

RESEARCH ARTICLE

The Structural Equation Model of Nascent Entrepreneurial Behavior among Undergraduate Students in Thailand

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Abstract: Previous studies have investigated entrepreneurial behavior but failed to pinpoint nascent entrepreneurial behavior (NEB) and its underlying causal factors. Potential universities are required to cooperate with government agencies to promote and support students, researchers, and entrepreneurs access the resources necessary for innovation-driven enterprises. As entrepreneurial universities, Thai universities will act as the new engine for national growth. This research aimed to develop, validate, and evaluate the invariance of the structural equation model (SEM) of NEB among Thai undergraduate students. Data were collected using a questionnaire survey with a Cronbach's alpha between 0.723 and 0.903, which was applied to a sample of 1,272 students. Later, data were analyzed using LISREL software. The results showed that the constructed SEM was congruent with the empirical data at a very high level. Fifty-three percent of the variance of NEB was explained by causal factors. Attitude (ATT) was shown to have a direct effect on NEB at the highest level, followed by social norm (SN), and entrepreneurial intention (EI), respectively. This result suggested that actual EI depends not only on the policies launched by government sectors and universities, but also the awareness level of students towards such policies. Therefore, entrepreneurship behavior should be promoted continually for emphasis on NEB.

Keywords: Entrepreneurship, Incubating start-ups, Theory of Planned Behavior

In Thailand, entrepreneurship needs to be promoted, particularly for producing graduates who can drive economic growth (Choosin, 2018; Smithikrai, 2005). Becoming an entrepreneur has gained increasing interest among people due to the independence and self-control involved. From a micro-level perspective, changes in social, economic, and political environments affect survival opportunities for small-to-medium enterprises (SMEs). From a macro-level perspective, econometric studies indicate that start-ups significantly influence job creation, innovation, and economic

growth (Gelderen et al., 2008; Teangsompong & Sirisunhirun, 2018). Accordingly, the policies of economic system restructuring need to accelerate start-ups development for being a New Economic Warrior (NEW), thus enabling the utilization of national resources in manufacturing value-added products and services, creating jobs in local communities, and regionally distributing income within the country (National Innovation Agency, 2018).

The Start-ups Promotion Plan of Thailand (2016–2021; Office of the Permanent Secretary, 2016)

assigned universities to take the role of raising awareness and alertness, as well as incubating start-ups, managing innovation, transferring knowledge and technology, and driving universities to be locations for creating ideas and innovation. This plan will be the basis for economic development and economic system restructuring. To fulfill the plan, visions should be set for universities with high potential to transform them into entrepreneurial universities. Potential universities are required to cooperate with government agencies to promote and support students, researchers, and entrepreneurs to access resources that are necessary for innovation-driven enterprises (IDEs). As a result, the potential universities will become entrepreneurial universities and later become the new engine of national growth (National Innovation Agency, 2018).

Previous studies have pointed out that Thai undergraduate students have fair entrepreneurial characteristics, even though they possess a highly positive entrepreneurial attitude. A very high level of awareness concerning support from influencers, such as family members and lecturers, was identified, but only fair entrepreneurial intention (Smithikrai, 2005). Adam and Fayolle (2015) pointed out that previous studies aimed to investigate nascent entrepreneurial behavior (NEB). However, our literature search identified no studies that tried to pinpoint NEB or its underlying causal factors. The roles of Thai universities must emphasize producing graduates to align with the visions that promote entrepreneurial behaviors of students during their study at universities. Consequently, this study aims to thoroughly understand NEB to establish guidelines and readiness preparation so that the Start-ups Promotion Plan of Thailand can be successful.

