RELATIONSHIP BETWEEN ENTREPRENEURSHIP EDUCATION AND INNOVATIVE START-UP INTENTIONS AMONG UNIVERSITY STUDENTS

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ABSTRACT

In this study, the relationship between entrepreneurship education and innovative start-up intentions were invested among university students in northern Vietnam. Three factors of entrepreneurship, (curricular programmes, extracurricular programmes and social education) were adopted as independent variables and were assessed in combination with three factors (entrepreneurial capabilities, attitude and self-efficacy) as mediating factors. Curricular and extracurricular programmes for entrepreneurship based on self-efficacy, but not social education, had significant effects on innovative start-up intentions. In addition, self-efficacy did not affect the attitude of university students. It can be inferred that university students tend to increase their start-up intention when they study entrepreneurship and are confident in their capabilities and self-efficacy. Entrepreneurial attitude is also a factor of success.

Keywords: Entrepreneurial Education, Innovative Start-Up Intention, Capability, Attitude, Self-Efficacy.

INTRODUCTION

Entrepreneurial individuals tend to pursue opportunities to run a business and produce creative ideas in the organisations they work. This quality plays a vital role in the creation of new businesses, the expansion of existing businesses and social and economic development. Entrepreneurial activity creates job opportunities, increases competitiveness and promotes economic growth (Linan et al., 2008). In 2010, there were 248,824 active enterprises in Vietnam. Thousands of new firms were established that year and many entrepreneurs attempted to start their own business ventures to catch the new wave of economic growth surging through the country. Thanks to this on-going development of private business, entrepreneurship now contributes approximately 40% of GDP (Gross Domestic Product). Researchers have identified various factors that affect the business intentions of individuals, an important one of which is entrepreneurship education. Galloway and Brown (2002); Hederson and Robertson (2000) demonstrated that business education is an important determinant of business intent. Moreover, the intention to create an innovative start-up is a primary predictor of future entrepreneurial behaviour (Katz, 1988; Reynolds, 1995; Krueger et al., 2000). Therefore, investigating what factors determine such intention is a crucial issue in entrepreneurship research. Education provided by universities or colleges mostly affects the career choices of students, which are a potential source of future businesses. Today, most universities and colleges spend a considerable amount of money designing entrepreneurship education programmes for their students. Business education is defined as all education and training, whether part of an educational programme or not, that aims to develop the tools necessary to develop and implement business behaviour.

Every year, more than a thousand students graduating from universities in Vietnam have difficulty finding good jobs. The unemployment rate is increasing every day. This may be due to a lack of courses in entrepreneurship or informative extracurricular activities for such students. Many motivating factors for entrepreneurship have been studied by scholars in different cultures, with a diversity of results. Different factors impact the entrepreneurship intentions of students. We investigated the factors affecting the intention to create an innovative start-up among students in universities in Thai Nguyen and Hanoi, Vietnam, to provide a deeper understanding of entrepreneurship education and lay the groundwork to support and orientate students in the future.

LITERATURE REVIEW

The independent variable in this study was entrepreneurship education, with the following components: curricular entrepreneurship programmes, extracurricular entrepreneurship programmes and social education in promoting entrepreneurship intentions. The dependent variable was the entrepreneurial intentions of students at universities in Vietnam. Entrepreneurial capabilities, self-efficacy and attitude were mediating variables. Table 1 summarises the operational definitions of the variables in this study.

Table 1
SUMMARY OF DEFINITIONS

Variable	Definition	Authors
Curricular programmes	The courses and contents of entrepreneurship programmes taught at the university.	Oyugi (2014); Sheta (2012); Roudaki (2009); Solomon (2007); Souitaris et al. (2007); Menzies and Tatroff (2006).
Extracurricular programmes	Activities that go beyond traditional ones are innovative, carry an element of risk and lead to financial rewards. In addition, activities that provide informational and instrumental support for developing entrepreneurial intentions.	Abreu (2013); Souitaris et al. (2007); Fayolle et al. (2006).
Social education	It is the ability of human to learn not only from their own experience but also the one surrounding them. It is the processes to understand motivation, emotion, and human actions in society	Boyd and Vozikis, 1994; Bandura, 1986; Denny et al., 2011.
Entrepreneurial Capabilities	Skills that the entrepreneurship literature has identified as necessary individual characteristics to become an entrepreneur.	Nicolaou et al. (2008); Shane and Venkataraman (2000).
Entrepreneurial Self-efficacy	The perception of one's ability to be successful as an entrepreneur or by completing a specific set of tasks.	Bandura (1977); Chen et al. (1998); Ajzen (2005); Pihie and Bagheri (2011); De Noble et al. (1999).
Entrepreneurial attitude	Attitude measures, social cognition and processes.	Schlaegel and Koenig (2014); Teemu et al. (2013); Schwarz et al. (2009); Franke and Luthje (2004); Lim and Teo (2003); Shane et al. (2003).
Innovative start-up intention	Willingness of individuals to initiate new entrepreneurship activities.	Fayolle and Gailly (2008); Fristch (2011); Zarefard and Cho (2017).

