THE ALTERNATIVE PATHWAY TO ENTREPRENEURIAL INTENTION FOR HIGHER EDUCATION STUDENTS

BY

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AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION
BUSINESS INNOVATION
THAMMASAT UNIVERSITY
ACADEMIC YEAR 2021

THAMMASAT UNIVERSITY

INDEPENDENT STUDY

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ENTITLED

THE ALTERNATIVE PATHWAY TO ENTREPRENEURIAL INTENTION
FOR HIGHER EDUCATION STUDENTS

was approved as partial fulfilment of the requirements
for the degree of Master of Business Administration (Business Innovation)

on January 7, 2022

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Independent Study Title	THE ALTERNATIVE PATHWAY TO ENTREPRENEURIAL INTENTION FOR HIGHER EDUCATION STUDENTS
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Degree	Master of Business Administration
Major Field/Faculty/University	Business Innovation Thammasat University
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Academic Year	2021

ABSTRACT

Entrepreneurial Intention often draws the interests of many researchers over a few decades. In the context of higher education, this study examines the effects of learning from the module enabling passionate students to entrepreneurial intention. We call the mediating relationships from entrepreneurial passion to intention as a pathway. The traditional pathway to entrepreneurial intention usually includes self-efficacy. However, not every student is confident and learning from the module does not significantly improve self-efficacy. Therefore, we hypothesize the moderating relationships between entrepreneurial alertness as an alternative pathway from entrepreneurial passion to the intention with the moderating effects of learning from the entrepreneurship module. Furthermore, the moderating role is stronger when an individual possesses a higher level of entrepreneurial passion. Using the survey data from 920 Thai students who enrolled entrepreneurship module at Thammasat University, we find substantial support for mediating hypothesis of entrepreneurial alertness and moderating hypothesis of learning from the module. Our findings offer theoretical and practical implications in terms of helping entrepreneurial educators to design proper and personalized learning interventions for students.

Keywords: Entrepreneurial Intention, Entrepreneurial Self-efficacy, Entrepreneurial Alertness, Entrepreneurial Passion, Learning from the module

ACKNOWLEDGEMENTS

Throughout the journey of my Independent Study project, I have received great support from many people. First, I would like to express my gratitude to my supervisor, Dr Tanyaporn Soonthorntham, for the guidance, feedback, and suggestions. Second, I would like to acknowledge the Online MBA staff at Thammasat University for providing useful information for the project. Finally, I would also like to extend my gratitude to all participants during the whole process of app testing. All these people have made the completion of this project possible.

Piyanat Satcharattanachot

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CHAPTER 1
INTRODUCTION

Entrepreneurial intention is a predictor of an individual's entrepreneurial behaviour (Lüthje & Franke, 2003). This intention tailors an entrepreneur's attention towards achieving a specific goal. Plenty of academic papers studies how to enhance entrepreneurial intention for young entrepreneurs. Entrepreneurial passion is a core trait for entrepreneurs. It can encourage people to conduct entrepreneurial behaviours (Costa, Santos, Wach & Caetano, 2018; Mottese, Albergamo, Bartolomeo, Bua, Rando, De Pasquale, Saija, Donato & Dugo, 2018), and when they face difficulties in their businesses, entrepreneurial passion is the key to keep them going. This research aims to examine the mediating effects of different variables, which we called the pathway to entrepreneurial intention.

In the higher education context, previous studies report inconclusive findings on the direct relationship between entrepreneurial passion and entrepreneurial intention (Neneh, 2020; Saboor, Yousaf & Paracha, 2020). This relationship might be mediated by other variables. One of the most significant mediating variables connecting entrepreneurial passion to intention is self-efficacy (Liu, J. & Gu, J., 2017). It implies individual students who have a passion for entrepreneurial careers should believe they possess sufficient capabilities to start a new business. That is, self-efficacy is developed once they are passionate about seeking opportunities. This increases the likelihood that students explore and pursue their pathway when they recognize new promising opportunities. Many journals report entrepreneurial self-efficacy leads to many important entrepreneurial characteristics, such as entrepreneurial passion and perceived feasibility (Noreña-Chavez & Guevara, 2020; Moorthy & Annamalah, 2014). In contrast, researchers also report that when entrepreneurs lack self-confidence, there is a negative impact on entrepreneurial intention (Shahverdi, Ismail & Qureshi, 2018). Therefore, self-efficacy is one possible pathway to entrepreneurial intention.

Although young entrepreneurs are passionate about entrepreneurial careers, in reality, it is difficult to build entrepreneurial self-efficacy for undergraduate students during their four-year undergraduate period. Studies also found many new graduates usually do not have high self-efficacy (Jones, Ingram, & Forbes, 2021). They are not confident enough to start their businesses after completing a four-year bachelor's degree with entrepreneurship components. ***Does this mean those students cannot be entrepreneurs?*** This critical assessment leads to the question for this research: ***is there an alternative approach for individuals who do not follow the self-efficacy pathway in developing their intention to become entrepreneurs?*** In other words, ***what is an alternative pathway for individuals who are low in self-efficacy to develop entrepreneurial intention?*** Therefore, the research objective is ***to identify the alternative pathway to entrepreneurial intention***.

Building upon previous research on entrepreneurial alertness (Tang, Kacmar & Busenitz, L., 2012), this study aims to propose a behavioural pathway that mediates the link between entrepreneurship passion and students' entrepreneurial intention. In this study, entrepreneurial alertness contends as a mediating variable that links entrepreneurial passion and entrepreneurial intention. Alertness refers to entrepreneurial behaviours of scanning and search, alert association and connection, as well as evaluation and judgement of new business opportunities. We argue that young entrepreneurs with moderate self-confidence can establish new ventures if they are alert to the right opportunities. The research area of entrepreneurial alertness and entrepreneurial intention captures significant interest for many researchers. Nevertheless, few papers investigate the relationship between entrepreneurial passion, entrepreneurial self-efficacy, entrepreneurial alertness, entrepreneurial intention, inspiration, and learning from the entrepreneurship module. This study proposes two pathways to entrepreneurial intention: self-efficacy and entrepreneurial alertness. Investigating relationships among these variables are important for entrepreneurship education because higher education students may have different pathways to form an entrepreneurial intention.

Understanding an alternative pathway is crucial for educators in order to design proper learning interventions for entrepreneurship courses. Educators can also find the focus for each group of students and motivate them through their pathways. High and low self-confident students will have personalized learning paths to develop their entrepreneurial intentions. The alertness pathway helps students understand individuals' planned behaviours in entrepreneurship. This research shows another proven pathway to entrepreneurial intention to motivate higher education students to pursue entrepreneurial careers after graduation.

Additionally, we also introduce learning from the module to these two pathways to intention. It plays important roles for entrepreneurial intention (Souitaris, Zerbinati & Al-Laham, 2007). When students are passionate about starting new ventures, a learning entrepreneurship module moderates the relationship between entrepreneurial passion, self-efficacy and entrepreneurial alertness. It helps university students gain an understanding of why and how entrepreneurs act upon opportunities. Entrepreneurship classes also improve practical management skills to build new ventures. Therefore, we hypothesize what students learn from an entrepreneurship module has a significant impact on their entrepreneurial pathways. However, it is not clear how learning from entrepreneurship class leads to the student's passion and intention through the self-efficacy and entrepreneurial alertness pathways. Studies found that entrepreneurship education at a university does not always create more entrepreneurs (Chen, Hsiao, Chang, Chou, Chen & Shen, 2015). We need to identify the effect of learning from the module, which results in students following different pathways to entrepreneurial intentions.

We conducted an online survey of 920 higher education students who enrolled entrepreneurship courses at the university. The objective is to measure key entrepreneurial variables. After conducting confirmatory factor analysis (CFA), a PROCESS Macro approach was employed to analyze the collected data with a 95% confidence interval. We test the mediating roles of both self-efficacy and entrepreneurial alertness in the relationship between entrepreneurial passion and intention. At the same time, the moderating effects of learning from an

entrepreneurship module and inspiration are examined for both pathways as a first stage moderator.

The contribution of this study is to examine how entrepreneurship passion can lead to students' entrepreneurial intention using different mechanisms (efficacy pathway vs. behavioural pathway). Our model has implications for entrepreneurship passion as it shows different mechanisms to entrepreneurial intention. The end goal is to improve the entrepreneurial education curriculum to help students in becoming real entrepreneurs with different pathways. New graduates are seeking financial security, especially during the COVID-19 crisis, and new graduates may likely prefer professional over entrepreneurial careers (SCB, 2020). This low risk-taking behaviour may impede the development of entrepreneurial activities. Entrepreneurship educators should carefully design their courses for different groups of students, especially from different family backgrounds, to help them achieve entrepreneurial goals.

CHAPTER 2
THEORIES AND HYPOTHESES

2.1 Entrepreneurial Passion

Positive psychology has been developed over recent years. It has Inspired many researchers to evaluate the impact of people's psychological and behavioural activities (Stroe, Parida & Wincent, 2018). In the entrepreneurial aspect, the first stage of the new venture creation process is the formation of entrepreneurial intentions. Among many variables, entrepreneurial passion is one of the most significant factors, which plays a vital role in venture creation processes (Cardon & Kirk, 2015). Entrepreneurial passion refers to intense positive feelings associated with entrepreneurial activities in a specific domain (Newman, Obschonka, Schwarz, Cohen & Nielsen, 2019). These entrepreneurial activities are meaningful and salient to the self-identity of the entrepreneur. In other words, entrepreneurial passion is motivation, which is a kind of strong and proactive intention to do something. There are three role identities for entrepreneurs: inventor identity, founder identity and developer identity. First, an inventor identity includes identifying, inventing, and exploring new opportunities. A founder identity includes establishing a business for commercializing and exploiting opportunities. A developer identity relates to nurturing, growing, and expanding the business once it has been created. With these identities, entrepreneurial behaviour is passionate, full of emotional energy, drive, and spirit. Passion is likely to trigger the needed energy for potential entrepreneurs to overcome the uncertainties and challenges related to starting a new business. Passion also drives entrepreneurial activities, for example, gathering financial, human, and social resources. Previous researchers reported that there are several types of relationships between entrepreneurial passion and entrepreneurial intentions (Biraglia & Kadile, 2017; Neneh, 2020; Karimi et al, 2016). For example, Neneh reported entrepreneurial passion had a direct influence on entrepreneurial intention. Biraglia demonstrated self-efficacy as a mediator for the relationships of entrepreneurial passion and intention. This study

aimed to find another support on mediating roles of a few variables linking entrepreneurial passion and entrepreneurial intention.

