What Entrepreneurial Competencies should be emphasized in Entrepreneurship and Innovation Education at the Undergraduate Level?

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Abstract

An important first step toward competency-based education in the entrepreneurship discipline is the identification of relevant entrepreneurial competencies to be instilled in undergraduate students. We approached this issue by examining the opinions of entrepreneurs and academics experts in the entrepreneurship field. Two surveys were administered, one to Ecuadorian entrepreneurs and the other to academics from several countries in order to determine a set of relevant competencies that should be emphasized in entrepreneurship and innovation education. Results indicate relative differences in responses from the entrepreneurs’ perspective compared to the academics’ opinions. Entrepreneurs, on the one hand, chose decision making most frequently as of high importance when embarking on and running an entrepreneurial venture, whereas academics were in favor of identifying business opportunities. A discussion of the findings and implications for future research are presented.

Keywords: Entrepreneurial Competencies; Entrepreneurs; Academics.

Introduction

Over the last decade, great attention has been paid to competency-based education (Stoof, 2005), and its relevance in entrepreneurship education and training at the university level as well as other training venues has become apparent (Bird, 2002). A basic premise of this movement is that an educational stance based on competency development can facilitate learning in a society characterized by complexity and rapid changes. Facilitation of learning may be possible because we can focus our efforts on the competency characteristic we want to influence in students. This implies that education based on
competencies does not necessarily consider the content as the starting point for curriculum development, but the competencies that are relevant to be successful in a certain task or job. Competencies are seen as characteristics that a person brings to a job situation, which can result in effective and/or superior performance in such job (Boyatzis, 1982). These characteristics include: motives and traits, social role and self-concept, and knowledge and skills (Boyatzis, 1982; Spencer and Spencer, 1993). In the case of entrepreneurs, they do not have jobs in the traditional sense; however, they do have jobs or tasks as they pursue and run a new business (Bird, 2002).

Therefore, from an educational perspective, the question that needs to be answered is: What are the entrepreneurial competencies that universities should address in entrepreneurship education at the undergraduate level? In this regard, the model proposed by Boyatzis (1982) is relevant in this study as it provides the framework that helps identify what competencies and at what level they should be addressed in entrepreneurship education. It also helps link the activities to be included in an educational intervention with the levels of competencies that we want to influence in students. The contribution of this paper is that it provides a basic set of competencies that can be used by educators when delineating the competencies that students should acquire/develop through an educational intervention. Identifying relevant entrepreneurial competencies to be instilled in students is valuable because of their expected causal relationship with venture initiation and success (Bird, 1995).

The following sections are organized as follows. First, we present a brief discussion of the definition of a competency as it provides the framework for selecting the set of competencies relevant for entrepreneurship education. Second, previous research on competencies of entrepreneurs is discussed, which is helpful to develop an initial list to be presented to entrepreneurs and academics experts in the field of entrepreneurship. Third, the method of the study is described. Next, the results are presented followed by a discussion and implications for future research.

**How is a competency defined?**

The extant literature has identified different definitions of an individual competency. For this study, we will use the one proposed by Boyatzis (1982) who defines a competency as an underlying characteristic exhibited by a person that can result in effective and/or superior in a job (Boyatzis, 1982). This characteristic may be a motive, trait, skill, aspect of one’s self-image or social role, or a body of knowledge which an individual uses.

Based on the Boyatzis’s definition, Bird (1995) maintains that entrepreneurial competencies can be seen as underlying characteristics possessed by a person which result in new venture creation, survival, and/or growth. According to the level of exhibition, entrepreneurial competencies are categorized as threshold or success. The former are those considered as baseline or at a minimum standard, which include the competencies required to successfully create a business. The latter are the competencies necessary to go beyond launch into organizational survival and growth. The next section briefly reviews the entrepreneurial competencies that have been identified in previous research.
Competencies of entrepreneurs

Entrepreneurs are permanently challenged to deploy a set of competencies to succeed in their entrepreneurial endeavors. Previous studies have been conducted in which the concept of entrepreneurial competency has been the guiding principle of analysis (Chandler and Hanks, 1994; Chandler and Jansen, 1992; Man and Lau, 2000). These studies, however, were oriented to link managerial or entrepreneurial competencies with firm-level performance. In an educational setting, on the other hand, we are mainly interested in individual-level competency as we attempt to help students become more skilled and motivated to start and succeed in new ventures (Bird, 2002). Thus, a common concern among academics is to get students to become more entrepreneurially and more innovative for such purpose. To do so, one of the goals of entrepreneurship education is to instill in students the development of entrepreneurial competencies as to be better prepared for an entrepreneurial life.

