

Towards a Conceptual Model: The Impact of Entrepreneurship Education on Cognitive Style and Subsequent Entrepreneurial Intention

Salma Nader¹, Hadia Hamdy²

Abstract: Entrepreneurial education has been identified as one of the most critical factors in promoting entrepreneurship over the long run. Therefore, it is now a main concern in Egypt to develop an enterprise culture by encouraging entrepreneurship education. Cognitive style has been the center of attention among researchers and practitioners as an important factor in influencing entrepreneurial behavior. However, very few researchers studied the flexibility of cognitive style in terms of exploring factors that may influence the development of one's cognitive style. In this sense, a better understanding of how entrepreneurship education would impact one's cognitive style along the entrepreneurial intention process is imperative.

Introduction

Entrepreneurial education has been the centre of attention and interest among researchers worldwide (Buli, and Yesuf 2015; Farashah 2013). Over the past five years, formal entrepreneurship education has received more attention in Egypt as there is a high need to cultivate the entrepreneurial mind-set among Egyptian youth to be able to develop an enterprise culture in Egypt especially after the severe unemployment problem that increases annually. In spite of that, these initiatives have not been examined closely for evidence of influence to verify its role in developing new potential entrepreneurs (Hattab 2014; Kirby, and Ibrahim 2011). It is highly vital for policy makers and educators to see the role of entrepreneurship education in stimulating the entrepreneurial career to justify the investments done in promoting entrepreneurship education. This is especially important for developing countries where the need for entrepreneurial development is high and the resources are

¹ Salma Nader is an Assistant Lecturer in the field of Entrepreneurship and Innovation Management at the German University in Cairo, Egypt. She has a ten years' experience in the area of Innovation and Entrepreneurship which also constitute her main research interests.

² Hadia Hamdy is an Associate Professor in the faculty of Business and Entrepreneurship at University of Canada, Egypt. She has vast practical experience in the areas of SME financing, financial innovation and Entrepreneurship which also constitute her main research interests.

scarce. Thus, there is a need to maximize the outcomes of investing in entrepreneurial development (Walter, and Block 2016; Hattab 2014; Kirby, and Ibrahim 2012). What has been done so far in entrepreneurship education studies has yielded great results as it provided some valuable insights on entrepreneurship education. However, none of the past intentions models in the entrepreneurship education literature have considered cognitive style that is believed to play a key role in how entrepreneurial behavior evolves. Therefore, researchers should start to be much better grounded in theory; knowing how to stimulate entrepreneurial thinking and behavior should now be the main concern in research. This is because it is emphasized that thinking is considered a critical element of entrepreneurial behavior as entrepreneurs often operate in an uncertain environment and make decisions with limited or ambiguous information (Sanchez 2012; Tipu, and Arain 2011; Krueger, and Day 2010; Barbosa et al 2008). Moreover, Nabi et al (2017) stated that there is an urge need to explore new promising future research directions that are considered underemphasized such as exploring the role of university-based entrepreneurship education on one's mindset. This has given rise to a promising research stream in entrepreneurship literature known as entrepreneurial cognition. This research paper is grounded primarily on Human Capital Theory (Mincer 1958; Becker 1964) and Social Cognitive Theory (Bandura 1977). The first purpose of this study is to propose a conceptual model regarding the impact of formal entrepreneurship education on cognitive style to contribute to a better understanding of the intended impacts of entrepreneurship education especially that very few researchers explored the origins and development of one's cognitive style (Gregoire et al 2011). Also, the second purpose of this study is to propose the role of cognitive style in influencing entrepreneurial self-efficacy, personal attitude towards venturing and entrepreneurial intentions as well as introducing risk taking propensity as an important moderator in the conceptual model. This is to have a clearer picture of the processes that may lead to entrepreneurial behavior.

Accordingly, this research will help in designing relevant policies, consulting practices and effective educational strategies especially in the entrepreneurship field to help in teaching entrepreneurship in a more effective and balanced way.