Entrepreneurship Education

Entrepreneurship education is important to the development of entrepreneurial capabilities. Individuals who receive basic entrepreneurship education are more likely to engage in entrepreneurship. Entrepreneurship education is an important method of encouraging entrepreneurship, because it triggers feelings of independence and self-confidence, enables the recognition of alternative career options, broadens individuals' horizons by enabling them to perceive more opportunities and provides the knowledge for individuals to use in developing new business opportunities. However, what changes the innovative start-up intentions of students in educational programmes is not what they learn about entrepreneurship itself but rather what they learn about themselves and their own capabilities. As providers of entrepreneurship training programmes, universities must create entrepreneurially supportive environments that encourage entrepreneurial activity. This in turn helps develop an enterprise culture among university students, who are tomorrow's entrepreneurs (Roffe, 1999). According to Autio and Keeley (1997), the university teaching environment is the most influential factor affecting students' perceptions of entrepreneurial careers and convictions. Entrepreneurship education at universities has been studied by many researchers. Weaver et al. (2006) found a significant positive correlation between participation in entrepreneurial programmes and venture creations. Interest in entrepreneurship and the development of entrepreneurs remains high both in and out of academia. The contributing factors to entrepreneurship are, at present, the prevailing economic conditions and the recent emphasis on small business development and entrepreneurship by the federal government, which has given rise to the recognition by colleges and universities that starting and operating a business deserves academic attention as a viable career alternative (Shinnar et al., 2009).

Curricular Programmes

Several studies (Oyugi, 2014; Roudaki, 2009; Solomon, 2007; Gibb, 2002; Gottlieb and Ross, 1997) have demonstrated that entrepreneurship curricula provide the best learning and training models. In this rapidly changing world, students must continually discover and exploit opportunities (beyond existing competencies) if they are to survive and prosper after graduation. Therefore, entrepreneurship education initiatives at the university level are considered vital to increase the supply of potential entrepreneurs, which makes more students conscious of the possibility of and interested in choosing entrepreneurship as a career option. Accordingly, entrepreneurship education, in the form of curricular programmes in entrepreneurship, is correlated with entrepreneurial intentions, because it helps students learn and identify new business opportunities. Various studies have found a positive relationship between an individual's level of education and his or her entrepreneurship intention (Cowling and Taylor, 2001). Galloway and Brown (2002) found evidence that participation in courses on business creation was related to the innovative start-up intentions of the participants. Krueger and Brazeal (1994) suggested that entrepreneurship curricula should improve the perceived feasibility and desirability of students by increasing their level of knowledge and self-confidence, and should have an effect on the attitudes that establish the entrepreneurship intention. Moreover, such curricula impact the development of capacities, both general ones such as leading a group or a project and specific ones, which as Boissin et al. (2009b) pointed out, are basic when dealing with a business project. Sanchez (2013) focused on the special impact of educational programmes on the personal competencies deemed essential for entrepreneurship, such as risk

taking and self-efficacy. Based of these previous findings, we propose our first set of hypotheses, as follows:

H1a: Curricular programmes for entrepreneurship education positively affect capabilities of university students.
H1b: Curricular programmes for entrepreneurship education positively affect self-efficacy of university students.
H1c: Curricular programmes for entrepreneurship education positively affect attitude of university students.