2.2 Alternative Pathway to Entrepreneurial Intention – The Mediating Roles of Self-Efficacy and Entrepreneurial Alertness

The entrepreneurial intention has been a well-studied variable since there is extensive research about systematic literature review papers in entrepreneurial intention (Bazan, Gaultois, Shaikh, Gillespie, Frederick, Amjad, Yap, Finn, Rayner & Belal, 2020; Tan, Le & Xuan, 2020; Newman, Obschonka, Schwarz, Cohen & Nielsen, 2019). Even with high passion, it is argued that high investment in a short period cannot increase the entrepreneurial rate (Li & Wu, 2019). Two groups of mediating variables in the relationship between entrepreneurial passion and intention are tested to find whether there is a significant difference between the two pathways (Ferreira, Raposo, Rodrigues, Dinis, A. and do Paço, 2012). The first group is psychology variables (e.g. attitude and subjective norms) while the second group is behavioural variables (e.g. perceived behavioural control).

From a psychological perspective, the personality characteristics are the focus area among researchers (McClelland, 1961; Mitton, 1989). Mitton described that psychological trait for entrepreneurs were a commitment to their work, a need for total control and a liking for uncertainty and challenge. Another previous study showed a few determinants of entrepreneurial intention, including the need for achievement, internal locus of control, tolerance for ambiguity and risk-taking propensity and self-efficacy (Brice, 2004; Robinson, Stimpson, Huefner & Hunt, 1991). Among these determinants of entrepreneurial intention, self-efficacy is a key factor contributing to entrepreneurial intention (Fayolle, 2005), because self-efficacy has s significant influence on entrepreneurial behaviour. When we support entrepreneurship students' self-efficacy through proper entrepreneurial education, it leads students to entrepreneurial intention.

On the other hand, the behavioural pathway is another approach leading to entrepreneurial intention. Since behavioural factors are as crucial as a psychological trait, developing entrepreneurial abilities is a key to dealing with current challenges and the uncertain future (Kickul, Wilson, Marlino & Barbosa, 2008). Students also need to develop a positive attitude toward entrepreneurial behaviours. The following paragraphs discuss the psychology and behavioural paradigms of the mediating relationship between entrepreneurial passion and intention (Liu & Gu, 2017). The first argument centres on the psychology approach. Many researchers found personal traits are the crucial factor in whether individuals would like to follow an entrepreneurial career (Altinay, Madanoglu, Daniele & Lashley, 2012). There are several psychological variables in the entrepreneurship domain, for instance, innovativeness, locus of control, propensity to take a risk, need for achievement, tolerance to ambiguity and self-efficacy (Bux & Honglin, 2015). Among these variables, self-efficacy is a proven pathway to lead university students from entrepreneurial passion to entrepreneurial intention. Self-efficacy in the entrepreneurial context refers to how confident the entrepreneurs are in starting new ventures. Entrepreneurial self-efficacy consists of three source dimensions (Drnovšek, Wincent & Cardon, 2010). The first one is a specific aspect of entrepreneurship to which self-efficacy is applied, for example, start-up new ventures or growing existing businesses. The second sources of dimensionality refer to self-efficacy beliefs, which are task or outcome goal beliefs. Finally, the third one is positive or negative control belief. The detailed measurement model of self-efficacy will be shown in chapter 3.

The theory of planned behaviour suggests planned behaviours, such as creating a business, is predicted by behavioural intentions (Ajzen, 2011). Thus, those entrepreneurial activities will be recognized as intentionally planned behaviour. Passion is an important factor contributing to the daily efforts and creativity of entrepreneurs. Starting a business has many challenges and is risky. Entrepreneurs need to make a judgement about their abilities to perform the anticipated tasks before starting. In general, when individuals believe in themselves, it leads to intention and determination as an intrinsic motivators. Therefore, it is argued that many passionate

entrepreneurs will persist in finding ways to develop the needed skills and capabilities to deal with many entrepreneurial challenges (Neneh, 2020). When they learn more, they will be more self-assured and this confidence leads to intention. These behaviours make them more motivated to engage in entrepreneurial intention. We hypothesize that:

Hypothesis 1: *Entrepreneurial self-efficacy mediates the relationship between entrepreneurial passion and entrepreneurial intention.*

The second argument focuses on the behavioural approach (specifically the planned behaviour theory). It proposes beliefs influence attitudes, which in turn influence intention, which finally lead to behaviours (Godin, Valois, Lepage, Desharnais, 1992). Thus, the entrepreneurial intention is influenced by the individual's attitude. In contrast to psychological variables, there is limited evidence of behavioural variables leading to entrepreneurial intention. Some examples are perceived behavioural control, emotional intelligence, perceived availability of social support, empathy, subjective norm and entrepreneurial alertness (Tan et al., 2020; Tiwari, Bhat & Tikoria, 2017; Moorthy & Annamalah, 2014; Samo & Hashim, 2016). Entrepreneurial alertness and the three elements of planned behaviour theory represents a similar concept because both are behavioural characteristics of individuals. This alertness can also result in entrepreneurial intention according to the planned behaviour theory. Therefore, entrepreneurial alertness mediates the relationship between entrepreneurial passion and intention. Entrepreneurial alertness refers to the movement toward the actions of entrepreneurs. **It** is the sixth sense of entrepreneurs to notice opportunities that others miss without engaging in deliberate search. This alertness allows entrepreneurs to accumulate, transform and select information from the environment to identify promising opportunities (Tang el at., 2012). Alertness can be a learned skill, and people who have more subject expertise in any specific domain may be more alert to opportunities than other people. Another definition of entrepreneurial alertness is a cognitive capability to identify and develop opportunities, including perception, pattern recognition and evaluation (Langowitz & Minniti, 2007).

Even though entrepreneurial alertness has been studied for decades, it

received more interest among researchers in determining entrepreneurial intention a few years ago (Chavoushi, Zali, Valliere, Faghih, Hejazi & Dehkordi, 2020). We will focus on the meditating effects of entrepreneurial alertness on the relationship between entrepreneurial passion and entrepreneurial intention.

As previously discussed, the planned behaviour theory also states that behavioural attitudes are influenced by the expected value. Entrepreneurial alertness enables individuals to assess whether there are attractive opportunities. Therefore, they expect value from such opportunities and it, in turn, generates behavioural attitudes towards entrepreneurship, eventually resulting in the emergence of entrepreneurial intentions. When students are aware of new opportunities, they have entrepreneurial alertness. The core of entrepreneurial alertness is recognizing and discovering opportunities (Tang et al., 2012). Hence, there is a significant mediating effect of entrepreneurial alertness (Sang & Lin, 2019). Entrepreneurial alertness consists of 3 elements i.e., scanning and search, association and connections, as well as evaluation and judgement.

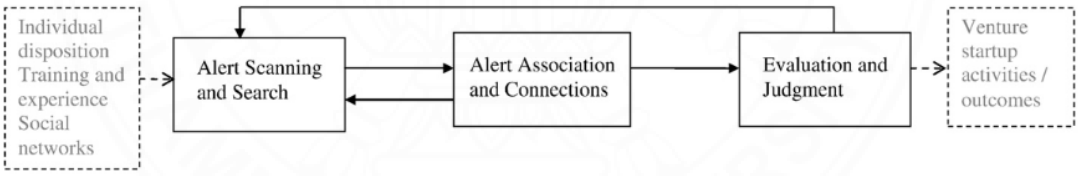

Figure 1.1 *Model of Entrepreneurial Alertness*

Previous researchers reported that entrepreneurial passion influences idea awareness and supports the development of intention (Hayton & Cholakova, 2012). Because entrepreneurial passion stimulates the processes for opportunity evaluation and information memory to make effective decisions, it enables the formation of unfamiliar associations, recognition of opportunity, and encourages entrepreneurs to involve themselves with novel ideas to articulate creative paths of action. Students with a high level of entrepreneurial passion are more likely to be alert to the recognition of opportunity. They tend to find relationships between things around them to form a new business. When entrepreneurs seek more opportunities

and critically make a judgment about the best ones, they tend to find the most suitable opportunities to pursue. This makes individuals begin the entrepreneurial behaviours resulting in entrepreneurial intention (Salleh, Tasnim, Alwi, Hassan & Zainuddin, 2021). Therefore, the study will assume the following hypothesis:

Hypothesis 2: *Entrepreneurial alertness mediates the relationship between entrepreneurial passion and entrepreneurial intention.*

2.3 The Moderating Effects of Learning from the Module

Learning from entrepreneurship module refers to educational courses and activities, which improve entrepreneurial traits, attitude and skills (Souitaris et al., 2007). This prior research showed the confirmation of conventional wisdom that entrepreneurship education increases entrepreneurial intention for higher education students, which was a similar context to this study. The results showed the programmes raise some attitudes and the overall entrepreneurial intention and that inspiration (a construct with an emotional element) is the programmes' most influential benefit. Also, previous studies on how university-based entrepreneurship modules should be structured to provide effective learning outcomes. There are many forms of entrepreneurial education, such as conventional lectures, seminars, and workshops, focus groups and teaching of peers. Within the university campus, students are more exposed to entrepreneurial education in both theoretical and practical learning experiences (Hahn, Minola, Van Gils & Huybrechts, 2017). Theoretical learning refers to entrepreneurial knowledge (e.g. hard facts about business creation) while practical experience includes entrepreneurial skills and abilities to seize opportunities. The methods to measure learning from the module will be explained in chapter 3.