Literature Review

There is existing research on the history of study methods. The origin of entrepreneurship was in 1755 (Landstrom, 2005). Myers (2014) divided entrepreneurship into three principal approaches: (a) entrepreneurship as a function of the economy, which focuses on the role of entrepreneurs in creating products and services that affect the economy; (b) entrepreneurship as a process, which is the specific study of a new venture process that searches for business opportunities; and (c) entrepreneur as an individual, which is mainly focused on understanding

the entrepreneur. The entrepreneur as an individual is later divided into three streams of research: the trait approach, the behavioral approach, and the cognitive approach (McStay, 2008). This research will focus on the cognitive approach to understand the entrepreneurial intention in the context of Thai university students, more specifically.

Entrepreneurship development requires multiple steps of complex processes and entrepreneurial behavior or NEB, which arises from strong entrepreneurial intention (EI; Bell & Bell, 2018). This is consistent with the theory of TPB (theory of planned behavior) or TPB's attitude and social norm as proposed by Ajzen (2002), which suggested all forms of behavior occur by planning, and they can be predicted by behavioral intention through attitude, social norm, and self-control. In other words, a given behavior or NEB occurs through the intention of an actor (Krueger, 2017). TPB is widely used to describe and predict human behavior (Lortie & Castogiovanni, 2015), which is considered a motivational theory or sometimes called the intention-based model. The intention-based model is also being studied in various countries about the factors affecting entrepreneurial intent, such as the personal psychological factors that affect traits and behaviors, leading to demographic factors such as age and education (Zanabazar & Jigjiddorj, 2020). Based on the preceding statement, hypothesis 1 (H_1) is proposed:

H_1 : EI has a direct effect on NEB.

EI refers to the determination to start a business as a new entrepreneur, which is synonymous with "intention" in Ajzen's (2002) theory of the TPB model. This is the starting point of the study to the present day. Initially, some type of intentionality towards the behavior will lead to a planned behavior. Therefore, intentions are considered motivational factors that affect behavior, which is measured by how much effort a person puts forth in the planning and realization of real behavior. Besides, intentions are mediator links between attitudes (ATT), subjective norms (SN), and perceived behavioral control (PBC) to behavior. PBC not only affects one's intentions but also directly affects one's behavior (Lortie & Castogiovanni, 2015).

Although studies are based on TPB by Ajzen (2002), most research has pointed out that the quality of students reflected either their entrepreneurial

potential (EP) or personal traits (e.g., skills and leadership, decision-making, and prospective business familiarity), and entrepreneurial potential or potential entrepreneur's determinants, which have an influence on EI (Ramli et al., 2018). For this reason, I aim to determine EI and NEB in two dimensions: (a) the main research problem and (b) the dependent variables of the structural equation model.

The scope of this study comprises (a) the specification of entrepreneurial potential (EP) has an impact on EI (Arroyo et al., 2014; García et al., 2017), which expands on the studies of TPB proposed by Ajzen (2002); (b) specification of EI has an impact on NEB (Bell & Bell, 2018; Fayolle et al., 2006; Katundu & Gabagambi, 2016; Krueger, 2017; Krueger

This study focuses specifically on constructing the conceptual framework for the research by using the four causal factors affecting EI and NEB, identified as follows:

1. ATT refers to an understanding and feelings towards action from oneself. ATT can be evaluated either positively or negatively towards entrepreneurship. According to TPB, people showing a positive attitude towards entrepreneurship tend to have a higher level of EI than those showing a negative attitude towards entrepreneurship (Mbawuni & Nimako, 2015; Yotongyos & Sukmaungma, 2016). Besides, ATT has a direct impact on PBC according to Ajzen's TPB. Adam and Fayolle (2015) suggested that the model of the entrepreneurial process bridging the gap between intention and behavior should be tested further for a better understanding of the psychological variables. This research aims to investigate the direct effects of ATT on behavior expanding from the TPB model. Based on the preceding statement, hypotheses 2-4 (H_2 - H_4) are:

H_2 : ATT has a direct effect on EI.

H_3 : ATT has a direct effect on PBC.

H_4 : ATT has a direct effect on NEB.