Extracurricular Programmes

Extracurricular activities are quite important for entrepreneurs studying entrepreneurship. In real-world situations, education in entrepreneurship requires more practical application than do other business disciplines. In addition to more traditional efforts, such as internships, educational institutions are developing in other ways to ensure that students will acquire the necessary skills. The establishment of an open working and learning space can provide practical activities for students and allow the generation of ideas and a space to test how they can be used in everyday practice. Entrepreneurship courses require a non-traditional approach, in which students must learn to embrace the challenge of operating in a business environment that favours creativity and risk-taking. The promotion of extracurricular activities has become increasingly important to entrepreneurs in general and students of entrepreneurship in particular. There are various discussions of the relationship between extracurricular activities and innovative start-up intentions in the literature. In studies of the impact of higher education on entrepreneurial intention, Laukkanen (2000), Collins et al. (2004), Fayolle et al. (2006), Souitaris et al. (2007) and Liñan (2008) have shown that extracurricular opportunities, such as business incubators, information centres and financial aid, are incentives for innovative start-up intentions. In addition, Souitaris et al. (2007) and Fayolle et al. (2006) found that the availability of support resources also influences the attitudes that establish innovative start-up intentions and behaviour, because access to these resources can stimulate students to view business creation as a desirable and feasible professional option. For example, opportunities such as business incubators and information centres have a positive impact on entrepreneurship attitudes. The aim of extracurricular opportunities is to support entrepreneurial culture and provide informative, formative and instrumental support for the development of entrepreneurial projects. Such opportunities help foster students' capabilities and self-efficacy for carrying out their own business projects by involving them in entrepreneurial culture. This has an immediate connection with students' competencies, such as autonomy, authority and challenge. We can expect that the combination of extracurricular opportunities and entrepreneurial activities will increase the probability of entrepreneurial intentions. These concerns formed the basis for the formulation of the continue hypotheses:

H2a: Extracurricular programmes for entrepreneurship education positively affect capabilities of university students.
H2b: Extracurricular programmes for entrepreneurship education positively affect self-efficacy of university students.
H2c: Extracurricular programmes for entrepreneurship education positively affect attitudes of university students.

Social Education

Social education is a relatively new idea in education and it is typically implemented as a course within an MBA programme or a unit within an entrepreneurship course. Social theory was based on the proposition that both social and cognitive processes are the centre for to understand motivation, emotion and human actions. The main constructs claimed by this theory were social learning and self-efficacy. Social learning means that each individual is able to learn not only from their own experience but also the one surrounding them (Bandura, 1986). It is the ability of human to learn from what have been experienced by others that becomes the basic concept of social cognitive theory. Furthermore, it was forwarded that there are two ways of conducting this kind of learning; that are learning through observation (observational learning) and learning through actions (enactive learning) (Boyd and Vozikis, 1994). From those programs, people can find easier support resources in their society which can support for their future especially start up ideas. Many universities, engineering faculties, business faculties and high schools are providing social education because of this interest and demand. Denny et al. (2011) concluded that after such a course in social education, participants experienced higher levels of self-efficacy, increased positive attitude toward social entrepreneurship and interest in starting a business in the future. Considering these issues, this study proposes the following hypotheses:

H3a: Social education positively affects the entrepreneurial capabilities of university students.
H3b: Social education positively affects the self-efficacy of university students.
H3c: Social education positively affects the attitude of university students.

Entrepreneurial Capabilities

According to Shane (2003), the entrepreneurship process promotes the ability to identify opportunities, collect and organise resources and adapt strategies to exploit opportunities. The knowledge, skills and information obtained through education will likely improve the expected returns to exploiting opportunities. Entrepreneurship education not only improves the knowledge, skills and information an individual needs to pursue opportunities but also equips him or her with the analytical abilities and knowledge of entrepreneurial processes necessary for entrepreneurial judgement (McMullen and Shepherd, 2006). Entrepreneurial education is part lifelong learning: during this process, entrepreneurial abilities develop in different phases of education and learning. It concerns life management, interaction and self-management skills, the ability to innovate and readiness for change. The self-efficacy of students may gradually increase as they gain experience by developing complex skills (Bandura, 1982; Gist, 1987). However, while possessing the necessary skills for performing a certain task is essential, people must also have resilient self-belief in their abilities to accomplish certain goals (Wood and Bandura, 1989). The enhancement of self-efficacy, in turn, can result in increased intention toward a goal. As Boyd and Vozikis (1994) argued, a person's intention to create a new business will be strongest when he or she has a high degree of self-efficacy.

Entrepreneurial Self-efficacy

Bandura (1986) defined self-efficacy as the judgement of one's ability to attain a certain level of performance. Self-efficacy is essential, and it has a powerful influence on motivation, behaviour and one's affection in undertaking assignments (Pervin, 1996). Entrepreneurial self-efficacy is the degree to which people perceive themselves as having the ability to successfully

perform the various roles and tasks of entrepreneurship (De Noble et al., 1999). Lent (1994) found that self-efficacy was significantly related to career interests, career choice goals (intentions) and occupational performance. However, that study also found that self-efficacy is a mediator between a person's capabilities and his or her career interests and career choice goals. Moreover, recent research suggests that an individual's entrepreneurial self-efficacy may be improved through training and education at a university. It can also be enhanced by social exposure or by positive encouragement and feedback given by professors and instructors in entrepreneurship education programmes. Importantly, this is consistent with research on the early formation of career interests. Further, entrepreneurial self-efficacy greatly influences entrepreneurial attitudes (Krueger et al., 2000) and strengthens the self-efficacy of entrepreneurship students. Therefore, it is seen as a key tool for enhancing entrepreneurial intentions (Fayolle, 2005). Considering these issues, this study proposes the following hypothesis:

H4: Entrepreneurship capabilities positively affect the self-efficacy of university students.