Literature Review

Entrepreneurship Education

Entrepreneurial education is defined as “a kind of educational thinking and educational practice with the purpose of cultivating students’ awareness of entrepreneurship, spirit and capacity of entrepreneurship to strengthen their entrepreneurship quality as to tap their own potentials, cultivate their diligent, pioneering and innovative personality and intensify their employment competitiveness.” (Chen et al 2010:48). Specifically, the cognitive approach has attracted considerable interest; much attention has been paid to the entrepreneurial intention as an indicator of the effectiveness of entrepreneurship education programs (Sanchez 2012; Sanchez et al 2011). Bird (1988) defined intentions as the cognitive state immediately prior to executing a behavior. The Findings regarding the impact of entrepreneurship education are quite contradictory. However, a number of meta-analytical studies concluded that entrepreneurship education has a positive impact on students (Bae et al 2014; Martin et al 2013).

Entrepreneurial Cognition

Cognitive developmental psychology is now the center of attention and interest in entrepreneurship field (Randolph-Seng, and Mitchell 2015; Krueger, and Day 2010). Cognitive style has been receiving increasing attention specifically in the innovation and entrepreneurship field as it is widely recognized as an important determinant of individual behavior in the psychology literature. This is because it generally affects many of the critical behaviors that entrepreneurs face daily (Krueger, and Day 2010; Armstrong, and Hird 2009).

Hayes, and Allinson (1998) stated that cognitive style could be seen as a person's preferred way of gathering, processing and evaluating information relating to creativity, problem-solving and decision making. An individual's cognitive style may intentionally vary according to the unique constraints and conditions of a given situation (Groves et al 2011). Individuals' cognitive styles are classified as follows, people who have an "Analytical" (Linear) style tend to look for facts and data, task-oriented and accurate and come up with clear and rational solution. While Individuals who have an "Intuitive" (Nonlinear) style adopt a holistic and conceptual thinking, creative and enjoy experimentation, uncertainty and freedom. While Individuals who have a "Balanced" style have a great versatility in using either linear or non-linear thinking depending on the situation at hand and on the various entrepreneurial and functional requirements needed for venture creation (Groves et al 2011; Allinson, and Hayes 1996).

Education and Cognitive Style

Kolb (1976) found on a sample of business managers that their learning styles were correlated to their undergraduate majors. Moreover, Nulty, and Barrett (1996) found that that students in their first three years of studies share similar learning styles. However, learning styles of senior students tended to be related to their disciplines/majors that presented the primary focus of their studies. Furthermore, Groves et al (2011) found that formal education contributes to one's versatility in utilizing both linear and nonlinear thinking styles. Afterwards, Vance et al (2012) found that seniors exhibit a greater degree of versatility in using linear/non-linear thinking compared to freshmen who were newly enrolled in business major. This could be attributed to the extra years that seniors spent in the university, thus exposed to a more non-linear learning activities represented in liberal arts curriculum that emphasize intuitive thinking.

Cognitive Style and Entrepreneurship

Hmieleski, and Corbett (2006); Kickul, and Krueger (2004) found that cognitive style significantly impacts entrepreneurial intentions. On the other hand, Barbosa et al (2007) found that there was no significant difference between intuitive and analytical individuals on entrepreneurial intentions. However, the relationship existed when risk propensity acted as a moderator; intuitives with high risk preference will more probably start new businesses than analytics with low risk preference. Moreover, Ettlie et al (2014) found a significant positive direct correlation between both intuitive, balanced thinking styles and innovative intentions. Yet, the association between balanced thinking style and innovative intentions was significantly stronger than the association between intuitive thinking and innovative intentions. Additionally, a negative correlation was found between analytical thinking and innovative intentions. Moreover, Kickul et al (2009) found that intuitives have higher confidence than analytics in opportunity identification while analytics have higher confidence than intuitives in planning, marshaling and implementing. Consistently, Barbosa et al (2007) found that intuitive individuals scored lower than analytical individuals on relationship, managerial and tolerance efficacy. However, there was no difference found between intuitives and analytics on opportunity identification efficacy. The relationship existed when risk propensity acted as a moderator. Finally, Vance et al (2012) found that thinking style balance is significantly associated with all four measures of entrepreneurial self-efficacy. Moreover, Krueger, and Kickul (2006) found that perceived desirability influences intuitives' intentions. On the other hand, for analytics, perceived desirability was found not to influence their intentions. Furthermore, Barbosa, and Kickul (2007) found that intuitive individuals with high risk propensity have higher probability in perceiving entrepreneurial behaviour as more desirable and feasible compared to those analytical individuals with low risk propensity.

