

Entrepreneurial Learning and Innovation: Preliminary Findings from a Validation Study of Assessment Instrument

Stacey Robbins
Teachers College, Columbia University

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Abstract: While interest in entrepreneurship and entrepreneurship education grows, how to develop and support entrepreneurs remains poorly understood (Heinonen & Akola, 2007). This paper explores core capacities for entrepreneurial learning and innovation through a literature review and initial validation of measures tapping behaviors and attitudes via a survey instrument.

Background

According to the Kauffman Foundation, approximately 543,300 new businesses were created each month in 2011 and 6.3% of the adult population were self-employed business owners (Fairlie, 2012). In the 21st century, the younger generation is becoming the most entrepreneurial since the industrial revolution (Kurato, 2005). Previously, start-up development was constrained by several factors: high cost to obtain initial customers, long technology development cycle, few people interested in the risk of start-up, the structure of venture capital industry and the concentration of relevant expertise in geographically isolated areas (Blank, 2013). However, new approaches to entrepreneurship, accelerators and angel investors are helping to break down these barriers. Accompanying this interest in entrepreneurship is an increase in entrepreneurship education- from colleges and universities to incubators and mentorship programs, informally in co-working spaces and meet-up groups, and through face-to-face and online courses offered by practitioners. Although much work has been done to better understand the skills and capacities that support successful entrepreneurship, less research has been done on whether and how these competencies can be taught (Henry, Hill and Leitch, 2005b, in Heinonen & Akola, 2007). The onus rests with entrepreneurship educators to demonstrate the efficacy of their learning interventions. This paper explores core capacities for entrepreneurial learning and innovation through a review of the literature and an initial validation of measures tapping behaviors and attitudes via a survey instrument.

Entrepreneurship has been conceptualized in several ways. Stevenson and Sahlman (1989 in Cope, 2005) have categorized these as functional (i.e., serving an economic function), personality (i.e., concerned with the individual) and behavioral (i.e., the process of new venture creation). The personality conceptualization of entrepreneurship uses trait theory to attempt to isolate static personality characteristics that define entrepreneurs. However, much of the research in this area was unsuccessful in its attempt to arrive at a stable entrepreneurial personality profile. In response, the behavioral conceptualization considered how an individual perceives opportunity and takes action, recognizing the importance of the interaction between the entrepreneur and his or her environment. The behavioral perspective tends to see entrepreneurship as ending with venture creation, rather than encompassing both creation and the ongoing process of building and running a successful venture. Finding limitations with these conceptualizations, Cope (2005) offers a dynamic learning perspective, citing a growing acknowledgement that “learning is . . . an integral element of entrepreneurship practice and

study” (p. 373) and expanding the frame from venture launch to include learning and adapting after the venture is created. Entrepreneurial learning will be defined as, “the process by which people acquire, assimilate, and organize newly formed knowledge with preexisting structures—and how learning affects entrepreneurial action” (Holcomb et al., 2009 p. 168) in terms of opportunity-seeking and advantage-seeking practices.

The current context in which organizations operate is increasingly complex, turbulent and global (Lee, et al., 2012) and is characterized by continual disruption, which requires rapid change (Blank, 2013). In this dynamic and unpredictable environment, innovation is key for organizational competitiveness and success (Lee, et al., 2012). Innovation can be defined as the application of new solutions, in the form of products, services, processes, technologies, ideas (Frankelius, 2009) and business models (Trimi & Berbegal-Mirabent, 2012) to meet societal or individual needs.

Zhao (2005) argues that given the rapid change and non-linear dynamics that characterize the 21st century, entrepreneurship and innovation together are necessary for organizational sustainability. Through case studies of six entrepreneurial and innovative organizations, Zhao found that innovation and entrepreneurship are complementary; i.e., innovation is considered a source of entrepreneurship and entrepreneurship allows innovation to flourish and attain economic value. Innovation was found to be relevant to both start-ups and established organizations and relevant throughout the organizations’ lifecycles, rather than confined to the launch phase.

In a of review existing instruments that assess entrepreneurship education or entrepreneurial skills, few used measures other than successful venture creation. This research endeavors to create an instrument that addresses this gap and focuses on the behaviors and attitudes that support entrepreneurial learning and innovation.