2. EP refers to the factors that explore the characteristics needed for multidimensional

entrepreneurship, that is, habits, human relationships, responsibility, core competency, patience, determination, leadership, working commitment, healthiness, financial readiness, business planning readiness, competitive readiness, business familiarity, and emotional stability. According to the aforementioned characteristics, people having higher EP tend to possess higher EI than those having lower EP (Arroyo et al., 2014; García et al., 2017; Phelan & Sharpley, 2012; Ramli et al., 2018). Based on the preceding statement, hypotheses 5-7 (H_5 - H_7) are:

H_5 : EP has a direct effect on EI.

H_6 : EP has a direct effect on NEB.

H_7 : EP has a direct effect on PBC.

3. SN refers to perception towards influencers who support the extent of action. In this case, the influencers are the people who are the closest to undergraduate students, such as family members, program lecturers, as well as persons who take part in the Startup Thailand Promotion Plan. SN has a direct impact on PBC (Zanabazar & Jigjiddorj, 2020). Once people are aware of the high level of support from influencers, they tend to possess higher entrepreneurial intention than those who are aware of less support from influencers (David & Lawal, 2018; Yotongyos & Sukmaungma, 2016). As mentioned earlier, Adam and Fayolle (2015) suggested that the model of the entrepreneurial process linking the gap between intention and behavior is worth testing for a better understanding of psychological variables because it leads to an increase in entrepreneurial behavior to become entrepreneurs and prompts automatic actions. This research aims to examine the direct effects of SN on behavior expanding from the TPB model. Based on the preceding statement, hypotheses 8-10 (H_8 - H_{10}) are:

H_8 : SN has a direct effect on EI.

H_9 : SN has a direct effect on PBC.

H_{10} : SN has a direct effect on NEB.

4. PBC refers to perception towards self-controllability. PBC includes the determination and effort of self-development planning in terms of the knowledge, skills, and capital of entrepreneurship. People who have higher PCB are more likely to possess higher EI than those who have lower PCB (Bell & Bell, 2018; Lortie & Castogiovanni, 2015; Mbawuni & Nimako, 2015; Ramli et al., 2018; Yotongyos & Sukmaungma, 2016). Based on the preceding statement, hypotheses 11-12 (H_{11} - H_{12}) are:

H_{11} : PBC has a direct effect on EI.

H_{12} : PBC has a direct effect on NEB.

According to the reviewed literature, analysis of the causal factors that lead to EI and NEB is needed to construct a conceptual model of this research, as shown in Figure 1. This study aimed to construct and validate the structural equation model (SEM) of NEB among undergraduate students in Thailand.

Methods

Population and Sample

The population for this study consisted of first, second, third, and fourth-year undergraduate students

in the 2017 academic year. In total, 1,715,916 students were enrolled across Thai universities in that year (Office of the Education Council, 2018). A sample was chosen using multistage sampling by categorizing the students of all five regions into two groups: (a) universities located in metropolitan regions and (b) universities located in other regions. Multistage sampling was broken into two steps, as follows:

Step 1: Selecting universities by simple random sampling using a lottery method. One university in a metropolitan region (i.e., Nakhon Pathom Rajabhat University; NPRU) and four universities in other regions (Mahidol University Kanchanaburi Campus; MUKA, Rajamangala University of Technology Isan; RUTI, Vongchavalitkul University; VU and Kanchanaburi Rajabhat University; KRU) were chosen.

Step 2: Selecting students from each university by simple random sampling using a lottery method. At each university, 150 Business Administration (BA) students and 150 Science and Technology (SC) students were selected. In total, 1,500 questionnaires were distributed to five universities. However, only 1,272 questionnaires, that is, 534 from BA students