Therefore, one of the first steps towards competency-based education in the entrepreneurship field is the identification of relevant entrepreneurial competencies as they can predict business formation and success within and across cultures (Mansfield, McClelland, Spencer, and Santiago, 1987). Knowing what competencies need to be developed is crucial in trying to meet the training needs of people in each phase of the entrepreneurial process. Previous studies have suggested that entrepreneurship education has to be oriented to intervene in each stage of development, which include: awareness, pre startup, startup, growth, and maturity (Cox, 1996; Henry, Hill, and Leitch, 2005a, 2005b).

By paying attention to the training needs of individuals, educators and trainers can devise their content and approach to improve the entrepreneurial learning process. At the first stage, an educational intervention mainly focuses on the various aspects of creating and running a new business (Henry et al., 2005a, 2005b). This implies that courses at the undergraduate and graduate levels should seek to promote the development of skills and values, and possibly an attitude change towards starting, owning, and managing a company, or working in a successful organization (Jamieson, 1984). At later stages in the entrepreneurial process, education addresses the needs of would-be entrepreneurs for a self-employment career by encouraging them to set up and manage their own businesses as well as to secure their growth and future development.

Levels of Entrepreneurial Competencies

An action, or specific behavior of an individual, is manifested by competencies that are an expression of his/her characteristic or several characteristics (Boyatzis, 1982). In the case of entrepreneurs, different levels of entrepreneurial competencies are exhibited by individuals who start businesses or carry out changes in existing organizations and who add value through their opportunistic vision and effort (Bird, 1995).

At the motives and traits level, common attributes of entrepreneurs include tolerance of ambiguity, locus of control, propensity to take risk, achievement values and task motivations are common attributes of entrepreneurs (Koh, 1996; Pandy and Tewary, 1979). Bird (1995) points out, however,
that research is mixed, especially when the success criteria is considered. For example, risk-taking propensity has not been definitely linked to entrepreneurial effort and outcomes because no conclusive results have been found. According to Schumpeter (1934), risk taking propensity is inherent in ownership rather than entrepreneurship; hence, it cannot be used as distinguishing characteristic of an entrepreneurial behavior (Brockhaus, 1980). Successful entrepreneurs are not gamblers, they are more inclined to take moderate than high risk as they tend to assess and calculate it carefully (Cunningham and Lischeron, 1991; Mancuso, 1975). Others such as self-confidence, persistence, and integrity have also been regarded as competencies exhibited by entrepreneurs; however, Bird (1995) emphasizes that no definite evidences have been found to differentiate successful from less entrepreneurs.

At the social role and self-concept level, Bird (1995) points out that little formal research has been conducted. Differentiating competencies at this level can include: recognizing the relevance of relationships in a business context, concern for high quality of work, assertiveness, having self-confidence, and taking actions to overcome obstacles (DuCettle, 1986; McBer, 1983, 1986; McCleland, 1987; Spencer and Spencer, 1993). Furthermore, at the role-level competencies, previous research emphasizes that the entrepreneurial role is crucial to be successful in business (Chandler and Hanks, 1994; Chandler and Jansen, 1992). This role refers to behavioral actions associated to scanning for opportunities, selecting those that are promising, and formulating strategies to exploit them.

At the knowledge and skill level, competencies such as finance/cash management, engineering, accounting, marketing, and sales have been frequently cited as important to succeed in business (Hood and Young, 1993). Furthermore, leadership, communication, and human relations have also been regarded as crucial skills areas of knowledge to success. These are important competencies for entrepreneurship as entrepreneur has to be able to persuade and discuss with various stakeholders such as customers, clients, suppliers, competitors, service providers and the like (Onstenk, 2003).

One of the challenges of entrepreneurs is to remain constantly innovative, which drives them to learn continuously in their everyday activities. That is why the capacity of individuals for innovation is a crucial factor to succeed in business (Walker, Damanpour and Avellaneda, 2007), and a differentiating criterion to distinguish entrepreneurs from non-entrepreneurs (Carland, Hoy, Boulton and Carland, 1984). An associated skill is creativity, which is an essential competency in the innovative process (Kuratko and Hodgetts, 2004; Ronstad, 1985). Being creative requires being different, curious and persistent that enable individuals to generate novel ideas.