Purpose

As entrepreneurship becomes an increasingly important part of our economic system, the ways in which entrepreneurs learn to develop successful enterprises remains poorly understood. The purpose of this research is to validate attitudinal and behavioral measures of entrepreneurs tapped by a survey instrument; the constructs under consideration are entrepreneurial learning and entrepreneurial innovation. This paper will present the process model for the development and validation of the “*Behaviors and Attitudes on Entrepreneurial Learning and Innovation*” (BAELI) instrument.

Theoretical Framework

Although validated instruments on practices and attitudes related to entrepreneurial learning and innovation have yet to be developed, there is some agreement in the entrepreneurship literature on the competencies necessary for entrepreneurial success. First, literature that influenced the development of the entrepreneurial learning construct will be reviewed, followed by literature that informed the development of the innovation construct.

Entrepreneurial learning

Cope’s (2003) work offers insight into the catalysts for and processes of entrepreneurial learning, examining how entrepreneurs make meaning of the process of their learning over time, how they feel they have changed since becoming business owners, the role of critical incidents in learning and development and the potential dynamics between organizational growth and entrepreneurial learning. The key finding of this work is the impact of non-routine, critical

events on the learning and development of entrepreneurs. Cope (2003) calls these events “key entrepreneurial learning mechanisms” (p. 445) and finds two forms of learning that may be precipitated by these events.

The first form of learning is personal transformation involving a change in one’s self-understanding and the second is a redefinition of the organizational processes of one’s business using, respectively, Mezirow’s (2000) transformative learning framework and Argyris and Schon’s (1978) double-loop learning framework. Mezirow (2000) defines transformative learning as using reflective dialogue to revise one’s frames of reference, integrating one’s experience in a more open, discerning manner. According to Argyris and Schon (1978), “*Double-loop* learning occurs when error is detected and corrected in ways that involve the modification of an organization’s underlying norms, policies and objectives” (p. 3). Cope (2003) considers the impact of these changes in the entrepreneur in either personal (through the lens of transformative learning) or organizational (through the lens of double loop learning) terms. For Cope (2003), the “emotional complexity and intimacy of the relationship between the entrepreneur and the small business” (p. 440) is a result of the link between the identity of the business owner as an individual and an entrepreneur. Cope (2003) finds the entrepreneurial world to be rife with disorienting dilemmas, or trigger events, which lead entrepreneurs to self-reflect because a previous way of understanding has lost relevance. In two case studies, Cope finds entrepreneurs engaged in “structured, goal-directed critical reflection” (p. 445).

Rae and Carswell (2000) take a social constructivist approach, arguing for the importance of discourse in the process of entrepreneurial learning, in that it helps us understand how individuals make meaning of their experiences within the context of their environment. Using the life story approach with 13 exceptional entrepreneurs, they found that instrumental learning was associated with motivation toward achievement; personal theories offered a process of decision making; and the ability to learn actively and through relationships with others, and to reflect on this learning, was essential to success.

For the BAELI instrument, the construct of entrepreneurial learning uses Cope’s entrepreneurial learning model as a foundation. In Cope’s model, however, the unit of analysis is the sole entrepreneur. In order to address the relational aspects of entrepreneurial learning, insights from Rae and Carswell’s research on the social aspects of entrepreneurial learning influenced the development of the construct.

Entrepreneurial Innovation

Innovation has been defined as “a proposed theory or design concept that synthesizes extant knowledge and techniques to provide a theoretical basis for a new concept (Sundbo, 1998; Bright, 1969)” (Zhao, 2005, p. 27). Thus, innovation may include new processes, new services (which may include the new use of established products, processes or services), new forms of organization, new markets and the development of new skills and human capital.

The identification and selection of opportunities for new businesses are considered to be among the most important entrepreneurial competencies (Ardichvili, Cardozo & Ray, 2003). Ardichvili et al. (2003) point out that opportunities are created, rather than found. According to Marvel and Rumpkin (2007) radical innovations enable firms to launch entrepreneurial ventures and revolutionary business ideas are likely to continue to come from entrepreneurs. Closeness between customers and small business managers helps to highlight unmet customer need (Hausman, 2005). This is particularly useful when the entrepreneur also possesses operational expertise and can couple it with superior customer knowledge (Dahl & Moreau, 2002 as cited in Hausman, 2005).

