PROMOTING THE ENTREPRENEURSHIP INTENTION OF ENGINEERING STUDENTS IN VIETNAM: A BRIEF REVIEW AND PROPOSED MEASURING MODEL

Trang Doan Thi Thu, Le Hieu Hoc, Kien Dao Trung

Hanoi University of Science and Technology

trang.doanthithu@hust.edu.vn

ABSTRACT

Focusing on the importance of entrepreneurship in job creation and innovation index improvement to a developing economy like Vietnam, this paper studies the basic theoretical view on entrepreneurship intention, the current situation of entrepreneurship education programs in Vietnam and then proposed a model for measuring the effect of entrepreneurship education programs on entrepreneurship intention of technical students in Vietnam. Based on the Theory of Planned Behavior developed by Ajzen (1991), intention is considered the most believable index in predicting individual behavior with the successful result of more than 30% compare to 10% of other predictable personal traits. In the field of entrepreneurship, promoting entrepreneurship intention means increasing the number of new venture creations as well as small and medium enterprises for a strong economy. The importance of promoting entrepreneurship intention of engineering students is increasingly important since they are on the process of choosing their life career and technical field gives the most opportunities of innovation as well as receives lots of research fund for business start-up. Technical universities, therefore, play the central role in promoting entrepreneurship intention and building up the entrepreneurial culture for the whole society through the entrepreneurship education programs for their students. In fact, engineering education in developed countries like Japan or America has a long history in developing entrepreneurship education courses and equipping entrepreneurial knowledge as well as promoting entrepreneurial culture and intention for technical students. Recently, Japanese universities even combine the technology field and economics filed into a new field named “management of technology”. In the United States, many business and technology schools have created a niche in this area and growing entrepreneurship Many US universities have academic entrepreneurship departments and a large percentage of schools offer entrepreneurship courses (Potter, Jonathan (ed.) 2008). However, in Vietnam, this issue has not received the right attention of the higher education system. A brief review of some current activities in promoting students’ entrepreneurship intention through entrepreneurship education programs in the leading technical university of Vietnam - Hanoi University of Science and Technology - will also be explored in this paper.

1. INTRODUCTION

In the field of economic study, entrepreneurship is the combination of risk taking and innovation, which leads to new business. The innovation during entrepreneurship activities will create the innovative products and services, which are extremely important to a strong and stable economy. Entrepreneurship also supports to the economy by bringing the competitive advantage, creating new jobs and improving the national innovation index. That is why the research field of entrepreneurship in general and entrepreneurship intention in particular has been receiving the special interests of governmental sectors, policy makers and researchers all over the world. Researches focusing on entrepreneurship intention could be dated back in 1982 when the publication of Shapiro's seminal works took the first step at which the literature on entrepreneurial intentions begins its current period of rapid growth (Alain F. and Francisco L., 2013). From that time, there have been numbers of researches developing this issue as more authors begin to recognize the potential value of the intention approach (Bird, 1988); some important researches could be named such as Gartner (1985, 1989), Shaver & Scott (1991), Bandura (1982, 1997), Kolvereid (1996a, 1996b), Krueger (1993), Carsrud & Brännback (2009), Carsrud & Brännback (2011), Krueger (2007,

2009), Krueger & Day (2010) … However, a high number of these researches are conducted in the context of developed countries such as USA, Western countries or Japan. There are limited researches on entrepreneurship in developing countries and especially in Vietnam, that kind of research is nearly rare. The main purpose of this conceptual paper is to present the theoretical foundation of entrepreneurship intention of technical students. This paper also evaluates the entrepreneurship education context in technical universities of Vietnam and then proposes a model for measuring the effect of entrepreneurship education programs on entrepreneurship intention of technical students in Vietnam.