Figure 1
Conceptual Model

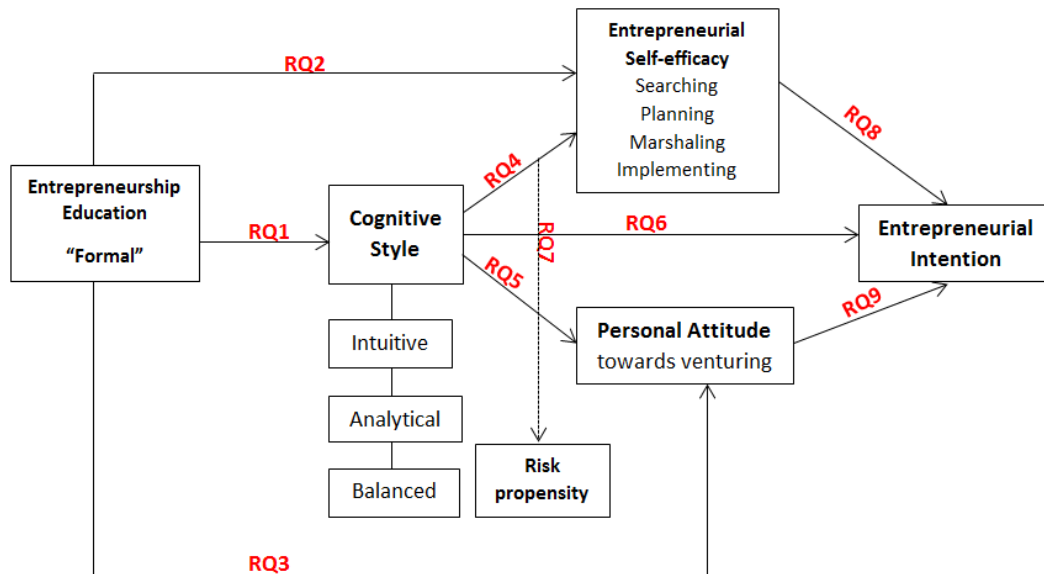


Table 1
Research Questions and Propositions

<p>RQ1: What is the impact of Entrepreneurship Education on young graduates' Cognitive Style?</p> <p><i>P1: It is proposed that students graduated from an Entrepreneurship and innovation major will have a more balanced thinking style compared to those graduated from other majors (control group).</i></p>
<p>RQ2: What is the impact of Entrepreneurship Education on young graduates 'Entrepreneurial self-efficacy?</p> <p><i>P2A: Students graduated from entrepreneurship and Innovation major will score higher than the control group in all dimensions of entrepreneurial self-efficacy.</i></p> <p><i>P2B: Entrepreneurship content will positively impact all dimensions of 'Entrepreneurial self-efficacy among young graduates.</i></p>
<p>RQ3: What is the impact of Entrepreneurship Education on young graduates 'Personal attitude towards venturing?</p> <p><i>P3A: Students graduated from entrepreneurship and Innovation major will have a more positive attitude towards an entrepreneurial career than the control group.</i></p> <p><i>P3B: Entrepreneurship content will positively impact young graduates 'Personal attitude</i></p>

towards venturing

RQ4: How will young graduates' Cognitive Style affect their Entrepreneurial self-efficacy?

P4A: Graduates having an intuitive cognitive style will score higher on tasks of self-efficacy that reflects the early phase of the entrepreneurial process which is "searching phase" than those with analytical cognitive style.

P4B: Graduates having an intuitive cognitive style will score lower on tasks of self-efficacy that reflects the later stages of the entrepreneurial process which is (planning, marshalling and Implementing self-efficacy) than those with analytical cognitive style.

P4C: Graduates having a balanced cognitive style will score higher on all dimensions of Entrepreneurial self-efficacy than those with intuitive and analytical cognitive style.

RQ5: How will young graduates' Cognitive Style affect their Personal attitude towards venturing?

P5A: Graduates having an intuitive cognitive style will have a more positive attitude towards starting their own business than those with analytical cognitive style.