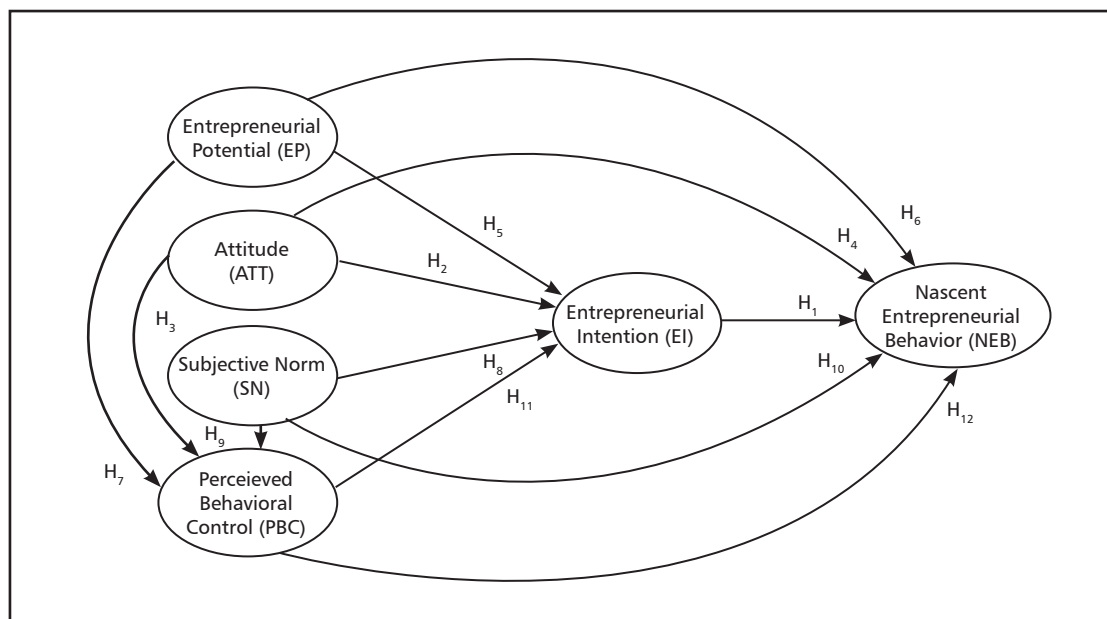


Figure 1. Conceptual Model of the Research

and 738 from SC students, contained complete answers (84.5% of total response rate) and were finally analyzed.

Sample Size Calculation

According to the criteria used in the sample size calculation for the structural equation modeling analysis, Hair et al. (2010) suggested a sample size of 10–20 respondents per one parameter estimation. In this study, at least 60 parameters were defined, meaning at least 600–1,200 respondents are needed for the analysis; 1,200 respondents were maximized as a reasonable sample size.

Research Procedures and Development of Research Instruments

Stage 1: The research procedures included (a) a literature review and assessment of related studies and (b) validation of the questionnaire by testing with a group of 30 undergraduate students possessing similar backgrounds to the samples. Subsequently, internal consistency was measured using Cronbach's alpha ($\alpha = .723-.903$), as presented in Table 4. The trial questionnaire consisted of both a check-listed question (Part 1: Background) and Likert scale type questions (Part 2-7: EP, ATT, SN, PBC, EI, and NEB). For the Likert scale questions, mark 1 represents "strongly disagree" and mark 5 represents "strongly agree."

Stage 2: Actual behavioral survey involves using the instrument developed in stage 1 to create the SEM of NEB among undergraduate students in Thailand to answer the research objective.

Data Collection

Secondary data was retrieved from several sources, including newspapers, magazines, websites, related articles, and reports. For the primary data, the research procedures methodology was ethically approved by the Institutional Review Board (IRB) of Mahidol University before data collection. Primary data were collected from self-administered questionnaires completed by 1,500 respondents between October 2018 and June 2019.

Data Analysis

Measuring congruence between the SEM of NEB among undergraduate students and empirical data was carried out using LISREL version 8.72. The proposed

SEM fits the empirical data well because all the indices met the respective criteria, such as goodness of fit index (GFI) at $p > .05$, $\chi^2/df < 2$, GFI $> .90$, standardized root mean square residual (SRMR) $< .05$, root mean square error of approximation (RMSEA) $< .05$, and significance of the t -value at $p < .05$ or $p < .01$.