2. LITERATURE REVIEW

2.1 Entrepreneurship Intention

Richard et al. (2009) used the widely recognized definition of Bird's (1988, p. 442) on intention as a state of mind directing a person's attention (and therefore experience and action) toward a specific object (goal) or a path in order to achieve something (means). Bagozzi and Yi (1989) defined that intentions encompass motivational aspects influencing the behavior in question and they are important indicators for how much effort individuals have to exert to execute this behavior. Every planned behavior can be best predicted by studying an individual's intentions regarding this behavior, not the personality or demographic characteristics (Ajzen, 1991). In psychological literature, intention is assumed to capture the motivational factors that influence the behavior, so that, it is an indicator of how hard people are willing to try in order to behave in a specific manner to achieve a goal (Anna Lanero et al. 2011). For this reason, intention appears as a good predictor of planned behavior in the module of Ajzen (1991), especially if this is difficult to perform and demands a great amount of resources. In the field of social psychology, intention is the single best predictor of any planned behavior (Bagozzi and Yi 1989) even when this behavior is rare, hard to observe or involves unpredictable time lags between intention and action (Ajzen 1991). Compared to the actual behavior, intentions are measurable without delay and unaffected by distorting influences. In addition, intentions are not subject to any ex-post rationalization of the observed individual. In general: the stronger the intention, the higher is the probability that the intention predicts an actual execution of the behavior in questions (Ajzen 1991).

Derived from the previously mentioned definition by Bird (1988), Krueger (1993) defines entrepreneurial intention as the commitment to starting a new business. The study of entrepreneurial intentions is considered very promising, because researchers get a better understanding for background factors as well as accompanying environment factors such as the availability of resources (in this case is the offer of entrepreneurship courses) and the final consequences of the behavior such as the decision for a specific career without having to observe the transformation of intentions into action (Richard et al. 2009). In addition, Richard and his co-researchers (2009) confirmed that the research based on the behavioral approach can explain how entrepreneurship education as exogenous influence affects the perceptions-based attitudes, and so indirectly entrepreneurial intentions. This is particularly true for intentions regarding career choice. These intentions are even more subject to influences by exogenous interventions compared to other examples as studied by Ajzen (1991; 2002) that are only dependent on the volitional control of the individual such as the decision to quit smoking, or short-term voting preferences.

2.2 Entrepreneurship Intention Models

Until the current time, there are four most applicable entrepreneurship intention models widely used in researches, as follows:

2.2.1 Shapero Model of Entrepreneurial Intention (1982) and further developed by Krueger and Brazeal (1994) as the Model of Entrepreneurial Potential. In 1982, Shapero developed a model on factors influences entrepreneurial intentions. He states that desirability, feasibility and a propensity to act are the most crucial factors influencing an individual's intention to start a venture. In his Model, Shapero identified two classes of important variables: (1) one dependent variable, entrepreneurial intentions (EI), which represents the expected entrepreneurial behavior of the university students who are the respondents in this study, (2) three independent variables which represent personal attitude of the respondents (in this case are university technical students) including perceived desirability, perceived feasibility and propensity to act.

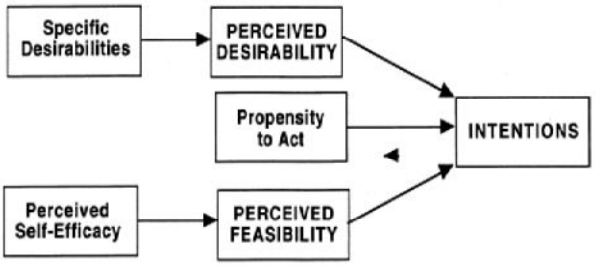

Figure 1 Shapero – Krueger Model

2.2.2 Bird's model of intention, developed by Barbara Bird in 1988. This model highlights the importance of intentions for organizational development and for the implementation of entrepreneurial ideas (Bird, 1988). Intentions are assumed to be a blend of rational, analytic, cause-effect thinking and intuitive, holistic, contextual thinking. The model was further developed by Bird & Jelinek 1988, Boyd & Vozikis 1994; however, according to Fayolle et al. (2006), it lacks empirical validation.