P5B: Graduates having a balanced cognitive style will have a more positive attitude towards starting their own business than those with intuitive and analytical cognitive style.

RQ6: How will young graduates' Cognitive Style affect their Entrepreneurial Intentions?

P6A: It is hypothesized that graduates having an intuitive cognitive style will exhibit higher levels of entrepreneurial intentions than those having an analytical cognitive style.

P6B: It is hypothesized that graduates having a balanced cognitive style will exhibit higher levels of entrepreneurial intentions than those having an intuitive and analytical cognitive style.

RQ7: Does Risk propensity moderates the relationship between Cognitive Style and Entrepreneurial self-efficacy, Personal attitude and Entrepreneurial intentions?

P7: Risk propensity will moderate the relationship between Cognitive Style and Entrepreneurial self-efficacy, personal attitude and entrepreneurial intentions.

RQ8: What is the impact of Entrepreneurship self-efficacy on young graduates 'Entrepreneurial intentions?

P8: Entrepreneurship self-efficacy will positively predict young graduates 'Entrepreneurial intentions

RQ9: What is the impact of Personal attitude towards venturing on young graduates 'Entrepreneurial intentions?

P9: Personal attitude towards venturing will positively predict young graduates 'Entrepreneurial intentions

References

- Allinson, C. W., and Hayes, J. (1996). 'The Cognitive Style Index: A Measure of Intuition-Analysis for Organizational Research', *Journal of Management Studies*, 33(1): 119–135.
- Armstrong, S. J., and Hird, A. (2009). 'Cognitive Style and Entrepreneurial Drive of New and Mature Business Owner-Managers', *Journal of Business and Psychology*, 24(4), 419.
- Bae, T. J., Qian, S., Miao, C., and Fiet, J. O. (2014). 'The Relationship between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review', *Entrepreneurship theory and practice*, 38(2), 217-254.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Barbosa, S. D., Gerhardt, M. W., and Kickul, J. R. (2007). 'The Role of Cognitive Style and Risk Preference on Entrepreneurial Self-Efficacy and Entrepreneurial Intentions', *Journal of Leadership & Organizational Studies*, 13(4), 86-104.
- Barbosa, S. D., and Kickul, J. (2007). 'Differing Pathways to Intentionality: The Role of Cognitive Style and Risk Propensity' (No. halshs-00158678).
- Barbosa, S. D., Kickul, J., and Smith, B. R. (2008). 'The Road Less Intended: Integrating Entrepreneurial Cognition and Risk in Entrepreneurship Education', *Journal of Enterprising Culture*, 16(4), 411–439.
- Becker, G. S. (1964). *Human capital. A Theoretical and Empirical Analysis with Special References to Education*. New York: Columbia University Press.
- Bird, B. (1988). 'Implementing Entrepreneurial Ideas: The case for Intention', *Academy of Management Review*, 13(3): 442–453.
- Buli, B. M., and Yesuf, W. M. (2015). 'Determinants of Entrepreneurial Intentions: Technical-Vocational Education and Training Students in Ethiopia', *Education+ Training*, 57(8/9), 891-907.
- Chen Y., Wang W., and Wang W. (2010). 'Study on Operation Mechanism of University Students' Entrepreneurship Education', *Asian Social Science*, 6 (8), 48-53.
- Ettlie, E. J., S. Groves, K., M. Vance, C., and L. Hess, G. (2014). 'Cognitive Style and Innovation in Organizations', *European Journal of Innovation Management*, 17(3), 311-326.
- Farashah, A.D. (2013). 'The Process of Impact of Entrepreneurship Education and Training on Entrepreneurship Perception and Intention: Study of Educational System of Iran', *Education + Training*, 55 8(9), 868 – 885.
- Grégoire, D. A., Corbett, A. C., and McMullen, J. S. (2011). 'The Cognitive Perspective in Entrepreneurship: An Agenda for Future Research', *Journal of Management Studies*, 48(6), 1443-1477.

Groves, K., Vance, C., and Choi, D. (2011). 'Examining Entrepreneurial Cognition: An Occupational Analysis of Balanced Linear and Nonlinear Thinking and Entrepreneurship Success'. *Journal of Small Business Management*, 49(3), 438-466.