Entrepreneurial Attitude

The variable "*attitude"* is now widely used to predict the likelihood of starting an enterprise (Douglas, 1999; Robinson et al., 1991). A personal attitude is a reflection of beliefs and opinions held by an individual about behaviour. Attitudes are classified into groups' attitudes toward money (Lim and Teo, 2003), attitudes toward change (Shane et al., 2003) and attitudes toward entrepreneurship (Autio et al., 1997). To measure students' attitudes toward entrepreneurship, we followed and adapted an instrument developed by Robinson et al. (1991). This instrument is based on a commonly accepted attitude scale that takes into account affective, cognitive and behavioural components, known as the tripartite model (Kamradt and Kamradt, 1999; Robinson et al., 1991). By definition, every attitude has an object, which could be a person, thing, place, event, life style or other factor (Robinson et al., 1991). Considering these issues, this study proposes the following hypothesis:

H5: Self-efficacy positively affects the attitude of university students.

Innovative Start-up Intention

From a societal perspective, entrepreneurship and the educational system are both important for economic growth, but only recently has the importance of education for entrepreneurship been acknowledged. Education is one of the largest and most important ongoing investments people make. Through access to education, people gain knowledge and develop their abilities; they also encounter opportunities to improve their quality of life. In entrepreneurship research, the intention to launch an innovative start-up is an individual's intent to perform entrepreneurial actions that aim to create new products through business opportunities and risk propensities (Ramayah and Harun, 2005; Kristiansen and Indarti, 2004). Fristch (2011) found that entrepreneurs create innovative start-ups when they create novel products, new markets or processes. Such intention is a direct antecedent of entrepreneurial behaviour: the greater the entrepreneurial intention, the greater the entrepreneurial behaviour. Capability, self-efficacy and attitude play important roles in such intention. Other research (Cho and Zarefard, 2017) has emphasised the role of students' capabilities in start-up intention. Boyd and Vozikis (1994) proposed that self-efficacy influences the development of both entrepreneurial career

intentions and subsequent actions. Moreover, attitudes are open to change: entrepreneurial attitudes may be influenced by educators and practitioners. By cultivating attitudes of innovation and achievement as well as self-esteem, educators can change students' perceptions and feelings of entrepreneurship (Robinson et al., 1991). Considering these issues, this study proposes the following hypotheses:

H6: Capabilities positively affect the innovative start-up intentions of university students.
H7: Self-efficacy positively affects the innovative start-up intentions of university students.
H8: Attitude positively affects the innovative start-up intentions of university students.