In this context, previous papers reported that perceived learning benefits during entrepreneurship courses moderates the relationship between entrepreneurial passion, self-efficacy and entrepreneurial alertness. If students perceive they have already learned something and have some entrepreneurial knowledge, they tend to be more self-assured (Newman et al., 2019). The self-assured

individuals will have more self-confidence to start their businesses. This is the same aspect as self-efficacy. Furthermore, students will put in more effort, which also increases their self-confidence to the next level. The effort they put into learning from entrepreneurship modules includes spending time doing entrepreneurial coursework. The coursework is designed to replicate steps for starting a new business since students need to create a business model canvas as well as financial models to conduct in-depth business feasibility. By doing these tasks, not only do the students evaluate whether their new business model is feasible, they will gain entrepreneurial knowledge. Additionally, for students who have a high passion for doing their businesses, the entrepreneurial effort will increase, and they are more self-confident after completing the module. This example is another support that shows the mediating effects of entrepreneurial self-efficacy (Mei, Lee & Xiang, 2020). What students learn from the module helps improve the students' confidence, and confidence is a proven pathway to entrepreneurial intention. We therefore hypothesized that

Hypothesis 3: *Learning from the module moderates the relationship between entrepreneurial passion and self-efficacy*

On the other hand, for the alertness pathway, learning from the modules may have a different effect from what we find in the self-efficacy pathway. The self-motivated students usually explore new opportunities and may find different learning benefits of the entrepreneurship module. As entrepreneurship classes usually include talks from experienced guest speakers or successful entrepreneurs, students with high entrepreneurial alertness tend to be inspired and recognize new opportunities during entrepreneurship classes. In addition, when they learn something new, it ignites what they are passionate about, and they can find associations and connections between topics. Therefore, the key decision for entrepreneurial educators is *to create suitable entrepreneurial learning methods for students with different purposes*. For example, the purpose of conventional lectures is to teach essential hard skills, while group business plan projects aim to enhance students' practical

experience. Many researchers point out that the main objective for a short entrepreneurship course at the university should be raising students' awareness of entrepreneurial intention (Moses, Efobi & Salako, 2008; Islam, Ali & Niazi, 2018) because it is the starting point for a new entrepreneur. We hypothesized that

Hypothesis 4: *Learning from the module moderates the relationship between entrepreneurial passion and entrepreneurial alertness*

2.4 Conceptual Framework

The proposed research model starts with entrepreneurial passion. The two main paths to entrepreneurial intention are self-efficacy and entrepreneurial alertness. The relationships between all of these paths are moderated by learning from the module. More details and measurement methods will be shown in the research design section.

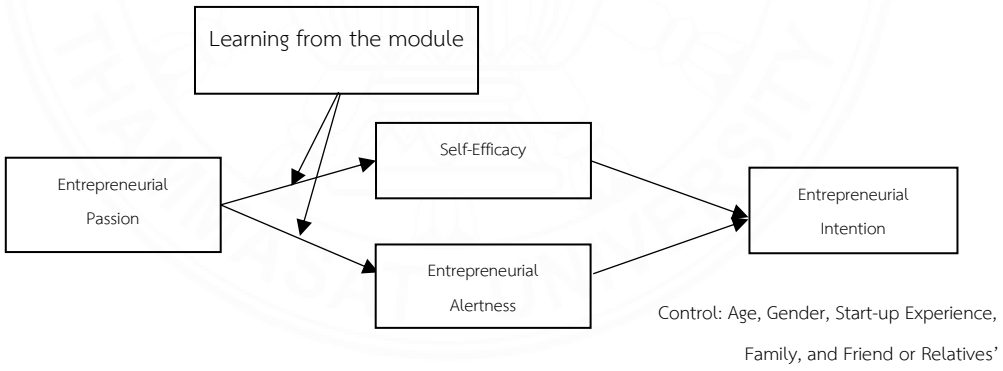

Figure 2.1 *Research Model and Hypotheses*

CHAPTER 3
RESEARCH DESIGN AND METHODS

3.1 Sampling Frame and Characteristics

We chose Thai undergraduate students to be a target group. In Thai higher education, entrepreneurship modules have become more common for undergraduate students, especially for some new bachelor's programs in which entrepreneurship are compulsory modules. With this trend, the participants of the survey were students who enrolled entrepreneurship module at Thammasat University in Thailand. The online survey was launched to 920 undergraduate students via Google Form. The objective of the survey is to find the relationships between different variables and entrepreneurial intention. We launched this Google Form at the end of the last entrepreneurship class (i.e., at the end of the semester), because we would like to let them give feedback about the courses and also to measure the learning from the module variable i.e. perceived learning benefit of entrepreneurship module. We tried to contact students who enrolled on the course via the Social Media student group, which was the population of the target group.

We used a convenient sampling method like previous studies to avoid time constraints and other shortcomings. (Tong, Tong & Loy, L.C., 2011; ODIJIE & ADEDOYIN; Idrisu, 2015; Johnson & Mathew, 2017). Convenient sampling is one of non-probability sampling involving samples being drawn from that part of the population that is close to hand. Unlike probability sampling which involves random selection, allowing you to make strong statistical inferences about the whole group. However, this convenient sampling method has been often used in entrepreneurship research according to previous research (Anwar & Saleem, 2018). The sample sizes of many kinds of literature were ranging from 190 – 750, so the sample size of 920 was sufficient to identify the relationships of entrepreneurial intention. The population of this study was the group of students who enrolled entrepreneurship module at Thammasat University.

Therefore, the sampling methods and sample size could represent the population in this context.

Also, all participants were informed about the questionnaire details before starting the survey. We clarified to participants that only aggregated finding would be presented in this research. No identified information would be disclosed and the feedback they give does not relate with their academic results of entrepreneurship modules. The student faculties are Business, Economics, Social Science and STEM. However, due to the data limitations, student faculties were excluded from the analysis because there are many missing values, which may lead to inconclusive results.

3.2 Questionnaire Design and Common Method Variance (CMV)

The questionnaire was designed in English with standardized items from the previous literature (Sweet, 2012; Chabala, 2018; Nasiru, 2015). These questions have been widely used in many studies and accepted by scholars. We can apply previously developed questionnaires because those previous studies were using them without using measurement model verification. Also, Sweet showed that the questionnaires were pretested by an expert panel and pilot tested to prove reliability and validity before other scholars were using the questions later. Therefore, this study will use the same questionnaires as the previous studies. The list of question items and references of the questionnaire are shown in the table below.

Table 3.1

List of questionnaire items and references

Variable Name	List of questionnaire items	References
Entrepreneurial Passion	**Entrepreneurial Passion - founding** 1. Owning a company will be energizing.	

Table 3.1

List of questionnaire items and references (Cont.)

Variable Name	List of questionnaire items	References
	2. Nurturing a new business through its emerging success will be enjoyable. 3. Establishing a new company is exciting. 4. Becoming a founder of a business is a very important part of who I want to be.	Alessandro Biraglia & Vita Kadile. , 2017
	Entrepreneurial Passion - Inventing 5. It is exciting to figure out new ways to solve unmet market needs that can be commercialized. 6. Searching for new ideas for products/services to offer is enjoyable to me. 7. I am motivated to figure out how to make existing products/services better. 8. Scanning the environment for new opportunities really excites me. 9. Inventing new solutions to problems is an important part of who I am.	Tobin Turner & Peter Gianiodis., 2018
Entrepreneurial Alertness	**Scanning and search** 1. I have frequent interactions with others to acquire new information. 2. I always keep an eye out for new business ideas when looking for information.	Tang et al., 2012

Table 3.1

List of questionnaire items and references (Cont.)

Variable Name	List of questionnaire items	References
	3. I read news, magazines, or trade publications regularly to acquire new information. 4. I browse the Internet every day. 5. I am an avid information seeker. 6. I am always actively looking for new information.	
	Association and connection 7. I see links between seemingly unrelated pieces of information. 8. I am good at “connecting dots. 9. I often see connections between previously unconnected domains of information.	
	Evaluation and judgment 10. I have a gut feeling for potential opportunities. 11. I can distinguish between profitable opportunities and not-so-profitable opportunities. 12. I have a knack for telling high-value opportunities apart from low-value opportunities. 13. When facing multiple opportunities, I am able to select the good ones.	

Table 3.1

List of questionnaire items and references (Cont.)

Variable Name	List of questionnaire items	References
Learning from the module	1. increase your understanding of the attitudes, values and motivation of entrepreneurs (i.e. why do entrepreneurs act?) 2. increase your understanding of the actions someone has to take in order to start a business (i.e. what needs to be done?). 3. enhance your practical management skills in order to start a business (i.e. how do I start the venture?) 4. enhance your ability to develop networks (i.e. who do I need to know)? 5. enhance your ability to identify an opportunity (i.e. when do I need to act?)	Souitaris et al., 2007
Entrepreneurial Intention	1. I am ready to do anything to be an entrepreneur 2. My professional goal is to become an entrepreneur 3. I will make every effort to start and run my own firm 4. I am determined to create a firm in the future 5. I have very seriously thought of starting a firm 6. I have the firm intention to start a firm some day	Liñán & Chen., 2009

To mitigate potential problems of common method variance (CMV), the researcher employed procedures of statistical remedies following previous studies (Krishnan et al. 2006). We also minimize the socially desirable responses by letting students do it in the classroom before they leave. Additionally, Google Form is the only way that students responded to questionnaires to reduce the risk of inconsistent communication channels. We also created separate pages of each variable to help respondents easily to understand. To ensure item unambiguity, we pre-tested our questionnaire with formal academic reviews.

3.3 Measurement and Operationalization

3.3.1 Dependent Variable

The dependent variable of the study is entrepreneurial intention. We can measure entrepreneurial intention with a seven-point Likert scale including students' readiness, determination, and willingness to become entrepreneurs. However, further analysis will ensure there are enough numbers of items of entrepreneurial intention.

3.3.2 Explanatory Variable

The independent variable is entrepreneurial passion consisting of 6 items. Next, self-efficacy and entrepreneurial alertness are the mediating variables to be tested. First, we will discuss self-efficacy. Students' confidence levels of starting a new venture are measured by a five-point Likert scale questionnaire. The items include the confidence of creating new products, opportunity identification, commercialization, and creativity. Second, entrepreneurial alertness is hypothesized to be an alternative pathway to entrepreneurial intention. The scanning and search element includes frequency of acquiring new information, sources of new information and seeker characteristics (6 items). The second one is association and connection. We assess how much students try to link data they have to be a new single piece of information (3 items). The third component is evaluation and judgement. We measure students' opportunity evaluation process in their opinion (4 items). The entrepreneurial alertness

questionnaire consists of a five-point Likert scale. The moderating variable of the study is learning from the entrepreneurship module. It refers to an attempt to promote students' personal development through entrepreneurship courses (Souitaris et al., 2007). The previous literature indicates that learning from the module is assessed by students' perceived learning quality. The learning modules include an understanding of entrepreneurial attitudes, values, motivation and actions. Also, the practical management skills and ability to develop networks and identify opportunities are measured in this standardized questionnaire. A seven-point Likert scale is used to assess the perceived quality of learning from the module in students' opinions.

Previous studies guide 3 control variables for the experiment (Nguyen, 2018) as followed: family background, friend or relatives background, start-up experience. These variables have the value 1 if the answer is yes, while the value is 0 if otherwise.