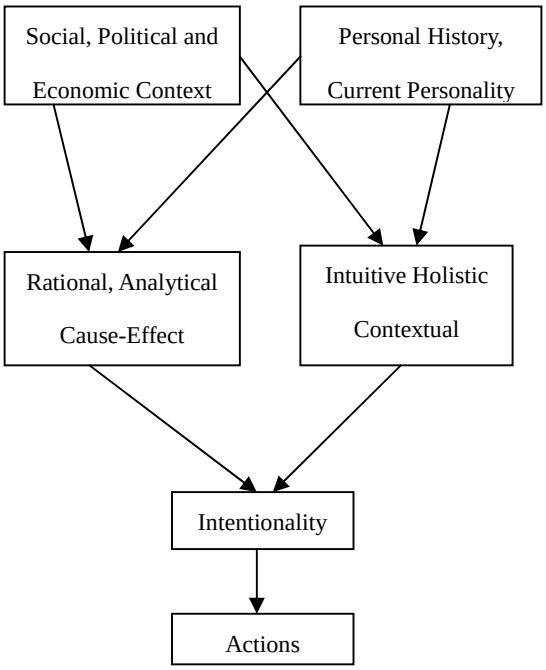

Figure 2 The context of Intentionality

2.2.3 The entrepreneurial event model by Shaper & Sokol (1982). Shaper and Sokol introduced their entrepreneurial event model (EEM) in 1982 and it was quickly used in the literature with an aim to provide an explanation for the processes that lead to an entrepreneurial event, that is, the moment of launching a new business (Kollmann & Kuckertz, 2006). The model assumes that inertia guides human behavior until some event "displaces" that inertia and unblocks previously undesired behaviors. For example, a displacement, such as job loss, might alter the perception of the desirability to become self-employed. There are three categories of life path changes in EEM, including negative displacements, between things and positive pulls.

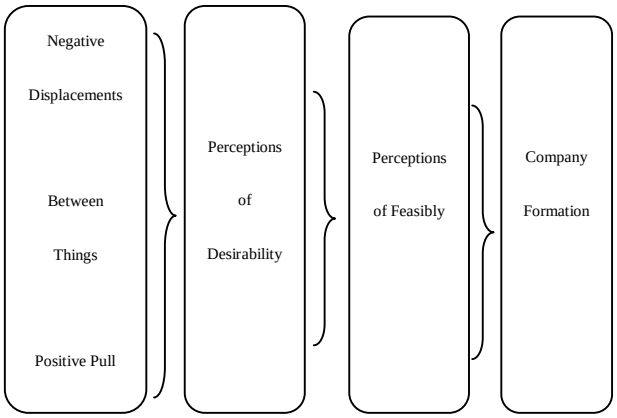

Figure 3 Shaper and Sokol's entrepreneurial event model

2.2.4 Icek Ajzen's theory of planned behavior (1991)
During 1975-1980, Fishbein and Ajzen introduced the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) which is the root of Icek Ajzen's theory of planned behavior (Ajzen, 1991). The theory of planned behavior consists of three attitudinal antecedents of intentions 1) subjective norms, 2) attitudes and 3) perceived behavioral control. The stronger the positive attitudes, the social norms and the perceived behavioral control toward a behavior, the stronger the behavioral intention is. If the intention is high, the individual is likely to perform the specified behavior.