Hattab, H. W. (2014). 'Impact of Entrepreneurship Education on Entrepreneurial Intentions of University Students in Egypt', *The Journal of Entrepreneurship*, 23(1), 1-18.

Hayes, J., and Allinson, C. W. (1998). 'Cognitive Style and The Theory and Practice of Individual and Collective Learning in Organizations', *Human relations*, 51(7), 847-871.

Hmieleski, K. M., and Corbett, A. C. (2006). 'Proclivity for Improvisation as a Predictor of Entrepreneurial Intentions', *Journal of Small Business Management*, 44(1), 45-63.

Kickul, J., Gundry, L. K., Barbosa, S. D., and Whitcanack, L. (2009). 'Intuition Versus Analysis? Testing Differential Models of Cognitive Style on Entrepreneurial Self-Efficacy and the New Venture Creation Process', *Entrepreneurship theory and practice*, 33(2), 439-453.

Kickul, J., and Krueger, N. (2004). 'A Cognitive Processing Model of Entrepreneurial Self-Efficacy and Intentionality', *Frontiers of entrepreneurship research*, 2004, 607-617.

Kirby D.A. and Ibrahim N., (2011). 'Entrepreneurship Education and The Creation of an Enterprise Culture: Provisional Results from an Experiment in Egypt', *International Entrepreneurship and Management Journal*, 7, 181-193.

Kirby, D. and Ibrahim, N. (2012). 'An Enterprise Revolution for Egyptian Universities', *Education, Business and Society: Contemporary Middle Eastern Issues*, 5(2), pp.98-111.

Kolb, D. A. (1976). 'Management and the Learning Process'. *California management review*, 18(3), 21-31.

Krueger Jr, N. F., and Day, M. (2010). 'Looking Forward, Looking Backward: from Entrepreneurial Cognition to Neuroentrepreneurship'. In *Handbook of entrepreneurship research* (pp. 321-357). Springer, New York, NY.

Krueger, N. F., and Kickul, J. (2006). 'So You Thought the Intentions Model was Simple? Cognitive Style and the Specification of Entrepreneurial Intentions Models (January 24, 2006).

Martin, B. C., McNally, J. J., and Kay, M. J. (2013). 'Examining The Formation of Human Capital in Entrepreneurship: A Meta-Analysis of Entrepreneurship Education Outcomes', *Journal of Business Venturing*, 28(2), 211-224.

Mincer, J. (1958). 'Investment in Human Capital and Personal Income Distribution', *Journal of political economy*, 66(4), 281-302.

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., and Walmsley, A. (2017). 'The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda', *Academy of Management Learning & Education*, 16(2), 277-299.

Nulty, D. D., and Barrett, M. A. (1996). 'Transitions in Students' Learning Styles', *Studies in higher education*, 21(3), 333-345.

Randolph-Seng, B., Mitchell, R. K., Vahidnia, H., Mitchell, J. R., Chen, S., and Statzer, J. (2015). 'The Microfoundations of Entrepreneurial Cognition Research: Toward an Integrative Approach', *Foundations and Trends® in Entrepreneurship*, 11(4), 207-335.

Sánchez, J. C., Carballo, T., and Gutiérrez, A. (2011). 'The Entrepreneur from a Cognitive Approach', *Psicothema*, 23(3), 433-438.

Sánchez, J. C. (2012). 'Entrepreneurial Intentions: The Role of the Cognitive Variables', *In Entrepreneurship-Born, Made and Educated*. InTech.

Tipu, S.A.A. and Arain, F.M. (2011). 'Managing Success Factors in Entrepreneurial Ventures: a Behavioral Approach', *International Journal of Entrepreneurial Behaviour & Research*, 17 (5), 534-560.

Vance, C. M., Groves, K. S., Gale, J., and Hess, G. L. (2012). 'Would Future Entrepreneurs Be Better Served By Avoiding University Business Education? Examining the Effect of Higher Education on Business Student Thinking Style', *Journal of Entrepreneurship Education*, 15(1), 127-141.

Walter, S. G., and Block, J. H. (2016). 'Outcomes of Entrepreneurship Education: An Institutional Perspective', *Journal of Business Venturing*, 31(2), 216-233.