Next, Confirmatory Factor Analysis and PROCESS Macro were used to analyze the data with a 95% confidence interval. The Confirmatory Factor Analysis (CFA) aimed to confirm each item for each variable hanging together. Also, there were a few statistical criteria to make sure the item grouping (e.g., Chi-square, SRMR, CFI, TLU, RMSEA). If the calculated values passed such criteria, we could confirm that items hung together. Next, SPSS PROCESS Macro was deployed to test the hypotheses. This Process referred to an observed path analysis modelling tool. There are interactions in moderation models along with simple slopes and regions of significance for probing interactions, and conditional indirect effects in moderated mediation models with a single or multiple mediators or moderators. The interpretation of PROCESS Macro and Structural Equation Modelling was similar. However, we can reduce the model complexity and improve processing time by using average values of each construct (e.g., entrepreneurial passion, self-efficacy, entrepreneurial alertness, and entrepreneurial intention). Unlike SEM, the disadvantage of PROCESS Macro was detailed analysis for each item in the construct was removed. In this case, we test the mediating roles of both self-efficacy and entrepreneurial alertness and the moderating roles of learning from the entrepreneurship module and inspiration in the relationship

between entrepreneurial passion and intention. The mediating effects were the main part of the model relationships. Therefore, we needed to process the model without moderating effect first, i.e., PROCESS Macro Model 4, before processing PROCESS Macro Model 7 with moderating effects of learning from the module. After that, the moderating effects were tested by an iterative approach with 2 steps. First, the multi-group approach to evaluate the significant level of the direct effect. Second, we divided the samples by moderating dimension i.e., learning from the module. The main objective is to analyze the indirect moderating effect of learning from the module when moderating variables are high and low (+1 SD and -1 SD respectively). Finally, we conducted the robustness test to confirm that the results from PROCESS Macro Model 4 and 7 were similar to what we got from Structural Equation Modelling (SEM). The detailed result and discussion will be described in the next section.

CHAPTER 4
ANALYSIS AND RESULTS

4.1 Measurement Model

The researcher tested the measurement model to assess the convergent and discriminant validities of each construct. The loading factors of confirmatory factor analysis were shown in the table below. The two-tailed p-value of all the variables were less than 0.05. Consequently, all loading factors confirmed each construct hung together. Also, other measurements, e.g., Composite Reliability (CR), Average Variance Extracted (AVE), RMSEA, SRMR CFI, TLI, were used to confirm item in each construct was hung together.

Table 4.1

Confirmatory Factor Analysis

Construct	Item	Loading Factor	S.E	Estimated S.E	Two-Tailed P-Value
Entrepreneurial Passion (CR = 0.89 SQRT AVE = 0.70)	item 1	0.479	0.025	18.951	0.000
	item 2	0.474	0.025	18.955	0.000
	item 3	0.554	0.023	23.598	0.000
	item 4	0.587	0.023	25.858	0.000
	item 5	0.697	0.019	37.332	0.000
	item 6	0.666	0.02	33.591	0.000
	item 7	0.677	0.019	34.848	0.000
	item 8	0.71	0.018	39.069	0.000
	item 9	0.603	0.022	27.344	0.000
Self-efficacy (CR = 0.85 SQRT AVE = 0.77)	item 1	0.695	0.019	35.649	0.000
	item 2	0.809	0.015	53.556	0.000
	item 3	0.736	0.018	41.152	0.000
	Item 4	0.538	0.024	22.038	0.000

Table 4.1

Confirmatory Factor Analysis (Cont.)

Construct	Item	Loading Factor	S.E	Estimated S.E	Two-Tailed P-Value
Entrepreneurial Alertness - Scanning and Search (CR = 0.78 SQRT AVE = 0.61)	item 1	0.466	0.027	17.493	0.000
	item 2	0.696	0.021	32.808	0.000
	item 3	0.603	0.024	25.322	0.000
	item 4	0.377	0.028	13.579	0.000
	item 5	0.452	0.027	16.607	0.000
	item 6	0.561	0.025	22.753	0.000
Entrepreneurial Alertness - Association and Connection (CR = 0.86 SQRT AVE = 0.83)	item 1	0.716	0.019	37.233	0.000
	item 2	0.801	0.016	50.863	0.000
	item 3	0.794	0.016	49.643	0.000
Entrepreneurial Alertness - Evaluation and Judgement (CR = 0.84 SQRT AVE = 0.76)	item 1	0.758	0.019	40.766	0.000
	item 2	0.644	0.023	28.145	0.000
	item 3	0.65	0.023	28.547	0.000
	item 4	0.62	0.023	26.615	0.000
Entrepreneurial Alertness	Entrepreneurial Alertness – Scanning and Search	0.099	0.019	5.106	0.000

Table 4.1

Confirmatory Factor Analysis (Cont.)

Construct	Item	Loading Factor	S.E	Estimated S.E	Two-Tailed P-Value
Entrepreneurial Alertness	Entrepreneurial Alertness – Association and Connection	0.408	0.036	11.208	0.000
	Entrepreneurial Alertness – Evaluation and Judgement	0.177	0.028	6.365	0.000
Entrepreneurial Intention (CR = 0.93 SQRT AVE = 0.84)	item 1	0.661	0.02	32.817	0.000
	item 2	0.844	0.012	68.237	0.000
	item 3	0.747	0.017	45.127	0.000
	item 4	0.752	0.017	44.946	0.000
	item 5	0.803	0.014	55.812	0.000
	item 6	0.730	0.018	41.244	0.000
Learning from the module (CR = 0.83 SQRT AVE = 0.71)	item 1	0.599	0.024	25.25	0.000
	item 2	0.701	0.021	34.035	0.000
	item 3	0.791	0.018	43.987	0.000
	item 4	0.468	0.027	17.487	0.000
	item 5	0.531	0.026	20.732	0.000

Next, RMSEA (0.049) and SRMR (0.053) passed the criteria of less than 0.07 and 0.08 respectively. Although the values of CFI and TLI were slightly lower than the criteria of 0.95, the values of CFI and TLI were 0.947 and 0.941, respectively. Additionally, the Composite Reliability (CR) of all constructs exceeded the 0.7 benchmarks (Jena, 2020; do Paço, Ferreira, Raposo, Rodrigues & Dinis, 2011).

Specifically, the Composite Reliability of entrepreneurial passion, self-efficacy, entrepreneurial alertness – scanning and search, entrepreneurial alertness – association and connection, entrepreneurial alertness – evaluation and judgement, entrepreneurial intention and learning from the module were 0.89, 0.85, 0.78, 0.86, 0.84, 0.93 and 0.83 respectively. In addition, the construct average variance extracted (AVE) was greater than the benchmark of 0.5. The Average Variance Extracted values of entrepreneurial passion, self-efficacy, entrepreneurial alertness – association and connection, entrepreneurial alertness – evaluation and judgement, entrepreneurial intention and learning from the module were 0.5, 0.6, 0.68, 057, 0.7 and 0.51 respectively (Yang, 2013; Liñán & Chen, 2006). The only exception for Average Variance Extracted was entrepreneurial alertness – scanning and search (0.38). Furthermore, another exception was the chi-square/degree of freedom value (approximate 3.6). This chi-square value was higher than the benchmark of 2.0. Nevertheless, based on the overall criteria above, we confirmed that items in each construct were hanging together, and we used the average item value for each construct in the hypothesis testing section.

4.2 Hypothesis Testing

There were two hypothesis testing results i.e., step 1 and step 2. The first step only considered direct mediating effects of entrepreneurial intention pathways without moderating variables, while the second one focused on the moderating relationship of learning from the module for each pathway. Step 2 aimed to demonstrate the roles of the learning entrepreneurship module to build entrepreneurial intention at the university. The following paragraphs describe each step. The first step was implemented by using PROCESS Macro Model 4 with the samples of 920 university students. The control variables were age and 3 binary variables, including friend and sibling entrepreneurial background (yes = 1, no = 0), family entrepreneurial background (yes = 1, no = 0) and start-up experience (yes = 1, no = 0).

PROCESS Macro Model 4 demonstrated the significant relationships of both self-efficacy entrepreneurial and entrepreneurial pathways to intention. Therefore, learning from the module was added to the model as a moderator to find whether it showed different results for both pathways. We used PROCESS Macro Model 7 with the same target samples and the same control variables. Although the direct relationships between entrepreneurial passion and self-efficacy to entrepreneurial alertness remained significant at a 95% confidence interval, PROCESS Macro Model 7 showed different results for each pathway when we added learning from the module as a moderator. Learning from the module moderates the first-stage relationship between entrepreneurial passion and entrepreneurial alertness (p-value = 0.03). However, it did not moderate the relationship between entrepreneurial passion and self-efficacy (p-value = 0.55). Therefore, with moderating effect of learning from the module, only the entrepreneurial alertness pathway displayed a significant relationship at a 95% confidence interval.

We assessed the conditional indirect effects of entrepreneurial passion dependence on the entrepreneurial intention with learning from the module as a first-stage moderator using bias-corrected bootstrapped 95% CI. The conditional indirect effects were at ±1 standard deviation of learning from the module. Table 3.1 demonstrated the conditional indirect effect of entrepreneurial passion on intention via entrepreneurial alertness was positively correlated when learning from the module is both high and low as shown in Figure 3.1 (i.e. at mean +1 SD; indirect effect =0.1539, SE = 0.0411, 95% CI [0.0756, 0.2364] and i.e. at mean -1 SD; indirect effect =0.1491, SE = 0.0384, 95% CI [0.0715, 0.2246]). Similarly, Figure 3.2 showed the positive indirect effect of learning from the module on the self-efficacy pathway to intention (-1 SD; indirect effect = 0.1029 and +1 SD; indirect effect = 0.1212 respectively). For example, students with high perceived benefits of learning from the module had a high entrepreneurial intention, while low perceived benefits of learning from the module had a low entrepreneurial intention for both pathways i.e., self-efficacy and entrepreneurial alertness. The results of indirect effects were shown in Table 3.1.