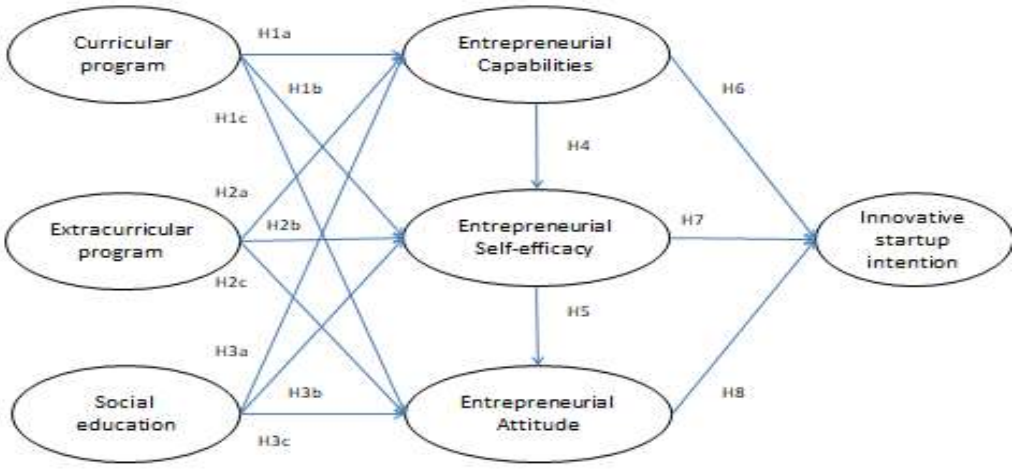

FIGURE 1
RESEARCH MODEL

Research Method

The data were collected using standard questionnaires. Our subjects were senior university students from two universities in Thai Nguyen and three universities in Hanoi, Vietnam. The survey was carried out from January to February 2017. The questionnaire used a Likert scale of 1 to 7, 1 being "*not at all likely*" and 7 "*very likely*"; the questionnaire was conducted in a Web-based application and the data were easily collected. Respondents received an e-mail with brief information on the survey's objectives and a link to the questionnaire. The population was about 400 students. A total of 293 students (73.25%) completed the questionnaire. We excluded all cases of missing data and did not consider students who did not state their field of study. Because we applied a control in this analysis for differences in entrepreneurial intentions of students in various study fields, we excluded all students with two or more fields of study in different faculties. For the final analysis, 293 questionnaires (male 167, female 126) were used. In the final sample, 183 students were studying business, 86 students were studying economics and 24 students were studying other fields. The youngest students in the sample were 18 years old and the oldest student was 27 old. Table 2 shows the demographic characteristics of the respondents.

Table 2
DEMOGRAPHICS

Sex	**Frequency (percentage)**	**Educational level**	**Frequency (percentage)**
Male	167 (56.9)	Undergraduate	
Female	126 (43.1)		293 (100)
Age		**University**	
≤ 25 years old	285 (97.3)	Thai Nguyen University of Economics and Business	69 (23.5)
25–30 years	8 (2.7)	Administration.	
old	0	Thai Nguyen University of Agriculture and Forestry.	131 (44.7)
≥ 30 years old		National Economics University, Hanoi.	
		FPT University Hanoi.	44 (15.1)
		Hanoi University of Science and Technology.	25 (8.5)
			24 (8.2)
Major		**Intention to start up company**	
Economics	86 (29.3)	Just after graduation	135 (46.1)
Business	183 (62.5)	10 years after graduation	158 (53.9)
Administration		**Interested in what industry**	
Other	24 (8.2)	Manufacturing	98 (33.5)
		Education	27 (9.2)
		Agriculture	23 (7.8)
		Science Technology	11 (3.8)
		Services	134 (45.7)
N=293			

ANALYSIS AND RESULTS

Measurement Model Development

The measurement model for this study used Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA was conducted for the initial evaluation of the survey instrument and to examine construct validity. Principal component analysis and the varimax rotation method were used for factor identification, with the Kaiser-Meyer-Olkin measure (KMO) and Bartlett's test. The results supported the factor structure developed from the literature review. Three independent factors composed of 16 variables (5 for curricular programes, 5 for extra curricula programes and 6 for social education; three mediating factors including 19 variables (7 for capabilities, 7 for self-efficacy and 5 for attitude and a dependent factor with 5 variables were selected. The final confirmation of the measurement model was achieved using CFA, which is the first process in the two-step approach suggested by Byrne et al. (1998) and Hair et al. (2006). The first analysis was attempted with all 16 independent variables, 19 mediating variables and 5 dependent variables. However, the results had unsatisfactory fitness indices. The modification indices generated as an output by the programme AMOS were considered, and to improve the goodness of fit, variables of greater than 10 in the modification indices were excluded in descending order. Thus, in this procedure, two variables from the independent factor (social entrepreneurship education), six variables from the mediating factors (two variables for each factor) and one dependent variable were excluded. The resulting measurement model had 14 variables across three independent factors (5 for curricula programes, 5 for extracurricular programes and 4 for social education), 13 variables across three mediating factors (5 for capability, 5 for self-efficacy and 3 for attitude) and 4 variables for the dependent factor. Running CFA on the resulting model showed improved fitness indices (chi-square/df=1.300<3, TLI=0.977>0.9, CFI=0.979>0.9, NFI=0.917>0.9, GFI=0.900>0.9,

RMSEA=0.032<0.08). Table 3 shows the resulting variables for the measurement model, sources of questionnaire items and brief characteristics of the model, including factor loadings and Cronbach's α. The questions for the final survey questionnaire were slightly modified to suit the aims of this study.

