people have a tendency to become entrepreneurs while others don't have it?
- b) Why only few people can identify opportunities for new products and services which can be profitably exploited?
- c) Why are some entrepreneurs more successful than others?

The explanation offered was that entrepreneurs are more adept at counter-factual thinking (imagining what might have been), develop improved task strategies that make them more efficient, and heuristic processing (to know when to switch from effortless processing of information to analytical processing of information for decision making).

### **5) Cluster 5 - Entrepreneur- Firm Relations**

This section is defined by the work of Sarasvathy (2001) who proposed the concept of effectuation processes (*take a set of means as given and focus on selecting between possible effects that can be created with that set of means*) vis-à-vis causation processes (*take a particular effect as given and focus on selecting between means to create that effect*). Essentially, the author proposed a contrast from traditional entities like firm/organization or market to entrepreneurial ability to discover and manipulate contingencies, which are nothing but opportunities or challenges posed by the business environment. Using one's social skills, an entrepreneur was able to bring on board other stakeholders who buy into the entrepreneur's idea of a sustained business. Thus, as opposed to the conventional logic where the market

**Table 1. Research articles featured in five clusters**

Cluster	Theme	Research publications included (Chronological)
1	Entrepreneurial motivation	Lucas (1978) Evans & Jovanovic (1989) Blanchflower & Oswald (1998) Shane & Venkataramanan (2000) Shane (2000) Hamilton (2000) Wagner (2003) Davidson & Honig (2003) Lazear (2004) Wagner (2006) Silva (2007) Hartog, Praag, & Sluis (2010) Brixiova (2010) Astebro & Thompson (2011) Astebro, Chen & Thompson (2011) Stuetzer, Obschonka, & Schmitt-Rodermund (2013) Bublitz & Noseleit (2014)
2	Transforming institutional structures	Meyer & Rowan (1977) Dimaggio (1983) Dimaggio & Zucker (1988) Eisenhardt (1989) Fligstein (1997) Fligstein (2001) Greenwood & Suddaby (2006)
3	Entrepreneurship education	Podsakoff, Mackenzie, Lee, & Podsakoff (2003) Kuratko (2005) Falck, Heblich, & Luedemann (2012)
4	Entrepreneurial thinking	Baron (2004) Baum & Locke (2004) Oosterbeek, Van Praag, & Ijsselstein (2010)
5	Entrepreneur- firm relations	Lerner (1995) Sarasvathy (2001)

was supposed to exist independent of the firm and therefore, there is a need to capture the market, an entrepreneur forges cooperative relationships with stakeholders and creates a market. Thus, an entrepreneur can be understood to be more closely involved with the firm.

Please refer to Table 1 for the research articles that featured in each cluster.

## Conclusion

Our research using the citation analysis technique (CitNet Explorer software) resulted in the emergence of five clusters linked to entrepreneurship skills. We named each cluster based on the similarity of articles contained in each one of them and discussed the essential proposition of those clusters. Interestingly, themes that emerged from the analysis captured two critical facets. First, we observed an essential focus on individual qualities and features of an entrepreneur (clusters 1 and 4). Second, an entrepreneur's interaction with the larger structure or system in society or economy emerged from our citation analysis (clusters 2 and 5). An additional facet, not any less significant was linked to the development of entrepreneurship skills in individuals in the context of larger society (cluster 3).

Our analysis is a methodical inquiry that looks into the existing research literature and finds patterns based on number of citations along with their inter linkages. We are now aware of five major clusters or focus areas directly corresponding with entrepreneurship skills. In the next phase of our research, we will look inside each of these clusters for in-depth analysis through a systematic literature review. We present each of these clusters as starting threads for further empirical research. We are particularly interested in the intersection of “entrepreneurship skill” and “gig economy”. We encourage new research aimed at finding answers to questions like 'are traditional and accepted skills in entrepreneurship adequate to excel in today's complex world where many existing beliefs and practices are being challenged?' The entrepreneurial motivation and thinking revealed in clusters 1 and 4 needs to be re-looked with this perspective. Similarly, we would like to test the changing dynamics between entrepreneurs and institutional structures in present context. As skill enhancement is an important part of learning and development programs, we would like to look for needed reinforcements and innovations in entrepreneurship education.

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