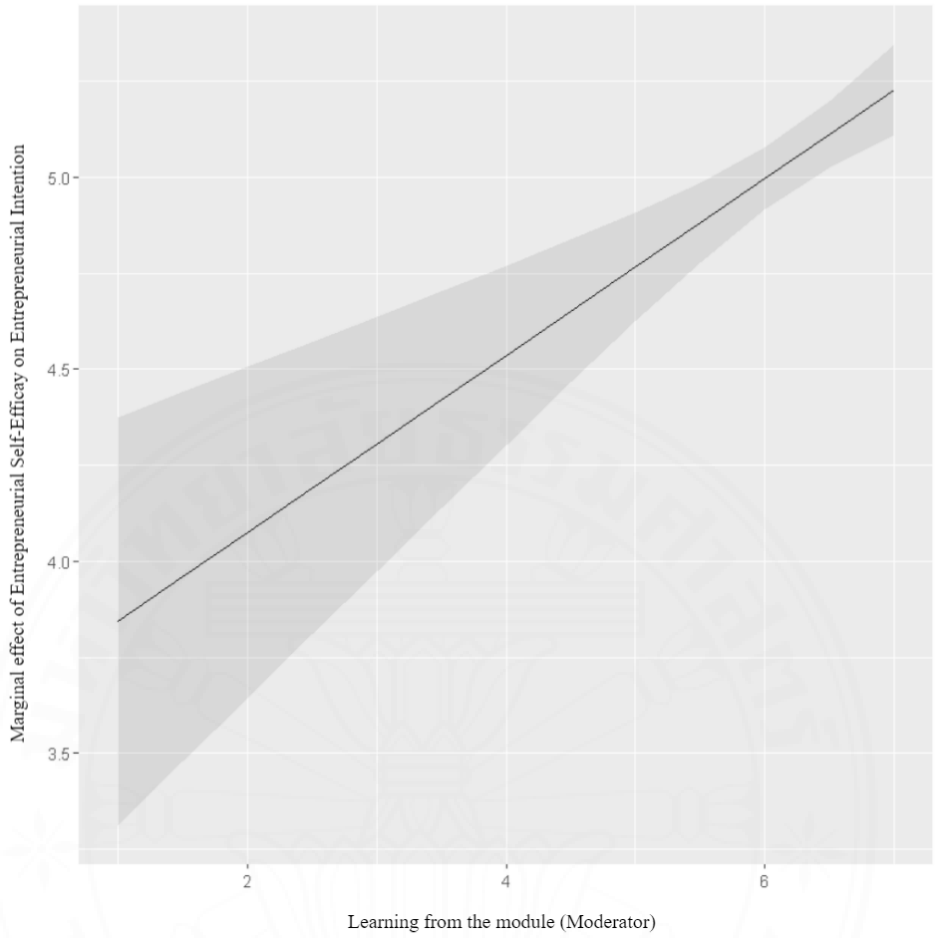

Figure 4.1 *Marginal effect plot for hypothesis 3*

Table 4.2

Indirect effects of learning from the module

Moderator	Conditional indirect effect		
	Level of estimate	B (SE)	CI
Self-efficacy	- 1 *SD*	0.1491	[0.0715, 0.2246]
	+ 1 *SD*	0.1539	[0.0726, 0.2290]
Entrepreneurial Alertness	- 1 *SD*	0.1029	[0.0558, 0.1571]
	+ 1 *SD*	0.1212	[0.0628, 0.1892]

Table 4.3

PROCESS Macro Model 4 and Model 7

	Model 4 (Mediation)						Model 7 (Moderated Mediation)					
	SE		EA		EI		SE		EA		EI	
	B (SE)	*P*	B (SE)	*p*	B (SE)	*p*	B (SE)	*p*	B (SE)	*p*	B (SE)	*p*
Constant	0.1488	0.0000	0.1761	0.0000	0.1925	0.0000	0.6799	0.3447	0.8066	0.0000	0.1925	0.0000
Entrepreneurial Passion (EP)	0.0247	0.0000	0.0293	0.0000	0.0442	0.0000	0.1259	0.0000	0.1494	0.1135	0.0442	0.0000
Self-efficacy (SE)					0.0471	0.0000					0.0471	0.0000
Entrepreneurial Alertness (EA)					0.0398	0.0000					0.0398	0.0000
Friend and Sibling Background	0.0695	0.9982	0.0823	0.4869	0.0866	0.8736	0.0685	0.8276	0.0813	0.6161	0.0866	0.8736
Family Background	0.0584	0.6913	0.0691	0.9667	0.0727	0.0016	0.0575	0.8371	0.0682	0.9298	0.0727	0.0016
Start-up experience	0.0684	0.3691	0.0810	0.1283	0.0853	0.8901	0.0674	0.3875	0.0799	0.1444	0.0853	0.8901
EP * Learning from the module							0.0214	0.5610	0.0254	0.0320		
Model Statistics												
R^2	0.5073		0.3521		0.5714		0.5238		0.3711		0.5714	
Overall Model F (F)	237.5868		125.3761		204.6771		168.8159		90.5888		204.6771	
df	921		921		921		921		921		921	

EI = Entrepreneurial Intention

B = Standard Error

P = p-value

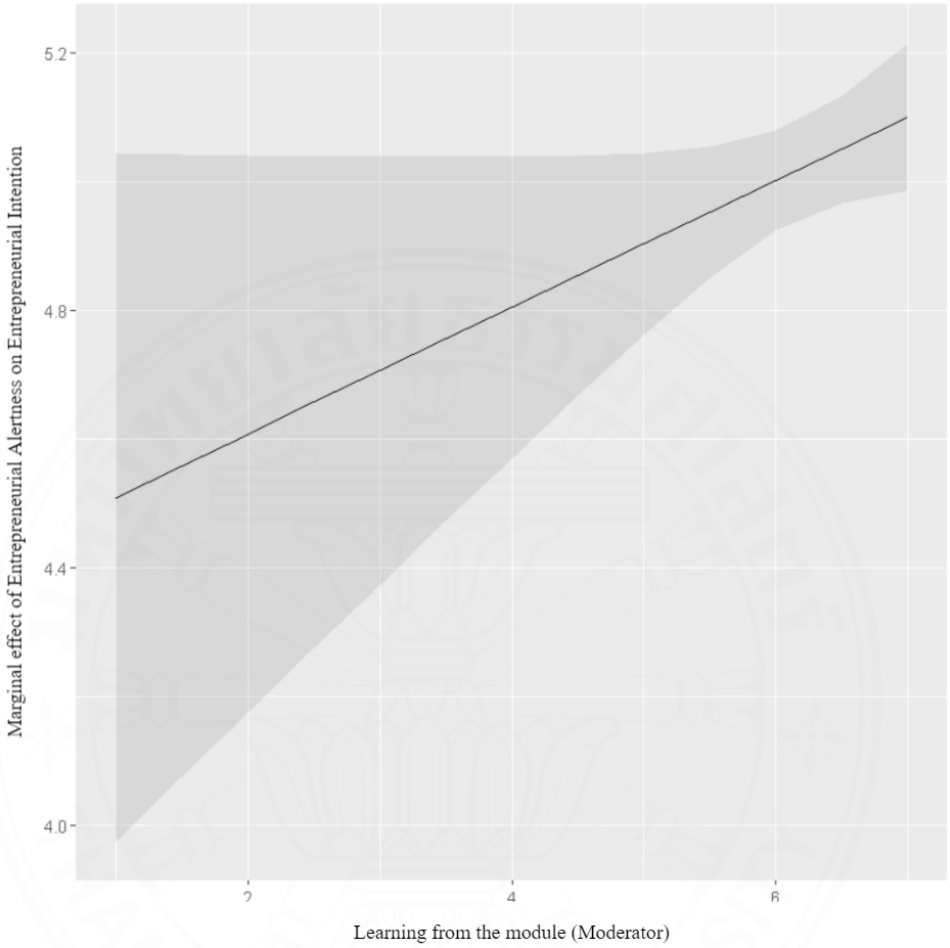

Figure 4.2 *Marginal effect plot for hypothesis 4*

4.3 Robustness and Additional Analyses

We compared 2 pairs of model results of PROCESS Macro and SEM, including PROCESS Macro Model 4 vs SEM Baseline Model and PROCESS Macro Model 7 and SEM with moderator. First, the results of PROCESS Macro Model 4 and SEM Baseline Model showed the same results. entrepreneurial passion influenced self-efficacy (PROCESS Macro: SE = 0.025 and p = 0.000; SEM: SE = 0.014 and p = 0.000) and entrepreneurial alertness (PROCESS Macro: SE = 0.029 and p = 0.000; SEM: SE = 0.018 and p = 0.000). Then, self-efficacy (PROCESS Macro: SE = 0.044 and p = 0.000;

SEM: SE = 0.041 and p = 0.000) and entrepreneurial alertness (PROCESS Macro: SE = 0.047 and p = 0.000; SEM: SE = 0.043 and p = 0.000) showed significant relationships on entrepreneurial intention. Therefore, both PROCESS Macro and SEM Baseline Model showed significant influenced for both self-Efficacy and entrepreneurial alertness pathways to entrepreneurial intention.

On the other hand, the overall results of PROCESS Macro Model 7 and SEM with moderator were similar. The relationships between entrepreneurial passion and self-efficacy (PROCESS Macro: SE = 0.013 and p = 0.00; SEM: SE = 0.062 and p = 0.000) were the same. However, the only exception was entrepreneurial passion and entrepreneurial alertness for both PROCESS Macro and SEM with moderator (PROCESS Macro: SE = 0.015 and p = 0.114; SEM: SE = 0.063 and p = 0.000), since PROCESS Macro did not display significant relationship, but SEM showed significant relationship. Next, self-efficacy (PROCESS Macro: SE = 0.044 and p = 0.000; SEM: SE = 0.073 and p = 0.000) and entrepreneurial alertness (PROCESS Macro: SE = 0.047 and p = 0.000; SEM: SE = 0.078 and p = 0.000) showed significant relationships on entrepreneurial intention. Furthermore, the moderating effect of learning from the module from both PROCESS Macro Model 7 and SEM with moderator were significant on entrepreneurial alertness pathway only (PROCESS Macro: SE = 0.025 and p = 0.032; SEM: SE = 0.036 and p = 0.043), while both models did not show significant relationship on self-efficacy pathway (PROCESS Macro: SE = 0.021 and p = 0.561; SEM: SE = 0.028 and p = 0.925).

Overall, it can be seen that learning from the module moderates the relationship between entrepreneurial passion and entrepreneurial alertness, while it did not moderate the relationship between entrepreneurial passion and self-efficacy. Also, self-efficacy moderated the relationships between entrepreneurial passion and entrepreneurial intention. Nevertheless, it is argued that the direct relationship between entrepreneurial passion and entrepreneurial alertness was significant because the results from PROCESS Macro Model 7 and SEM with moderator were slightly different. Therefore, the following discussions will focus on the moderating effects of learning from the module.