Management styles that support innovation by rewarding innovative efforts, allocating resources to these efforts and having a strategic vision that include innovation also contribute to organizational innovativeness (Zhao, 2005). According to Hausman, "Innovation is a social process" (2005, p. 778) and information transfer is increased when entrepreneurs receive feedback from the market, learning what worked or didn't work for other organizations.

Zhao (2005) purposes an integrated framework for innovation and entrepreneurship that includes strategy, systems, staff, skills and style. The strategy should be well-defined and proactive; internally and externally focused; focus on the changing needs of customers, new markets and transforming existing goods/services such that they create new value; and develop organizational capacity on an ongoing basis. A system for supporting innovation should be flexible yet controlled so that projects are of high quality, on time and meet objectives. Staff should be creative, open to change and ready to exploit opportunity. Skills necessary for innovation include: searching for and identifying opportunities; creating a culture of innovation; developing and implementing plans for innovation procedures; integrating research, design and market information to develop commercially viable innovations; developing procedures to evaluate innovation efforts; and promoting innovation through strategic vision. Management style should be open, supportive, empowering and encourage new product development, increased awareness of customer needs, new users and new markets. The reward system should incentivize innovative actions.

The BAELI instrument borrows heavily from Zhao's framework while acknowledging contributions made by others with regard to relationships with customers (Hausman, 2005) and opportunity recognition (Ardichvili et al., 2003).

Research Design

Entrepreneurial learning competencies were gleaned from a review of the literature, which resulted in several core competencies found to positively impact entrepreneurial learning and innovation. Following Chatterji's (2003) process model, an iterative instrument design and validation process was undertaken. In the first phase, the initial specification context was identified, which included assessment purpose, target population, and construct domain and subdomains. The second phase involved the development of the *Behaviors and Attitudes on Entrepreneurial Learning and Innovation* Instrument, a written, structured response survey created for research purposes.

This affective instrument is intended to assess two constructs related to entrepreneurial success: 1) entrepreneurial learning and 2) innovation. Entrepreneurial learning is composed of four sub-domains: i) awareness of competencies and weaknesses as an entrepreneur, ii) ability to use critical reflection to learn from critical events, iii) ability to appropriately apply past learning to new situations and iv) ability to learn through relationship to others. Innovation is composed of six sub-domains: i) ability to recognize market opportunities, ii) create a culture of innovation and iii) develop and implement plans for innovation procedures. Subdomains and indicators were gleaned from a review of the literature on the following topic areas: entrepreneurship, entrepreneurial learning, team learning, innovation and organization learning. Three to five items were written for each indicator resulting in 48 items. Survey respondents will be asked to score each item using a 5 point Likert scale indicating to what degree they agree or disagree with the statement (from strongly agree to strongly disagree.)

The final phase will involve a three-step validation process. The preliminary data includes the first of these steps, content validation of the instrument by subject matter experts

and successful entrepreneurs for alignment with construct, match with domain indicators, language and clarity (Chatterji, 2003). Based on the preliminary content analysis, several revisions were made to the competency framework as well as the assessment instrument.

Findings and Conclusions

Content validation was conducted by a working group of graduate students, professors and practitioners with expertise in entrepreneurial learning and innovation. This group consisted of two successful entrepreneurs, one professor of entrepreneurship and one entrepreneurial educator. Each member of the work group received a content validation checklist based on Chatterji (2003) and was instructed to consider both content representativeness and content relevance in their assessment. Based on feedback from this group, the domain specification for both constructs changed slightly. Specifically, the general indicator for entrepreneurial learning “Understand the needs and expectations of stakeholders” was changed to “Learning through relationships with others” based on feedback that an important element of entrepreneurial learning is how to use interactions with others to improve the business. For the innovation construct, the first general indicator was changed to “Recognize market opportunities” as this was seen as separate competency from executing and evaluating opportunities, and less relevant for the construct of innovation. “Develop and implement plans for innovation procedures” was added as a general indicator for Entrepreneurial Innovation based on feedback that innovation is supported by processes and modeling from leaders of entrepreneurial teams. Additionally, the “Encourage innovation in organization” was changed to “Create a culture of innovation” based on feedback from working group that a supportive organizational culture is fundamental to innovation.