Validity and Reliability

First, the construct validity and reliability of the measurement model were examined. Agarwal and Prasad (1998) suggested using both EFA and CFA to assess construct validity. In EFA, relatively high factor loading scores (Table 3) supported the existence of construct validity in the questionnaire. The results of CFA also confirmed the construct validity of the measurement model with high factor loadings and acceptable goodness of fit indices. Moreover, as shown in Table 3, the Cronbach's α coefficient, which ranged from 0.837 to 0.931, showed the internal consistency of these factors. The differences in factor loadings between variables related to different factors were statistically significant. This illustrates that all variables effectively measured their corresponding factors, indicating that there was convergent validity in the questionnaire. Second, multiple regressions were used to explore the relationships among independent variables, mediating variables and dependent variables. In EFAs, the KMO was 0.934. Technically, the factor loadings of EFA must be greater than the suggested minimum value of 0.40. The KMO rate ranges from 0 to 1, with 0.60 considered an acceptable value for a good factor analysis. The significance level of Bartlett's test of sphericity must be smaller than 0.05 (Pallant, 2005). In all groups of variables, all components extracted from the research data had an eigenvalue greater than 1, with the smallest value being 1.085. In addition, the extraction sum of the squared loadings was 65.617, which accounted for 65.62% of total variance. Finally, convergent validity can be achieved if different variables used to measure the same factor have a strong correlation, and the correlation matrix (Table 4) explains the correlation relationships among the dependent variable, mediating variables, and the independent variables CP, ECP, SED, EC, SE, AT and ISI. Furthermore, Structural Equation Modelling (SEM) analyses, convergent validity can be assessed from the results of a t test on factor loadings (Anderson and Gerbing, 1988; Hatcher 1994).

Table 3
CONFIRMATORY FACTOR ANALYSIS

Constructs	Factor loading	Mean (SD)	Alpha	Sources
Curricular programmes				
Curricular entrepreneurship education programmes are well organised at my university.	0.810			Oyugi (2014); Sheta (2012); Gerba (2012).
Diverse curricular entrepreneurship courses are provided	0.777			
Curricular courses are well developed.	0.915	5.25 (1.339)	0.931	
Entrepreneurship education is important at my university.	0.755			
Curricular courses are helpful for understanding entrepreneurship and start-ups.	0.906			
Extracurricular programmes				
Extracurricular programmes are well organised at my university.	0.923			Abreu (2013); Dohse and Walter (2010).
Diverse extracurricular programmes (mentoring, club activities, etc) are provided.	0.804	5.12 (1.226)	0.913	
Extracurricular programmes are well developed.	0.807			
Extracurricular programmes are important.	0.721			
	0.813			

Extracurricular programmes are helpful for understanding start-ups.				
Social education Our society has an environment that promotes entrepreneurship. Entrepreneurship and start-ups are respected in our society. Information on and knowledge of start-ups can be easily obtained in our society. Our society has good infrastructure for supporting entrepreneurship and start-ups.	0.839 0.842 0.831 0.777	5.04 (1.286)	0.911	Light (2009); Bornstein (2004).
Entrepreneurial capabilities I know how to identify and seize new business opportunities. Developing a new business would not be difficult for me. I have the basic ability necessary to start a new business. I have the basic ability necessary to run and market a start-up business. I have the basic ability necessary to build a team for a start-up business.	0.737 0.675 0.709 0.675 0.648	5.11 (0.783)	0.837	Sánchez (2010); Kor et al. (2007); Zarefard and Cho (2017).
Entrepreneurial self-efficacy Starting a business would not be difficult for me. I can handle the process of my business start-up appropriately. I am prepared to start my own business. I know how to develop an entrepreneurial start-up project. I know the basic requirements for a business start-up.	0.731 0.778 0.674 0.703 0.725	4.7 (0.869)	0.854	Schwarzer and Jerusalem (1995); Ajzen (2005); Pihie and Bagheri (2011); Zhao et al. (2005).
Entrepreneurial attitude I am considering a start-up as an option for my career development. I regard making a start-up as a challenge for my goal achievement. Being an entrepreneur could bring me satisfaction.	0.740 0.850 0.868	5.47 (1.022)	0.879	Schlaegel and Koenig (2014); Teemu et al. (2013).
Innovative start-up intention I am interested in creating an innovative start-up. I have the intention to create a start-up with new or innovative ideas. I am interested in creating a start-up in a new or emerging industry. I hope to start an innovative business someday.	0.717 0.786 0.858 0.877	5.1 (1.009)	0.891	Zarefardand and Cho (2017); Cho and Gumeta (2015).