CHAPTER 5
DISCUSSION AND CONCLUSION

This section aims to make arguments based on two hypothesis testing results i.e., with and without learning from the module as a moderator. The first hypothesis focuses on the direct mediating pathway of entrepreneurial intention with Process Macro Model 4. We excluded moderating effects of learning from the module to test mediating effects of self-efficacy and entrepreneurial alertness. The results showed positive significant relationships for mediating pathways. The traditional self-efficacy pathway is positive, as many researchers claimed the mediating relationship in previous studies (Altinay, Madanoglu, Daniele & Lashley, 2012; Ajzen, 2011; Liu, Lin, Zhao & Zhao, 2019.). Among passionate entrepreneurs, individuals who believe in themselves tended to have strong entrepreneurial intention, similar to the findings of Naktiyok and Caglar (2009). Passion is a key factor for entrepreneurs to learn new knowledge and become more confident, which results in entrepreneurial intention. In addition, the mediating relationship between entrepreneurial passion, entrepreneurial alertness and the entrepreneurial intention was significantly positive (Souitaris et al, 2007). According to planned behaviour theory, entrepreneurial alertness is a behavioural variable. When passionate entrepreneurs try to seek new opportunities and evaluate the best one to pursue, they will also have the strong entrepreneurial intention to initiate new businesses.

The second testing result examined the moderating roles of learning from the module with Process Macro Model 7. Unlike Process Macro Model 4, the moderating effect of learning from the module only was only significant in the entrepreneurial alertness pathway, while it did not moderate the self-efficacy pathway. Therefore, there are two implications. The first one is self-confident and passionate individuals do not always need to learn from the module since they tend to have a strong sense of entrepreneurial intention. Because self-efficacy is a psychological and personal trait, learning from the module is not crucial in this context. The moderating effect of learning from the module to self-efficacy is controversial. Some studies

claimed a positive relationship because learning from the module can make passionate entrepreneurs more self-confident after they are equipped with entrepreneurial knowledge from the module they enrolled in (Hahn et al., 2017). However, other researchers stated self-efficacy is a personal trait and the module cannot significantly improve self-efficacy to the level that they will start an entrepreneurial career (Mei et al., 2020). The second argument focuses on the moderating effect of learning from the module on the entrepreneurial alertness pathway to intention. Unlike psychological self-efficacy, entrepreneurial alertness depends on individual behaviours and learning from the module can help enhance students learning behaviours. Therefore, students are positively affected by proper learning interventions from the module. Learning from the module is not only about entrepreneurship and managerial knowledge but also about entrepreneurial inspiration and how instructors or guest speakers motivate an individual towards an entrepreneurial career. Passionate students who perceived benefits from the entrepreneurship module will be keen on new opportunities (Newman et al., 2019) and this result might be the goal of learning from the module. The results were similar to previous studies' findings of the positive moderating effects of learning from the module (Moses et al., 2008; Islam, Ali & Niazi, 2018). Thus, it is clear that learning from the module moderates the relationship between entrepreneurial passion and entrepreneurial intention.

5.1 Theoretical Contribution

This study makes three main theoretical contributions. The first one is this study contributes to mediating pathways to entrepreneurial intention. It provides confirmation of the self-efficacy pathway and an explanation for the behavioural pathway, namely entrepreneurial alertness. Self-efficacy remains crucial for passionate entrepreneurs to create intention as previous research has found (Newman et al., 2019; Park, Jae Whan, Min & Jung Choi, 2016; Pihie, & Bagheri, 2013). Nevertheless, the major new contribution of this study was on the entrepreneurial alertness pathway as mentioned in literature gaps. The significant result of the alertness pathway with and

without moderating effects of learning from the module confirmed the strong relationship between entrepreneurial passion and entrepreneurial intention in these two conditions. A positive significant relationship showed this behavioural pathway is an alternative pathway to intention for passionate individuals in starting new ventures. Whether students are self-confident or not, when they are passionate, it can lead to entrepreneurial intention.

Second, this study generates new insights for the literature on educational context. The moderating effects of learning from the module in the entrepreneurial alertness pathway to intention shows the importance of perceived learning benefits in entrepreneurship classes for highly passionate students even though they are not self-confident. When individuals are alert to seek new opportunities, they tend to have new initiatives which lead to entrepreneurial intention. Furthermore, this study finds high self-confident students are not always affected by learning from the module, unlike some theoretical assumptions of previous studies (Oosterbeek, van Praag & Ijsselstein, 2010; von Graevenitz, Harhoff & Weber, 2010). One possible reason is high self-efficacy students may start their businesses even without the entrepreneurship module. Formal education can help students improve self-confidence, but someone who is already confident can initiate new businesses independently. Therefore, the moderating effects of learning from the module in the entrepreneurship context need to be studied further to verify the relationships of entrepreneurial passion, self-efficacy, and entrepreneurial intention.

Third, the entrepreneurial pathway model has mainly been studied in a western context, for example, in Europe and the United States. However, this study is based on exploring a new empirical context of this model in Thailand, which can be beneficial for future studies to enhance entrepreneurial pathways and develop entrepreneurship theory. The entrepreneurship module at the universities in Thailand is at an early stage. The contribution of this research aims to improve learning experiences in the higher education context in Thailand.

5.2 Strategic Implication

Building an entrepreneurship ecosystem is the key focus for several industrial sectors (Kirzner, 1973; Audretsch et al., 2002; Gilbert, Audretsch & McDougall, 2004; Acs & Szerb, 2007). The collaboration between public, private, government and educational institutes should support one another. The following paragraphs describe strategic implications from educators' and students' points of view.

From the educators' point of view, understanding the entrepreneurial alertness pathway is not only a preeminent strategic resource but also proof that behaviour leads to intention. Learning from the module is a significant factor in the entrepreneurial alertness pathway. Proper learning intervention becomes essential for passionate students with entrepreneurial alertness. In contrast, resources of entrepreneurial educators may be less focused on students with high self-efficacy. Instructors may monitor and provide guidance for self-confident students rather than provide a formal entrepreneurial education (Karimi, et al., 2016). However, some of the previous researchers find the perceived benefit from an entrepreneurship module showed a significant relationship for students through self-efficacy, but different teaching methods and learning environments also affected students' entrepreneurial intention (Barba-Sánchez & Atienza-Sahuquillo, 2018). To improve classes, instructors may need to conduct further research through both qualitative and quantitative methods. For instance, we may create a focus group with students who enrolled in the entrepreneurship module and conduct a survey to get more specific feedback on course improvement.

On the other hand, from the students' perspective, self-confidence is one of the most significant factors contributing to entrepreneurial intention. Like previous studies, the result of this study showed a positive relationship between self-efficacy and entrepreneurial intention without any moderating variable. Therefore, young entrepreneurs should be confident in what they do, and the intention will also be present. However, that is not the only way to become an entrepreneur. Being more proactive in seeking new opportunities and critically evaluating the most promising

ones to pursue is an alternative way to intention with the moderating effects of what they learnt from the entrepreneurship module. Also, learning from the module may not have significant positive effects on high self-confident students, since they tend to have entrepreneurial intentions.

5.3 Limitations and Future Research

This study has three main areas of limitations. The first limitation is that the data is collected at one point in time (Cross-sectional Data). We collect data for only one-time after students completed entrepreneurship classes at Thammasat University, however, a few variables are dynamic. For instance, the levels of entrepreneurial passion for students at the beginning and the end of the entrepreneurship module are different. Therefore, we may need to collect entrepreneurial passion before they study the entrepreneurship module in order to get a more realistic result. However, the data of self-efficacy, entrepreneurial alertness, learning from the module and entrepreneurial intention should be collected before the module after students complete the module because self-efficacy and entrepreneurial alertness were moderated by learning from the module, therefore the data should be collected at the same point in time.

The second limitation is convenient sampling. This sampling method was a non-probability sampling method, but it was selected because participants are easy to recruit in the entrepreneurship module from Thammasat University via Social Media group. Although convenient sampling did not tend to represent the entire population, the population of this study was students who enrolled entrepreneurship module at Thammasat University for many semesters. Also, the sample size of 920 was larger than the suggested sample size calculations (Ida Ketut, 2020) and sample size from previous literature (Sweet, 2012; Chabala, 2018; Nasiru, 2015). Therefore, the risk that convenient sampling did not represent the entire population was reduced, since the selected samples were closed to the entire population. Additionally, previous

literature suggested entrepreneurship studies usually use convenient sampling, especially in the education context (Anwar & Saleem, 2018).

The third limitation is limited access to entrepreneurship modules. Although Thammasat University has many entrepreneurship modules, the researcher can only access only one module with 920 students (namely TU109). The results collected from different entrepreneurship modules may be different from what we get from this module. However, TU109 has the largest number of students among entrepreneurship modules at Thammasat University.

Since we selected only one alternative mediating pathway from entrepreneurial passion to entrepreneurial intention via entrepreneurial alertness, therefore, we may select other types of relationships to entrepreneurial intention, such as direct effects. Additionally, a few interesting variables in the literature may be further investigated e.g., entrepreneurial effort, entrepreneurial inspiration. For entrepreneurial passion and entrepreneurial alertness, we can break it down into passion of founding and inventing (Biraglia et al., 2017), and alertness of scanning and search, association and connection and evaluation and judgement (Tang et al., 2012). Replicating the questionnaire with students from different educational backgrounds might lead to different results. Finally, the previous literature suggested separating students into business and economics, social science, STEM, and other groups. Also, this research was based on the quantitative method, which enabled a large volume of data to analyse with statistical methods. The researcher used convenient sampling methods based on one university in one specific country (i.e. Thammasat University in Thailand). Therefore, random sampling could be deployed to get more unbiased results in different regions or universities. Also, the sample size was 920 university students and all of them were in Generation Z. With these recommendations, our findings might not be applicable in a different context, for example, other universities or entrepreneurs in a different generation.

Overall, this study enriches the contemporary discussion about alternative pathways to entrepreneurial intention. We conclude that entrepreneurial alertness with the moderating effects of learning from the module can increase the level of

entrepreneurial intention for university students. However, we studied intention, not action. Future research may address the link between how intention leads to action, by following this group of students' past graduation and seeing whether they pursue an entrepreneurial career. Finally, learning interventions should be designed and gradually adjusted according to student feedback to find the best results for different educational contexts. Further research is required to enhance entrepreneurial intention in the educational context.

REFERENCES

Articles

Acs ZJ, Szerb L. (2007). Entrepreneurship, economic growth and public policy. *Small Bus Econ,* 28, 109–122

Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. Shah, I.A., Amjed, S. and Jaboob, S., 2020. The moderating role of entrepreneurship education in shaping entrepreneurial intentions. *Journal of Economic Structures*, *9*(1), pp.1-15.