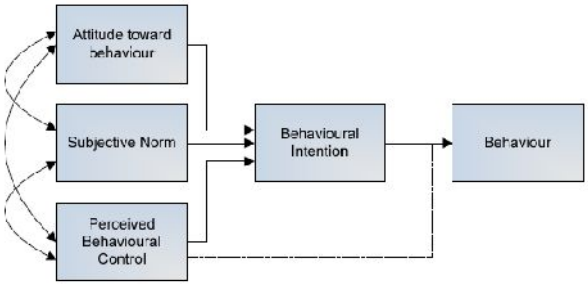

Figure 4 Ajzen's Theory of Planned Behaviour

In the field of entrepreneurial intention and entrepreneurship education, many researchers stated that that the most often used theory is Icek Ajzen's theory of planned behavior (Fayolle et al. 2006; Gelderen et al. 2008; Gird & Bagraim 2008; Krueger Jr & Reilly 2000; Souitaris et al. 2007). Following the theory of planned behavior, the entrepreneurial event model by Shaper & Sokol is used in a number of studies: (Krueger Jr et al. 2000; Peterman et al. 2003; Linan & Javier Santos 2007, Michael 2011). This paper will base on the Icek Ajzen's theory of planned behavior to propose a model for measuring the effect of entrepreneurship education programs on entrepreneurship intention of technical students in Vietnam.

3. EVALUATING THE ENTREPRENEURSHIP EDUCATION CONTEXT IN TECHNICAL UNIVERSITIES OF VIETNAM – RESEARCH AT HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY (HUST)

The history of the world's entrepreneurship education could be dated back in 1938 when Shigeru Fijii, who was the teaching pioneer at Kobe University, Japan, had initiated education in entrepreneurship. No longer latter, in US, the first entrepreneurship course was offered in February 1947 with the enrollment of 188 Harvard MBA students. Approximately 50 years later, as many as 120,000 North American students are participating in entrepreneurship courses (Katz, 2003). The number of entrepreneurship courses increased in the US tenfold in the period from 1979 to 2001 (Katz, 2008) and investment in entrepreneurship programs is still on the increase (Gwynne, 2008). Not only in the USA but also

in German-speaking countries, strong growth in entrepreneurship courses and professorships can be observed (Klandt, 2004). During the past two decades, most industrialized countries have witnessed significant growth in entrepreneurship education (Matlay & Carey, 2006). In Vietnam, entrepreneurship has been among the key driving forces of the dynamic private sector during the recent decades. It is a crucial force of economic and social development which manifests itself through a process of discovery and exploitation of opportunities for creating future goods and services. That is the reason why in Vietnam, the issue of entrepreneurship is one among the most highlighted stories recently, especially in the context of higher education system. National policy makers and education managers in Vietnam have been promoting the entrepreneurship programs in universities including training courses, seminar or workshop, awarded programs or competitions, etc… In national level, Vietnam Chamber of Commerce and Industry (VCCI) has been organizing the Award Price for the best entrepreneurial projects created by Vietnamese students for more than 10 years. Although the government and education system have tried their best to promote the entrepreneurship knowledge and culture among Vietnamese students; the performance of entrepreneurship training programs has been evaluated to be lower than expected and not corresponding to the full capacity of the universities. Like other leading technical universities in Vietnam, Hanoi University of Science and Technology (HUST) has recognized the importance of equipping knowledge on entrepreneurship and building up entrepreneurial intention culture for its students. Through the international cooperation channel, HUST has cooperated with foreign partners to exploit such opportunities. For example, in 2015, HUST has jointly organized many lectures and seminars with industrial partners such as lectures on Aeronautical Engineering and Nuclear Engineering funded by MHI; Seminar on Boiling Water Technology with GE-Hitachi, USA; Nuclear Seminar with ISS, USA or University-Industry Linkage Forum in the fields of manufacturing and mechanical engineering. In addition, HUST has organized many industrial talks, career path, industry exhibitions and high ranking leadership visits such as Talk Shows with US Science Envoy on “How to develop career in science”; Engineering Career Path with GE , Samsung Technology Exhibition, the Visit of the President of Nissan Techno Co, LTD. (Japan) to HUST. Attending these events, besides gaining the professional knowledge, updated technical trends and competencies, students will have opportunities to access to entrepreneurial leadership, industry innovation and the way to create applicable products for society and commerce from the thinking way of an engineer. The entrepreneurial intention of HUST students might be incubated from these events. Besides, a number of entrepreneurial awards and competitions have been promoted at HUST, namely “German Vietnam best business ideal projects” which has been jointly organizing by the School of International Education, HUST, Leipzig University, Germany and VCCI for many years. In addition, entrepreneurial courses organized at HUST in collaboration with foreign partners have attracted high number of interested students such as The Innovation and Entrepreneurship Workshop. The Workshop has provided an introduction lecture series to innovation methodologies and entrepreneurial knowledge by HUST, VNU – HUS, University of Colorado, Colorado Springs (UCCS- USA) with the support from Institute of International Education (IIE) and EducationUSA. In general evaluation, HUST has diversified and effectively promoted entrepreneurship education programs in its education system in order to enhance the culture and intention of entrepreneurship among its students. However, all of these activities are supporting activities and until now, no compulsory courses on entrepreneurship education have been delivered at HUST’s training syllabus so that all technical students have opportunities to attend. In the academic syllabus, HUST students in engineering fields only study some subject in general business such as Fundamental Management or General Management, Culture of Business, Managements Science, Fundamental of Corporate Management… According to the researches of many famous scholars worldwide, such general business subjects neither enhance the entrepreneurship intention nor promote the entrepreneurial culture among participants. This is also the current situation of entrepreneurship education in universities of Vietnam: having diversified elective entrepreneurship programs but no compulsory one in the academic training syllabus.