Table 4
CORRELATIONS

	CP	ECP	SED	EC	SE	AT	ISI
CP	1						
ECP	0.380**	1					
SED	0.532**	0.403**	1				
EC	0.602**	0.498**	0.403**	1			
SE	0.458**	0.409**	0.567**	0.460**	1		
AT	0.523**	0.481**	0.544**	0.422**	0.415**	1	
ISI	0.500**	0.426**	0.439**	0.532**	0.461**	0.458**	1

CP=curricular programmes, ECP=extracurricular programmes, SED=Social education, EC=entrepreneurial capabilities, SE=social entrepreneurship, AT=Entrepreneurship attitude, ISI=innovative start-up intention. **Correlation is significant at the 0.01 level

Results of Tests of the Structural Model

In exogenous-construct CFA and CFA, the loading factors for all factors of all indicators were above 0.5, so no indicators were excluded from the model. The measurement as hypothesised in the structural model was confirmed by SEM, a powerful statistical technique that combines a measurement model or CFA and a structural model into a simultaneous statistical test. This technique is valuable in inferential data analysis and hypothesis testing where the pattern of inter-relationships among the constructs are specified a priori and grounded in established theory (Byrne, 2013). It has the flexibility to model relationships among multiple predictors and criterion variables, and it statistically tests a priori theoretical assumptions against empirical data through CFA (Chin, 1998). The results of the first analysis showed slightly unsatisfactory fitness indices (chi-square/df=1.296<3, TLI=0.977, CFI=0.979, GFI=0.899, RMSEA=0.032<0.08). The results for the influence of the SED factor on EC, CP on SE, ECP on SE and SE on AT were non-significant, with p values>0.05. Hence, the corrected model showed improved fitness indices, supporting the original relationship in the research model (chi-square/df=1.290<3, TLI=0.978, CFI=0.980, GFI=0.899, NFI=0.916, RMSEA=0.03 <0.08). The model had good results, because the goodness-of-fit indices met all statistical requirements. In all, 10 hypotheses were statistically accepted and 4 were rejected. Table 5 gives the results for the hypotheses. Based on our results, we can conclude that curricula programs and extracurricular programs significantly and positively influenced entrepreneurial capabilities and attitudes among our Vietnamese student population. Social education significantly and positively influenced self-efficacy and attitude. The mediating variables (capabilities, self-efficacy and attitude) had significant and positive influences on innovative start-up intentions. As shown in Table 5, the effects of capabilities on self-efficacy were significant and positive. However, despite their positive influence, the effects of the curricula programes and extracurricular programes on self-efficacy and the effects of social education on capabilities were nonsignificant. Furthermore, within the group of mediating variables, the effects of self-efficacy on attitude were nonsignificant.

Table 5
HYPOTHESIS TEST RESULTS

Hypothesis		Beta	Result
H1a	*Curricular programmes for entrepreneurship education positively affect capabilities of university students.*	**0.545	Supported
H1b	*Curricular programmes for entrepreneurship education positively affect self-efficacy of university students.*	0.011	Not Supported
H1c	*Curricular programmes for entrepreneurship education positively affect the attitude of university students.*	**0.286	Supported
H2a	*Extracurricular programmes for entrepreneurship education positively affect the capabilities of university students.*	**0.355	Supported
H2b	*Extracurricular programmes for entrepreneurship education positively affect the self-efficacy of university students.*	0.083	Not Supported
H2c	*Extracurricular programmes for entrepreneurship education positively affect the attitudes of university students.*	**0.273	Supported
H3a	*Social education positively affects the entrepreneurial capabilities of university students.*	-0.009	Not Supported
H3b	*Social education positively affects the self-efficacy of university students.*	**0.494	Supported
H3c	*Social education positively affects the attitude of university students.*	**0.324	Supported

H4	*Entrepreneurship capabilities positively affect the self-efficacy of university students.*	**0.329	Supported
H5	*Self-efficacy positively affects the attitude of university students.*	0.002	Not Supported
H6	*Capabilities positively affect the innovative start-up intentions of university students.*	**0.244	Supported
H7	*Self-efficacy positively affects the innovative start-up intentions of university students.*	**0.399	Supported
H8	*Attitude positively affects the innovative start-up intentions of university students.*	**0.187	Supported
**significant at P<0.05			

In this study, two studies were conducted to investigate the performance of standard and robust likelihood-based difference tests. Study 1 investigated the influence of variables through mediating variables on start-up intention in the research model. Study 2 we used comparison model for a more thorough verification of the mediating effect of capabilities, self-efficacy and attitude, we used a non-mediated model as the conceptual comparison about the effect of programs in universities on start-up intention without mediating variables. For both studies, the same population models were used for data generation and the same model difference tests were performed. Table 6 shows the summary the result of study 2. This result demonstrated that the independent variables positively affect on dependent variable without mediating variables.