Altinay, L., Madanoglu, M., Daniele, R. & Lashley, C. (2012). The influence of family tradition and psychological traits on entrepreneurial intention. *International Journal of hospitality management*, *31*(2), pp.489-499.

Anjum, T., Heidler, P., Amoozegar, A. & Anees, R.T. (2021). The Impact of Entrepreneurial Passion on the Entrepreneurial Intention; Moderating Impact of Perception of University Support. *Administrative Sciences*, *11*(2), p.45.

Anwar, I. & Saleem, I. (2018). Effect of entrepreneurial education on entrepreneurial intention of Indian students. *International Journal of Research*, *5*(12), pp.2306-2316.

Bacq, S. & Alt, E. (2018). Feeling capable and valued: A prosocial perspective on the link between empathy and social entrepreneurial intentions. *Journal of Business Venturing*, *33*(3), pp.333-350.

Bae, T.J., Qian, S., Miao, C. & Fiet, J.O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta–analytic review. *Entrepreneurship theory and practice*, *38*(2), pp.217-254.

Barba-Sánchez, V. & Atienza-Sahuquillo, C. (2018). Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics*, 24(1), 53-61.

Barton, M., Schaefer, R. & Canavati, S. (2018). To be or not to be a social entrepreneur: Motivational drivers amongst American business students. *Entrepreneurial Business and Economics Review*, *6*(1), pp.9-35.

Bazan, C., Gaultois, H., Shaikh, A., Gillespie, K., Frederick, S., Amjad, A., Yap, S., Finn, C., Rayner, J. & Belal, N. (2020). A systematic literature review of the influence of the university's environment and support system on the precursors of the social entrepreneurial intention of students. *Journal of Innovation and Entrepreneurship*, *9*(1), p.4.

Biraglia, A. & Kadile, V. (2017). The role of entrepreneurial passion and creativity in developing entrepreneurial intentions: Insights from American homebrewers. *Journal of Small Business Management*, *55*(1), pp.170-188.

Brice, J. (2004). The Role of Personality Dimensions on the Formation of Entrepreneurial Intentions.

Bux, S.R. & Honglin, Y. (2015). Analyzing the impact of the psychological characteristics on entrepreneurial intentions among university students. *Advances in Economics and Business*, *3*(6), pp.215-224.

Cardon, M.S., Wincent, J., Singh, J. & Drnovsek, M. (2009). The nature and experience of entrepreneurial

Chabala, M. (2018). 'Small firm growth in a Least Developed Country: How small firm owners affect the growth of their firms in Zambia', PhD, Vrije Universiteit Amsterdam.

Chavoushi, Z.H., Zali, M.R., Valliere, D., Faghih, N., Hejazi, R. & Dehkordi, A.M. (2020). Entrepreneurial alertness: A systematic literature review. *Journal of Small Business & Entrepreneurship*, pp.1-30.

Chen, S.C., Hsiao, H.C., Chang, J.C., Chou, C.M., Chen, C.P. & Shen, C.H. (2015). Can the entrepreneurship course improve the entrepreneurial intentions of students?. *International Entrepreneurship and Management Journal*, *11*(3), pp.557-569.

Costa, S.F., Santos, S.C., Wach, D. & Caetano, A. (2018). Recognizing opportunities across campus: The effects of cognitive training and entrepreneurial passion on the business opportunity prototype. *Journal of Small Business Management*, *56*(1), pp.51-75.

Craig, J. & Lindsay, N.J. (2002). Incorporating the family dynamic into the entrepreneurship process. *Journal of small Business and Enterprise development*.

do Paço, A.M.F., Ferreira, J.M., Raposo, M., Rodrigues, R.G. and Dinis, A. (2011). Behaviours and entrepreneurial intention: Empirical findings about secondary students. *Journal of International Entrepreneurship*, *9*(1), pp.20-38.

Drnovšek, M., Wincent, J. & Cardon, M.S. (2010). Entrepreneurial self-efficacy and business start-up: developing a multi-dimensional definition. *International journal of entrepreneurial behavior & research*.

Farzana, R. (2018). The Impact of Motivational Factors Towards Entrepreneurial Intention. *Journal of Modern Accounting and Auditing*, *14*(12), pp.639-647.

Fayolle, A. (2005). Evaluation of Entrepreneurship Education: Behaviour Performing or Intention Increasing. *International Journal of Entrepreneurship and Small Business*, 2 (1): 89-98

Feng, B. & Chen, M. (2020). The impact of entrepreneurial passion on psychology and behavior of entrepreneurs. *Frontiers in Psychology*, *11*, p.1733.

Stroe, S., Parida, V. and Wincent, J., 2018. Effectuation or causation: An fsQCA analysis of entrepreneurial passion, risk perception, and self-efficacy. *Journal of Business Research*, *89*, pp.265-272.

Ferreira, J.J., Raposo, M.L., Rodrigues, R.G., Dinis, A. & do Paço, A. (2012). A model of entrepreneurial intention: An application of the psychological and behavioral approaches. *Journal of small business and enterprise development*.

Georgescu, M.A. &Herman, E. (2020). The Impact of the Family Background on Students' Entrepreneurial Intentions: An Empirical Analysis. *Sustainability*, *12*(11), p.4775.

Gielnik, M.M., Spitzmuller, M., Schmitt, A., Klemann, D.K. & Frese, M. (2015). “I put in effort, therefore I am passionate”: Investigating the path from effort to passion in entrepreneurship. *Academy of Management Journal*, *58*(4), pp.1012-1031.

Gilbert AB, Audretsch DB, McDougall PP. (2004). The emergence of entrepreneurship policy. *Small Bus Econ,* 22, 313–323

Godin, G., Valois, P., Lepage, L. & Desharnais, R. (1992). Predictors of smoking behaviour: an application of Ajzen's theory of planned behaviour. *British journal of addiction*, *87*(9), pp.1335-1343.

Granjeiro, P.A. & da Paz, M.C. (2019). BUSINESS MODEL CANVAS E LEAN CANVAS. *EMPREENDEDORISMO UNIVERSITÁRIO*.

Hahn, D., Minola, T., Van Gils, A. & Huybrechts, J. (2017). Entrepreneurial education and learning at universities: exploring multilevel contingencies. *Entrepreneurship & Regional Development*, *29*(9-10), pp.945-974.

Hayton, J.C. & Cholakova, M. (2012). The role of affect in the creation and intentional pursuit of entrepreneurial ideas. *Entrepreneurship theory and practice*, *36*(1), pp.41-67.

Hussain, A., Mohammad, S. & Ahmed, P. (2016). Impact of entrepreneurial education on entrepreneurial alertness. *Journal of Social and Organizational Analysis*, pp.1-9.

Hutasuhut, S. (2018). The roles of entrepreneurship knowledge, self-efficacy, family, education, and gender on entrepreneurial intention. *Dinamika Pendidikan*, *13*(1), pp.90-105.

Ida Ketut, K. (2020). Understanding Entrepreneurial Intention: The Prediction of Entrepreneurial Behavior. *International Review of Management and Marketing*, *10*(4), pp.35-42.

Idrisu, A.A. (2015). AN ASSESSMENT OF ENTREPRENEURIAL INTENTION AMONG POSTGRADUATE STUDENTS IN NIGERIAN UNIVERSITIES. *Science (Management)*.

Idris, M.M.R., Mukhadis, A., Pali, M. & Akbar, A. (2018), June. The contribution of entrepreneurial learning towards entrepreneurial passion and entrepreneurial action choice of vocational students. In *Journal of Physics: Conference Series* (Vol. 1028, No. 1, p. 012082). IOP Publishing.

Islam, T., Ali, G. and Niazi, A.A.K., 2018. Entrepreneurial Intentions: The Role of Entrepreneurial Education. *Journal of Research & Reflections in Education (JRRE)*, *12*(1).

Jena, R.K. (2020). Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior*, *107*, p.106275.

Johannisson, B. (1990). Community entrepreneurship-cases and conceptualization. *Entrepreneurship & Regional Development*, *2*(1), pp.71-88.
Cardon, M.S. and Kirk, C.P., 2015. Entrepreneurial passion as mediator of the self–efficacy to persistence relationship. *Entrepreneurship theory and practice*, *39*(5), pp.1027-1050.

Johnson, J. & Mathew, S.K. (2017). Entrepreneurial Attitudes and Their Influence on the Entrepreneurial Intention. *Asian Journal of Research in Business Economics and Management*, *7*(8), pp.261-274.

Jones, A., Ingram, M.E. & Forbes, R. (2021). Physiotherapy new graduate self-efficacy and readiness for interprofessional collaboration: a mixed methods study. *Journal of interprofessional care*, *35*(1), pp.64-73.

Kabir, S.M., Haque, A. & Sarwar, A. (2017). Factors Affecting the Intention to Become an Entrepreneur: A Study from Bangladeshi Business Graduates Perspective. *International Journal of Engineering and Information Systems*, *1*(6), pp.10-19.

Karimi, S., Biemans, H. J., Lans, T., Chizari, M. & Mulder, M. (2016). The impact of entrepreneurship education: A study of Iranian students' entrepreneurial intentions and opportunity identification. *Journal of Small Business Management*, *54*(1), 187-209.

Kickul, J., Wilson, F., Marlino, D. & Barbosa, S. (2008). Are Misalignments of Perceptions and Self-efficacy Causing Gender Gaps in Entrepreneurial Intentions Among our Nation's Teens? *Journal of Small Business and Enterprise Development*, 15 (2): 321-335.

Kirzner, I. M. (1973). Competition and Entrepreneurship. Chicago: University of Chicago Press Audretsch DB, Thurik R, Verheul I, Wennekers S. 2002. Understanding entrepreneurship across countries and over time. *Kluwer Academic Publishers, Boston*, pp 1–10

Langowitz, N. & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship theory and practice*, *31*(3), pp.341-364. *passion* (Doctoral dissertation, Universiti Utara Malaysia).

Lee Lim, W., Lee, Y.L.E. & Ramasamy, R. (2014). Personality, prior knowledge, social capital and entrepreneurial intentions: Entrepreneurial alertness as mediator. *Social Capital and Entrepreneurial Intentions: Entrepreneurial Alertness as Mediator (January 22, 2014). Global Journal of Business and Social Science Review*, *2*(1), pp.68-78.

Lim, W.L. & Xavier, S.R. (2015). Opportunity recognition framework: Exploring the technology entrepreneurs. *American Journal of economics*, *5*(2), pp.105-111.

Liñán, F. & Chen, Y.W. (2006). Testing the entrepreneurial intention model on a two-country sample.