4. PROPOSED MEASURING MODEL ON ENTREPRENEURSHIP INTENTION

Although the context of entrepreneurship education programs in Vietnamese technical universities has only been implemented in elective and supporting courses, it is still necessary to examine the effectiveness of entrepreneurship education delivered by technical universities in Vietnam in developing entrepreneurial intentions among their students. From a researcher point of view, it is not always practicable to wait a number of years to examine how many students eventually founded a real business. Taking entrepreneurial intention as a measure of the impact of entrepreneurship education has the benefit of measuring the immediate impact of a program. The longer the post-measurement of an entrepreneurship program is delayed, the greater the measurement bias from contextual and time effects will be (Krueger et al. 2000).

Since models based on Ajzen theoretical framework continue to dominate social psychological research into intentions, this paper will base on this theory of planned behavior to propose a model for measuring the effect of entrepreneurship education programs on entrepreneurship intention of technical students in

Vietnam, as follows:

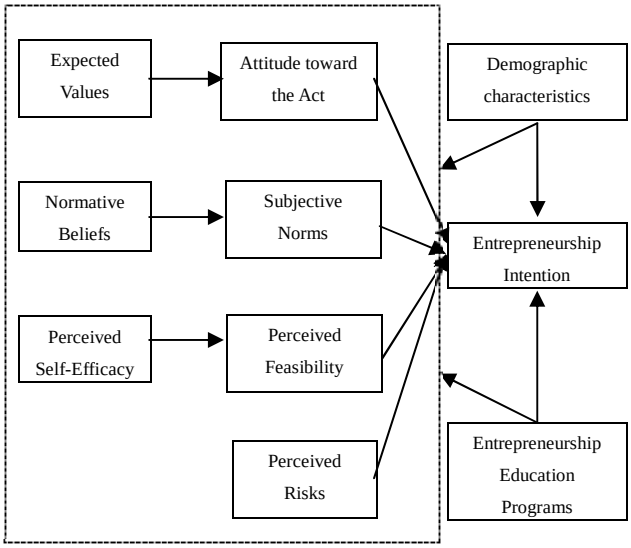

Figure 5 Proposed Model on Entrepreneurship Intention

CONCLUSION

From this study, the researchers hope to develop a model to efficiently evaluate the effects of entrepreneurship education programs on developing entrepreneurship intention of technical students in Vietnam. This model is based on Ajzen theoretical framework of planned behavior which was developed by Icek Ajzen in1991. With this study we aimed to contribute to the growing empirical literature on entrepreneurship education programs and entrepreneurship intention of students in the field of engineering in Vietnam by synthesizing results from the literature of entrepreneurial intentions, sustainable entrepreneurship, and entrepreneurship education. For further researches, the authors will explore how the entrepreneurship education program delivered in Vietnamese universities as exogenous influence affects the antecedents of intentions, and so indirectly entrepreneurial intentions of engineering students, basing on the proposed model.