Table 6
REGRESSION ANALYSIS

Entrepreneurship education → Innovative start-up intention (ISI)	β	t value
Curricula programmes → ISI	0.318	5.483**
Extracurricular programmes → ISI	0.234	4.360**
Social education → ISI	0.176	3.013**
*t>1.96 Significant at P<0.05, **t>2.58 Significant at P<0.01, R^2=0.329		

SUMMARY AND DISCUSSION

In the context of entrepreneurship, the theory of planned behaviour implies that a person will start or grow a business if he or she has the intention, enough information to form a favourable opinion, sufficient support and encouragement and importantly, the belief that he or she has the knowledge and ability to do it. From our findings, it appears that over half of the students surveyed claimed to be aware of the importance of entrepreneurship education at the university, which can help them increase their capabilities and attitude toward launching a start-up in the future. This study addressed the following main question: "*Do entrepreneurial training programmes improve students' intentions to undertaking a business venture among Vietnamese students?"* Our results contribute to research on entrepreneurial education by revealing the effects of the specific benefits students derived from programmes on entrepreneurship. Although programmes on entrepreneurship education are growing rapidly around the world, qualitative reviews have been equivocal in regards to their impact on attitudes and intentions (Weaver et al., 2006). This is partially due to the fact that, although most studies report positive relationships, a number of important studies have shown negative results. Thus, it is not clear what impact entrepreneurship education and training might have on students. We hypothesised that there is a

significant relationship between entrepreneurship education and innovative start-up intention. In addition, we posited a relationship between entrepreneurship education and mediating factors such as the self-efficacy, capabilities and attitudes of students. In general, our results provide empirical support that training and teaching at universities promote entrepreneurship. As a result, almost programs in university have positively affects the attitudes of students, while only curricula and extracurricular programmes positively affect capabilities. Further, only social programmes were positively correlated with self-efficacy in our study. This result differs from those of previous research. This may be attributable to the increasing demands of students for quality education from educational institutions that will equip them with the entrepreneurial competencies needed for their future careers. Zarefard and Cho (2017) found that different designs of effective education systems for the development of university students' managerial competencies need to be explored and studied. Moreover, universities are considered an ideal place for shaping entrepreneurial culture among students (Mahlberg, 1996). Hence, universities must provide an entrepreneurially friendly environment to encourage and foster entrepreneurial culture. In addition, due to the impact of the environment and culture on students, they must have time to study and improve their capabilities: our results indicate that capabilities have a positive effect among Vietnamese students. Nonetheless, the effects of self-efficacy on the attitudes were nonsignificant. The relationship between self-efficacy and attitude has direct implications for the development of entrepreneurial intentions and actions. Activities and environments are selected based on one's judgement or perception of personal self-efficacy. Self-efficacy affects the choice of setting and activity, as well as skill acquisition, effort expenditure and the level of persistence exhibited in the face of obstacles (Bandura, 1982; Gist, 1987). Those with high self-efficacy may have a more positive attitude towards their future. However, each person's attitude depends on many factors, including family, school and social influence, in addition to self-efficacy. Finally, exposure to entrepreneurial courses must, to some extent, influence students' start-up intentions. It will advantage students with greater capabilities, greater self-efficacy, and more positive attitudes towards business creation and, most importantly, good networks to help them acquire needed resources to launch a venture. Our findings show that although this study had limitations because the data just was collected in Vietnam but entrepreneurial studies at universities may guide students to pursue entrepreneurial careers. Such courses may increase the self-efficacy of students in understanding entrepreneurship and improve their intention to be entrepreneurs.

CONCLUSION

Our results help elucidate the field of entrepreneurship in Vietnam by identifying the motivating factors affecting innovative start-up intentions. We developed measures and a conceptual framework describing a relationship between entrepreneurship education and start-up intentions through the mediation of attitude, capabilities and self-efficacy perceptions towards entrepreneurship. Our results show significant effects of the surveyed factors on intentions. Our findings have important implications for education in the development of entrepreneurship in terms of quality and quantity, preparing the foundation for individuals to succeed in their entrepreneurial future. We hope that this report will contribute to the study of entrepreneurship around the globe and lead to recommendations to help policy makers support entrepreneurial studies and the creation of founders of new businesses.

Clearly, while the findings have relevance for the innovative start-up intention in Vietnam, the research is not without its limitations, not least the nature and size of the sample was collected only Vietnam and further research is needed on a larger, more diverse student

population, embracing more universities in other countries. These conclusions and limitations suggest proposals for future research direction. First, explore other dimensions of the variables and developing new models to assess the incidence of higher education in entrepreneurship intention in a more direct way. Second, pay attention to additional factors that could improve the effect of curricular and extracurricular activities on entrepreneurship or effect of society with individual entrepreneurship intention. Third, a longitudinal study could offer some new insight into the effects of higher education on students' start-up intention

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