The initial pool of 48 items was narrowed to 31 through this process and several items were revised for clarity. Empirical validation will take place through partnerships with entrepreneurial incubators and entrepreneurial education programs. Longitudinal studies will also be necessary to establish predictive validity as it relates to entrepreneurial success over time.

While significant improvements were made to the instrument, due to the dearth of existing assessments of these constructs, the researcher believes that a thorough empirical analysis should be undertaken before using the instrument for the expressed purpose of assessing entrepreneurial education programs. A closer partnership between entrepreneurial educators and assessment designers would yield insights into appropriate objectives for the programs, how these align with entrepreneurial competency and success and ultimately how to more accurately assess these programs. Those who develop, facilitate and participate in these programs would benefit from a more clear alignment among objectives, learning interventions and assessment.

Implications for Adult Education Theory and Practice

Due to increasing interest in entrepreneurship education and the importance of learning for growth of small enterprises (Deakins & Freel, 1998), entrepreneurship may be one of the next frontiers of adult learning and education. Arriving at a more complete understanding of the process of entrepreneurial learning and its associated competencies and validating an instrument to aid in its assessment are necessary next steps (Pittaway & Thorpe, 2012; Bergh & Jacobsson, 2011).

One application for the practice of adult education is improved facilitation of learning by those who work with entrepreneurs, including entrepreneurship educators, mentors and designers of entrepreneurship incubators. The field of adult education may benefit from this research as it

works to create a stronger bridge between entrepreneurship and learning, supporting the application of adult learning principles to diverse and relevant practice areas. While some entrepreneurship scholars have applied adult learning theories to their understanding of entrepreneurial learning, adult learning scholars have much to contribute to the development of research in this area as well as in support of the practice of entrepreneurial learning.

References

- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18(1), 105-123.
- Argyris, C. & Schon, D. (1978). *Organization Learning*. Reading, MA: Addison-Wesley.
- Blank, S. (2013). Why the Lean Start-Up Changes Everything. *Harvard Business Review*, 91(5), 64-70.
- Chatterji, M. (2003). *Designing and Using Tools for Educational Assessment*. Pearson.
- Cope, J. (2003). Entrepreneurial learning and critical reflection of discontinuous events as triggers for 'higher-level' learning. *Management Learning*, 34(4), 429-450.
- Cope, J. (2005). Toward a dynamic learning perspective of entrepreneurship. *Entrepreneurship: Theory and Practice*, 29(4), 373-397.
- Fairlie, R. W., & Krashinsky, H. A. (2012). Liquidity constraints, household wealth, and entrepreneurship revisited. *Review of Income and Wealth*, 58(2), 279-306.
- Frankelius, P. (2009). Questioning two myths in innovation literature. *The Journal of High Technology Management Research*, 20(1), 40-51.
- Hausman, A. (2005). Innovativeness among small businesses: Theory and propositions for future research. *Industrial Marketing Management*, 34(8), 773-782.
- Heinonen, J. & Akola, E. (2007). Entrepreneurship training and entrepreneurial learning in Europe. *Results from the Entlearn project*. TSE Entre Turku school of economics. Tampere.
- Holcomb, T., Ireland, R., Holmes Jr., R., & Hitt, M. (2009). Architecture of entrepreneurial learning: Exploring the link among heuristics, knowledge, and action. *Entrepreneurship: Theory and Practice*. 167-192.
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577-598.
- Lee, S. M., Olson, D. L., & Trimi, S. (2012). Co-innovation: convergenomics, collaboration, and co-creation for organizational values. *Management Decision*, 50(5), 817-831.
- Mezirow, J. (2000). *Learning as Transformation: Critical Perspectives on a Theory in Progress*. The Jossey-Bass Higher and Adult Education Series: ERIC.
- Rae, D. & Carswell, M. (2000). Using a life-story approach in researching entrepreneurial learning: The development of a conceptual model and its implication in the design of learning experiences. *Education + Training*, 42(4/5), 220-227
- Trimis, S., & Berbegal-Mirabent, J. (2012). Business model innovation in entrepreneurship. *International Entrepreneurship and Management Journal*, 8(4), 449-465.
- Zhao, F. (2005). Exploring the synergy between entrepreneurship and innovation. *International journal of entrepreneurial behavior and research*, 11(1), 25-41.