REFERENCES

Alain F. and Francisco L., The future of research on entrepreneurial intentions. *Journal of Business Research* 67 (2014) 663–666, 2013

Ajzen, I, The Theory of Planned Behavior. Organizational Behavior & Human Decision Processes, 50(2): 179-211, 1991.

Ajzen, I., and Fishbein, M, Understanding attitudes and predicting social behavior, *Englewood Cliffs, NJ: Prentice-Hall*, 1980.

Bandura, A., Self-efficacy mechanism in human agency. *American Psychologist*, 37,122–147, 1982

Bandura, A., *Self-efficacy: The exercise of control. New York: Freeman*, 1997.

Bargozzi, R ,B .H and Y.TI, An investigation into the role of intentions as mediators of the attitude-behavior relationship, *Journal of Economic Psychology,* 10, 3562, 1989.

Bird, B. Implementing Entrepreneurial Ideas: The Case for Intention, *Academy of Management Review,* 13(3): 442-453, 1988.

Bird, B., and Jelinek, M, The Operation of Entrepreneurial Intentions, *Entrepreneurship: Theory & Practice,* 13(2): 21-29, 1988.

Boyd, N. G., & Vozikis, G. S, The Influence of Self-Efficacy on the Development of Entrepreneurial Intentions and Actions, *Entrepreneurship: Theory & Practice*, 18(4): 63-77, 1994.

Carsrud, A. L., & Brännback, M. (Eds), Understanding the entrepreneurial mind. *New York: Springer*, 2009

Carsrud, A. L., & Brännback, M., Entrepreneurial motivations: What do we still need to know? *Journal of Small Business Management*, 49(1), 9–26, 2011

Fayolle, A., Gailly, B. t., and Lassas-Clerc, N, Assessing the impact of entrepreneurship education programmes: a new methodology, *Journal of European Industrial Training*, 30(8/9): 701-720, 2006.

Fishbein, M., and Ajzen, I, Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research. Reading, *MA: Addison-Wesley*, 1975.

Gartner, W. B., A conceptual framework for describing the phenomenon of new venture creation, *Academy of Management Review*, 10(4), 494–706, 1985.

Gartner, W. B., 'Who is an entrepreneur?' is the wrong question. *Entrepreneurship: Theory and Practice*, 13(4), 47–68, 1989

Gelderen, M. v., Brand, M., Praag, M. v., Bodewes, W., Poutsma, E., & Gils, A. v., Explaining entrepreneurial intentions by means of the theory of planned behavior, *Career Development International*, 13(6), 538-559, 2008.

Gird, A., and Bagraim, J. J, The theory of planned behaviour as predictor of entrepreneurial intent amongst final-year university students, *South African Journal of Psychology*, 38(4): 711-724, 2008.

Gwynne, P, More Schools Teaching Entrepreneurship, Research Technology Management, 51(2): 6-8, 2008.

Katz, J. A, The chronology and intellectual trajectory of American entrepreneurship education: 1876-1999, *Journal of Business Venturing*, 18(2): 283, 2003.

Katz, J. A, Fully Mature but Not Fully Legitimate: A Different Perspective on the State of Entrepreneurship Education, *Journal of Small Business Management*, 46(4): 550-566, 2008.

Klandt, H, Entrepreneurship Education and Research in German-Speaking Europe, *Academy of Management Learning & Education*, 3(3): 293-301, 2004.