Other competencies such as ambiguity tolerance, opportunity identification and venture evaluation, career assessment, deal making, networking, stress-coping mechanisms, intuitive thinking, seeing the market form a different angle, and identifying and solving problem are also crucial to succeed in business (DeTienne and Chandler, 2004; Garavan and O’Cinneide, 1994; Lindsay and Craig, 2002 ; Man and Lau, 2000; Ronstad, 1985; Shane, 2000). Important emphasis has been put to networking and team building skills since evidences indicate that entrepreneurs are more successful than entrepreneurs who do not possess these skills (Bird, 1988).
In addition to the competencies described above, the extant literature highlights the importance of decision making competency as crucial within the entrepreneurial process for its implications and issues involved (Busenitz and Barney, 1997; Eisenhardt, 1989; Smith, Gannon, Grimm, and Mitchell, 1988). To be successful, entrepreneurs are constantly required to make quick decisions, which are especially the case of the computer industry due to the accelerated changes in demand, competition and technology (Eisenhardt, 1989).

In sum, the above discussion provides a summary of the competencies that entrepreneurs commonly deploy to be successful at starting and running their ventures. The extant literature presents other competencies such as coping with failure, concern for quality of work, the ability to motivate others and so on that have not been mentioned in the aforementioned review. However, the competencies already described are a good summary for the purpose of this study as we seek to develop a basic list to be used in competency-based entrepreneurship education.

**Research method**

As already mentioned, the present study is oriented to provide information that can be used by educators when having to delineate the competencies that students should acquire/develop through entrepreneurship education. The study was tackled by an analysis of responses to a survey among entrepreneurs and academics experts in the field of entrepreneurship. These two parties were inquired to give their opinions about the competencies that are crucial when getting involved in an entrepreneurial venture. In order to get a reduced list, the competencies were sorted based on the score means from highest to lowest. Then, we used a cut-off point of 4 for selection purposes so that a competency lower than this value was excluded from the final list.

**Sample**

The entrepreneurs’ population consisted of founders of nearly 1870 companies within the small and medium enterprise (SME) sector. This list was obtained from the Chamber of Commerce in Guayaquil, one of the most industrial and commercial cities in Ecuador. A purposeful sample of 60 Ecuadorian entrepreneurs was drawn from the population whose companies met two basic criteria: 1) the company had to be less than six years old as we were interested in relatively newly created firms; and 2) the company had to be a manufacturing or service firm. That is, the study excluded firms whose main activity was to resell goods from other companies. Thus, the selected sample included firms in: development of software products, manufacturing of agricultural products, food production, manufacturing of electronic and mechanical products, services in computer science, consulting services in management and related areas, and mechanical and electrical services. The entrepreneurs were contacted by phone and invited to participate on the survey. Forty entrepreneurs agreed to participate and answered the questionnaire. Eighty five percent of the entrepreneurs were male, in average 40 years old, and the majority of them possessed, at least, an undergraduate level degree.

From the population of experts, a purposeful sample of 53 academics was selected. These experts were chosen mostly from a list of participants who had attended one of the important European conferences.
in entrepreneurship in the year 2004. The questionnaire was sent to academics by the Internet with a cover letter explaining the purpose and scope of the study. Forty three academics answered the questionnaire, from which 30 were from countries that included: Austria, Australia, Belgium, Canada, Finland, France, Germany, Hungary, Italy, New Zealand, Singapore, Sweden, Switzerland, United Kingdom, and United States of America. The other 13 academics were from Ecuador, for a response rate of 88.3%.

Survey instruments

Based on the existing literature, two questionnaires were developed and presented to respondents, one to entrepreneurs and the other to academics. A list of entrepreneurial competencies was fulfilled by reviewing the works of Boyatzis (1982); Chandler and Jansen (1992); Hood and Young (1993); Spencer and Spencer (1993); Chandler and Hanks (1994); Garavan and O’Cinneide (1994); Bird (1988, 1995; 2002); Shane (2000); Lindsay and Craig (2002); Man and Lau (2000); Onstenk (2003); DeTienne, and Chandler (2004); Honig (2004); and Stoof (2005). The survey instrument to entrepreneurs was designed to gather information in two main areas: 1) demographic characteristics; and 2) the respondents’ opinions regarding the importance of possessing and exhibiting competencies when starting and running a new business. The other questionnaire intended to have inputs from the perspective of academics. The questionnaire to entrepreneurs was administered either by a face-to-face interview, the internet, or telephone while the one to academics was done by the internet. The variables were measured by the use of a five-point Likert scale, being 1 “Very low importance” and 5 “Very high importance.”