Liu, J. and Gu, J., 2017. The Role of Entrepreneurial Passion and Creativity in Entrepreneurial Intention: A Hierarchical Analysis of the Moderating Effect of Entrepreneurial Support Programs. *JEP*, *8*(36).

Liu, X., Lin, C., Zhao, G. & Zhao, D. (2019). Research on the Effects of Entrepreneurial Education and Entrepreneurial Self-Efficacy on College Students' Entrepreneurial Intention. *Frontiers in Psychology*, 10.

Li, L. & Wu, D. (2019). Entrepreneurial education and students' entrepreneurial intention: does team cooperation matter?. *Journal of Global Entrepreneurship Research*, *9*(1), pp.1-13.

Mahendra, A.M., Djatmika, E.T. & Hermawan, A. (2017). The Effect of Entrepreneurship Education on Entrepreneurial Intention Mediated by Motivation and Attitude among Management Students, State University of Malang, Indonesia. *International Education Studies*, *10*(9), pp.61-69.

McClelland, D. C. (1961). *The Achieving Society*. D. Van Norstrand Co Inc., Princeton, New Jersey

Mei, H., Lee, C.H. & Xiang, Y. (2020). Entrepreneurship Education and Students' Entrepreneurial Intention in Higher Education. *Education Sciences*, *10*(9), p.257.

Militaru, G., Deselnicu, D.C. & Ioanid, A. (2017). December. Investigating the moderating role of work experience on studentsentrepreneurial intentions: evidence from Romania. In *Balkan Region Conference on Engineering and Business Education* (Vol. 2, No. 1, pp. 71-78). Sciendo.

Mitton, D. G. (1989). The Complete Entrepreneur. *Entrepreneurship: Theory and Practice*, 13, 9-19

Montiel-Campos, H. (2018). The entrepreneurial passion-entrepreneurial alertness relationship: The moderating role of a creative personality. *Serbian Journal of Management*, *13*(2), pp.263-280.

Moorthy, R. & Annamalah, S. (2014). Consumers' perceptions towards motivational intentions of social entrepreneurs in Malaysia. *Review of Integrative Business and Economics Research*, *3*(1), p.257.

Moses, C., Efobi, U. & Salako, I.F. (2008). Effect of Entrepreneurship Education on Students' Entrepreneurial Actions: A Study of Covenant University and Babcock University Students, Ogun State. *The Nigerian Accounting Horizon*, *2*(2), pp.52-63.

Mottese, A.F., Albergamo, A., Bartolomeo, G., Bua, G.D., Rando, R., De Pasquale, P., Saija, E., Donato, D. & Dugo, G. (2018). Evaluation of fatty acids and inorganic elements by multivariate statistics for the traceability of the Sicilian Capparis spinosa L. *Journal of Food Composition and Analysis*, *72*, pp.66-74.

Mwasalwiba, E. S. (2010). Entrepreneurship education: A review of its objectives, teaching methods, and impact indicators. *IEEE Engineering Management Review, 40*(1), 72–94.

Nabi, G., Liñán, F., Fayolle, A., Krueger, N. & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, *16*(2), pp.277-299.

Naktiyok, A., Nur Karabey, C. & Caglar Gulluce, A. (2009). Entrepreneurial self-efficacy and entrepreneurial intention: the Turkish case. *International Entrepreneurship and Management Journal*, 6(4), pp.419-435.

Nasiru, A. (2015). *The relationship between perceived effective entrepreneurship education and entrepreneurial intention: the role of perception of university support, perceived creativity disposition and entrepreneurial*

Ndofirepi, T.M. & Rambe, P. (2017). Entrepreneurship education and its impact on the entrepreneurship career intentions of vocational education students. *Problems and perspectives in management*, (15, Iss. 1 (cont.)), pp.191-199.

Neneh, B.N. (2020). Entrepreneurial passion and entrepreneurial intention: the role of social support and entrepreneurial self-efficacy. *Studies in Higher Education*, pp.1-17.

Newman, A., Obschonka, M., Schwarz, S., Cohen, M. & Nielsen, I. (2019). Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of Vocational Behavior*, *110*, pp.403-419.

Nguyen, C. (2018). Demographic factors, family background and prior self-employment on entrepreneurial intention-Vietnamese business students are different: why?. *Journal of Global Entrepreneurship Research*, *8*(1), pp.1-17.

Nikou, S., Brännback, M., Carsrud, A.L. & Brush, C.G. (2019). Entrepreneurial intentions and gender: pathways to start-up. *International Journal of Gender and Entrepreneurship*.

Noreña-Chavez, D. & Guevara, R. (2020). Entrepreneurial passion and self-efficacy as factors explaining innovative behaviour: a mediation model.

ODIJIE, K. and ADEDOYIN, S., Effect of Entrepreneurship Education on Entrepreneurial Intention of Polytechnic Students.

Oosterbeek, H., van Praag, M. & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442-454.

Park, Jae Whan. & Min, Jung Choi. (2016). The Impact of Entrepreneurial Self-Efficacy on the Entrepreneurial Intention of University Students: The Moderating Effect of Regulatory Focus. *Asia-Pacific Journal of Business Venturing and Entrepreneurship*, 11(2), pp.9-19.

Pihie, Z. & Bagheri, A. (2013). Self-Efficacy and Entrepreneurial Intention: The Mediation Effect of Self-Regulation. *Vocations and Learning*, 6(3), pp.385-401.

Politis, K., Ketikidis, P., Diamantidis, A.D. & Lazuras, L. (2016). An investigation of social entrepreneurial intentions formation among South-East European postgraduate students. *Journal of Small Business and Enterprise Development*.

Raposo, M. & Do Paço, A. (2011). Entrepreneurship education: Relationship between education and entrepreneurial activity. *Psicothema*, *23*(3), pp.453-457.

Rasmussen, E.A. & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation*, *26*(2), pp.185-194.

Robinson, P. B., Stimpson, D. V., Huefner, J. C. & Hunt, H. K. (1991). An Attitude Approach to the Prediction of Entrepreneurship. *Entrepreneurship: Theory and Practice*, 15, 13-31

Saboor, M.J., Yousaf, I. & Paracha, A. (2020). Entrepreneurial Passion and Intention: Creativity and Perceived Behavioral Control as Mediators. *Journal of Managerial Sciences*, *14*.

Salleh, M.N.M., Tasnim, R., Alwi, S., Hassan, M.S. & Zainuddin, N.M. (2021). The Fintech Based Entrepreneurs" Intention: A Significant Entrepreneurial Alertness towards Entrepreneurs" Intention in Financial Services Transformation.

Samo, A.H. & Hashim, N. (2016). The impact of entrepreneurial alertness on entrepreneurial intentions. *Journal of International Business Research and Marketing*, *1*(6), pp.7-11.

Sang, D. & Lin, J. (2019). How does Entrepreneurial Education Influence the Entrepreneurial Intention of College Students: The Moderating and Mediating Effects of Entrepreneurial Alertness. *International journal of emerging technologies in learning*, *14*(8).

Setiawana, R., Hamdanib, N.A., Solihatc, A., Mubarokd, T.M.S., Nugrahae, S., Fatah, G.A. & Maulanif, I.P. (2019). Does Entrepreneurial Knowledge Affect Self-Efficacy and Impact on Entrepreneurial Interest?. *Education*.

Shahverdi, M., Ismail, K. & Qureshi, M. (2018). The effect of perceived barriers on social entrepreneurship intention in Malaysian universities: The moderating role of education. *Management Science Letters*, *8*(5), pp.341-352.

Shittu, A.I. & Dosunmu, Z. (2014). Family background and entrepreneurial intention of fresh graduates in nigeria. *Journal of Poverty, Investment and Development*, *5*(1), pp.78-90.

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

Støren, L.A. (2014). Entrepreneurship in higher education-impacts on graduates' entrepreneurial intentions, activity and learning outcome.

Sweet, S.F. (2012). An exploration of the relationship between length of prior employment, individual unlearning, and entrepreneurial alertness.

Tang, J., Kacmar, K.M.M. & Busenitz, L. (2012). Entrepreneurial alertness in the pursuit of new opportunities. *Journal of business venturing*, *27*(1), pp.77-94.

Tan, L.P., Le, A.N.H. & Xuan, L.P. (2020). A systematic literature review on social entrepreneurial intention. *Journal of Social Entrepreneurship*, *11*(3), pp.241-256.

Tiwari, P., Bhat, A.K. & Tikoria, J. (2017). Predictors of social entrepreneurial intention: an empirical study. *South Asian Journal of Business Studies*.

Tong, X.F., Tong, D.Y.K. & Loy, L.C. (2011). Factors influencing entrepreneurial intention among university students. *International journal of social sciences and humanity studies*, *3*(1), pp.487-496.

Tshikovhi, N. & Shambare, R. (2015). Entrepreneurial knowledge, personal attitudes, and entrepreneurship intentions among South African Enactus students. *Problems and Perspectives in Management*, (13, Iss. 1 (contin.)), pp.152-158.

Turner, T. and Gianiodis, P., 2018. Entrepreneurship unleashed: Understanding entrepreneurial education outside of the business school. *Journal of Small Business Management*, *56*(1), pp.131-149.

Urban, B. (2020). Entrepreneurial alertness, self-efficacy and social entrepreneurship intentions. *Journal of Small Business and Enterprise Development*.

Uy, M.A., Foo, M.D. & Ilies, R. (2015). Perceived progress variability and entrepreneurial effort intensity: The moderating role of venture goal commitment. *Journal of Business Venturing*, *30*(3), pp.375-389.

von Graevenitz, G., Harhoff, D. & Weber, R. (2010). The effects of entrepreneurship education. Journal of Economic Behavior & Organization, 76(1), 90–112.

Yang, J. (2013). The theory of planned behavior and prediction of entrepreneurial intention among Chinese undergraduates. *Social Behavior and Personality: an international journal*, *41*(3), pp.367-376.

Zellweger, T., Sieger, P. & Halter, F. (2011). Should I stay or should I go? Career choice intentions of students with family business background. *Journal of business venturing*, *26*(5), pp.521-536.

Zhang, Y., Duysters, G. & Cloodt, M. (2014). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International entrepreneurship and management journal*, *10*(3), pp.623-641.

Electronic Media

SCB. (2020). *Thailand behind Covid-19 Prepare to get through the perspective of an economist on Facebook SCB Thailand*, Retrieved October 4, 2021, https://www.scb.co.th/en/personal-banking/stories/business-maker/thailand-after-covid-ep2.html