Kollmann, T., and Kuckertz, A, Venture archetypes and the entrepreneurial event: cross-cultural empirical evidence, *Journal of Enterprising Culture, 14(1): 27- 48*, 2006.

Kolvereid, L., Organizational employment versus self-employment: Reasons for career intentions. *Entrepreneurship: Theory and Practice*, 20(3), 23–31, 1996a.

Kolvereid, L., Prediction of employment status choice intentions. *Entrepreneurship: Theory and Practice*, 21(1), 47–57, 1996b

Krueger, N. F., The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship: Theory and Practice*, 18(1), 5–21, 1993.

Krueger, N. F., What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship: Theory and Practice*, 31(1), 123–138, 2007.

Krueger, N. F, Entrepreneurial intentions are dead: Long live entrepreneurial intentions. In A. L. Carsrud, & M. Brännback (Eds.), *Understanding the entrepreneurial mind* (pp. 51–72). New York: Springer, 2009.

Krueger Jr, N. F., and Reilly, M. D, Competing models of entrepreneurial intentions, *Journal of Business Venturing*, 15(5/6): 411, 2000.

Krueger Jr, N. F., and Brazeal, D. V, Entrepreneurial Potential and Potential Entrepreneurs, *Entrepreneurship: Theory & Practice*, 18(3): 91-104, 1994.

Krueger, N. F., & Day, M., Looking forward, looking backward: From entrepreneurial cognition to neuroentrepreneurship. In Z. J. Acs, & D. B. Audretsch (Eds.), Handbook of entrepreneurship research. An interdisciplinary survey and introduction (pp. 321–358) (2nd ed.), *New York: Springer*, 2010.

Linan, F., and Javier Santos, F, Does Social Capital Affect Entrepreneurial Intentions? *International Advances in Economic Research*, 13(4): 443-453, 2007.

Matlay, H., and Carey, C, Entrepreneurship education in the UK: a critical perspective, *ISBE Conference, Cardiff*, 2006.

Michael, The Impact of Entrepreneurship Education on Entrepreneurial Intention, *Dissertation no. 3966, University of St. Gallen, Germany*, 2011.

Peterman, N., and Kennedy, J, Enterprise Education: Influencing Students' Perceptions of Entrepreneurship, *Entrepreneurship: Theory & Practice*, 28(2): 129-144, 2003.

Potter, Jonathan (ed.), "Executive Summary", in Entrepreneurship and Higher Education, OECD Publishing. http://dx.doi.org/10.1787/9789264044104-2-en, 2008

Richard, et al. The Effects of Entrepreneurship Education. *Discussion paper 2009 – 11, Munich School of Management, University of Munich. Online at http://epub.ub.uni-muenchen.de/.* 2009

Shaver, K. G., & Scott, L. R., Person, process, choice: The psychology of new venture creation, *Entrepreneurship: Theory and Practice*, 16(2), 23–45, 1991

Souitaris, V., Zerbinati, S., & Al-Laham, A, Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources, *Journal of Business Venturing*, 22(4): 566-591, 2007.

Trang Doan Thi Thu received the Bachelor of Economics (2003) from Foreign Trade University, Vietnam and Master of International Business (2010) from La Trobe University, Australia. Her current interests include entrepreneurship intention, innovation and entrepreneurship training program models for technical students.

Le Hieu Hoc achieved the Bachelor of Engineering in Construction Management (1996) from Hanoi University of Cilvil Engineering, Vietnam, Master of Business Administration (2000) from Asian Institute of Technology, Thailand and Ph.D in Sociology and Social Research (2005) from University of Trento, Italy. His research areas include technology management, quality management, U-I linkage, entrepreneurship and innovation.

Kien Dao Trung received the Bachelor of Business (2007) from National Economics University, Vietnam and Master Business Administration (2015) from Hanoi University of Science and Technology. His current interest includes: dynamic capabilities, innovation capabilities, entrepreneurship intention for student, customer satisfaction