Results

In this study, entrepreneurs and academics were asked to indicate their opinions regarding the importance of competencies when getting involved in an entrepreneurial venture. Tables 1 and 2 present the intercorrelations among the study variables of interest. Insert Tables 1 and 2 about here

Responses from both parties were ordered based on the score means for each of the entrepreneurial competencies considered in the study (see Tables 3 and 4).
As can be seen, results indicate relative differences in responses from the entrepreneurs’ and academics’ opinions. Entrepreneurs, on the one hand, chose decision making most frequently as of high importance when embarking on and running an entrepreneurial venture, whereas academics were in favor of identifying business opportunities, which is an aspect more related to innovation. Most of the respondents (87.5% of entrepreneurs) indicated that decision making is a highly important competency that must be exhibited by entrepreneurs in their entrepreneurial endeavors. This yielded an average of 4.88, being 5 the highest value on the scale. Furthermore, innovative thinking, identifying and solving problems and having a different view of the market were the next three entrepreneurial competencies
in order of importance. On the other hand, 72.1% academics considered identifying business opportunities as of very high importance for business success, which resulted in an average of 4.67. Evaluating business opportunities, decision making, and networking were the next three competencies most frequently cited by academics as highly important for entrepreneurship.

**Competencies to be emphasized in entrepreneurship education**

The main purpose of the study was to obtain a reduced list of competencies with the idea of facilitating the design of an instructional method for teaching entrepreneurship and innovation to undergraduate students. It is reasonable to assume that undergraduates are naïve students in entrepreneurship and as such, we can expect that they are in their early-stage of entrepreneurial development. Hence, the present study was intended to determine a basic set of competencies that need to be possessed by individuals in their effort to successfully create a new venture. Following this approach, the competencies with a score mean greater than 4 were chosen, which means that such competencies were considered by entrepreneurs and academics of high importance for entrepreneurship (see Table 5).

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<th>Table 5 Selected entrepreneurial competencies for entrepreneurship education</th>
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<tr>
<td>Decision making</td>
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<td>Identifying business opportunities</td>
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<td>Innovative thinking</td>
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<td>Evaluating business opportunities</td>
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<td>Communication</td>
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<td>Deal making and negotiation</td>
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<td>Networking</td>
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As we can see in Table 5, the resulting list included eight competencies that were common among both parties’ opinions and with a score mean higher than 4. The selected competencies were: Identifying and evaluating business opportunities, decision making, innovating thinking, communication, networking, identifying and solving problems, and deal making and negotiation.

**Discussion and implications**

The relative differences in opinions found between entrepreneurs and academics look as if both parties had distinct attitudinal positions. On the one hand, academics seem to have a less practical attitude and take into account the competencies that are viewed as crucial in the entrepreneurship literature (Bird, 1995). Accordingly, we think that the focus of academics may be less on which competencies entrepreneurs really exhibit and frequently exercise in a real life situation. This could be especially true since the extant literature posits that entrepreneurship is about the identification and the development of entrepreneurial opportunities (Shane and Venkataraman 2000; Venkataraman 1997).
On the other hand, the concerns of entrepreneurs, already embarked on an entrepreneurial opportunity, seem to be a little more downstream and focus on some critical tasks that amongst others may involve: access to a substantial customer base, securing following up financing, negotiating with providers, developing and effectively using personal network of contacts, understanding and controlling the enterprise as a whole, understanding and proficiently maneuvering within an industry, embracing competence of others, pursuing special know-how to a competitive position in the marketplace, maintaining a strategic focus, and dealing with uncertainty (Baron and Markman, 2003; Bird, 1988; 1995, Dubini and Aldrich, 1991; Herron and Robinson, 1993; Mitton, 1989; Witt, 2004). Important to remark, however, is that these competencies may vary according to the development of the particular venture (e.g. early stage compared to a growing stage firm), the sector in which it operates (high tech versus fast moving consumer goods) and the environmental circumstances that drive an entrepreneur to initiate in business (Dubini, 1988; Gatewood, Shaver and Gartner, 1995; Kourilsky and Walstad, 2002). In addition, the level of exhibition of these competencies can determine whether they are categorized as threshold or success (Bird, 2002). The former understood as those entrepreneurial competencies necessary to successfully create a business, and the latter as those required for success in such a venture (Bird, 1995). By taking these complexities, the specificities of each entrepreneurial venture become a step further in the analysis although the present study was not in that direction.

Implications of the study

Educating students for exploiting their capabilities to an entrepreneurially-oriented career has become a major impetus of entrepreneurship education. Going in this direction, we have argued that entrepreneurship education should focus attention on competency development. In this regard, the concept of a competency is useful in facilitating the design and implementation of instructional methods for entrepreneurship education. This term can also help identify which competencies and at what level they need to be addressed to better prepare students for a future entrepreneurial career. By recognizing what entrepreneurial competencies are conducive to succeeding in business, educators can include in their courses in- and out-class activities to instill in students the development of desirable competencies.

We contend that activities to be exercised by students should be designed to mimic real-world situations. For example, allowing students to create their own enterprise during the course of an educational intervention is helpful to expose them to complex situations, such as: lack of information, uncertainty, development and use of personal contacts, search for advice from experts, and so on. This experience can provide students with the environment to become aware of the difficulties in creating a venture and in dealing with limited resources, which is usually the case for entrepreneurs (Hisrich and Peters, 2002). Furthermore, students can be encouraged to think innovatively as to be able to enter the market with and innovative product or service and to remain competitive (Carland et al, 1984; Lumpkin and Dess, 1996). In addition, they can have the opportunity to experience the need of possessing and developing a network of contacts both during the startup phase and in other phases of running the business (Greve and Salaff, 2003; Witt, 2004). Another benefit may be the possibility for students to realize the importance of having good communication skills, which are regarded as essential for entrepreneurial advancement (Hood and Young, 1993). Even another potential benefit is related to the op-
portunity to put in practice especial know-how and previous experience for designing a specific product or service as well as to embrace competence of others and to build a proper team.

**Recommendation for future research**

We have developed a working list of competencies that should be emphasized in entrepreneurship education. However, the study has only considered the point of view of Ecuadorian entrepreneurs, but also verified for and at least compared with for opinion of academics from different countries, remains a limitation. Another limitation is due to our methodological choice in selecting the entrepreneurs. That is, we did not choose them based on their companies’ performance since the study did not investigate how successful they were, for instance, in terms of sales or net profit growth. Therefore, an important direction for future research is to explore whether entrepreneurs from other countries have similar postures, which can give us better insights about the competencies that entrepreneurship education should entail. That is, further investigation is needed to examine whether contextual factors may explain differences in opinions, if any exist, of entrepreneurs from different countries. It is also important to conduct more research to confirm or refute the findings of this study by comparing the opinions of successful and less successful entrepreneurs.

Although the findings presented in this study require further validation, they provide first insights on the competencies to be emphasized in entrepreneurship education. By instilling in students the development of entrepreneurial competencies, we can at least encourage them to become more entrepreneurial.

**REFERENCES**


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<td>0.450**</td>
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N = 40; ** p < 0.01; * p < 0.05; Cronbach’s alpha = 0.74; DM: Decision Making; TB: Team Building; OI: Opportunity Identification; CWS: Coping with Stress; CWU: Coping with Uncertainties; INNT: Innovative Thinking; INTT: Intuitive Thinking; DVM: Having a Different View of the Market; DM: Deal Making; OE: Opportunity Evaluation; ISP: Identifying and Solving Problems; NW: Networking; TCR: Taking Calculated Risk; TW: Team Work; COM: Communication.
Table 2 Zero-Order Correlations for Study Variables of Interest in Regard to Academics’ Opinions

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N = 43; **p < 0.01; * p < 0.05; Cronbach’s alpha = 0.7; DM: Decision Making; TB: Team Building; OI: Opportunity Identification; CWS: Coping with Stress; CWU: Coping with Uncertainties; INNT: Innovative Thinking; INTT: Intuitive Thinking; DVM: having a Different View of the Market; DM: Deal Making; OE: Opportunity Evaluation; ISP: Identifying and Solving Problems; NW: Networking; TCR: Taking Calculated Risk; TW: Team Work; COM: Communication