Results

In this study, general information was gathered from 1,272 respondents' questionnaires comprised of 534 BA students (42%) and 738 SC students (58%). Of the total sample, 79.0% were females, and 21.0% were males, with 46.0% of the total sample being second-year students, 34.0% being third-year students, and 11.0% being fourth-year students. Only 8.0% were first-year students; each university provided 20% of the samples.

Some of the basic statistical indicators used in the model, as presented in Table 1, are demonstrated below.

1. BA group ($\bar{x} = 2.8-4.3$); the indicator possessing the highest mean was ATT-COG2 ($\bar{x} = 4.3$), whereas the indicator possessing the lowest mean was EI-INTENT7 ($\bar{x} = 2.8$).
2. SC group ($\bar{x} = 2.8-4.3$); the indicator possessing the highest mean was ATT-COG2 ($\bar{x} = 4.3$), whereas the indicator possessing the lowest mean was EI-INTENT7 ($\bar{x} = 2.8$).

Most indicators from both groups possessed negative values of skewness (SKE) and kurtosis (KUR), suggesting that the values of observed variables were mostly high. The values of SKE and KUR were not equal to zero but not less than $+2/-2$. The indication is that the values were close to zero, and the variables possessed normal distribution (George & Mallery, 2010).

Table 2 shows the validity of the SEM of NEB among undergraduate students. All values of goodness of fit indices pointed out the congruence with empirical data at a very high level ($\chi^2 = 106.716$, $df = 87$, $p = .074$, $\chi^2/df = 1.227$, $GFI = .992$, $SRMR = .019$, and $RMSEA = .013$). All factor loading values (β) passed with the criteria of $\geq .4$ (Ertz et al., 2016). The predictor coefficient (R^2) of the endogenous latent variable was NEB

Table 1*Values of Basic Statistical Indicators Used in the SEM (n=1,272)*

Groups		BA Group (n=534)						SC Group (n=738)					
Variables		Mean	SD	Min	Max	SKE	KUR	Mean	SD	Min	Max	SKE	KUR
ATT	X1	4.2	.77	1	5	-1.19	2.55	4.1	.73	2	5	-.61	.61
	X2	4.3	.67	1	5	1.00	2.63	4.3	.69	2	5	-.65	.14
	X3	4.2	.84	1	5	-1.03	1.24	4.0	.82	2	5	-.40	-.62
	X4	3.9	.80	1	5	-.41	.08	3.8	.74	3	5	.24	-.93
	X5	4.2	.79	1	5	-.83	.81	4.2	.68	3	5	-.31	-.56
	X6	4.1	.88	1	5	-.93	1.09	4.0	.76	2	5	-.44	-.14
	X7	4.1	.77	1	5	-.68	.62	4.0	.73	2	5	-.38	-.07
SN	X8	4.2	.79	1	5	-1.02	1.80	3.5	.86	1	5	-.46	.65
	X9	4.1	.79	1	5	-.84	.28	3.5	.86	1	5	-.49	.64
	X10	4.2	.83	1	5	-.81	.41	3.5	.92	1	5	-.33	.04
EP	X11	4.1	1.31	1	5	1.31	-1.11	3.5	1.55	1	5	-.41	-1.22
	X12	3.9	1.43	1	5	1.43	-.92	3.3	1.72	1	5	-.32	-1.57
	X13	3.6	1.42	1	5	1.42	-.51	3.1	1.63	1	5	-.11	-1.49
PCB	Y1	4.3	.68	1	5	-.74	.68	4.0	.74	1	5	-.52	.59
	Y2	4.2	.65	1	5	-.45	.36	3.8	.75	1	5	-.50	.54
	Y3	4.1	.75	1	5	-.34	-.71	3.8	.79	1	5	-.25	-.08
EI	Y4	2.8	1.12	1	5	.29	-.64	2.8	1.00	1	5	.31	.40
	Y5	3.0	1.05	1	5	.25	-.41	3.1	.88	1	5	-.13	.27
NEB	Y6	3.4	.90	1	5	-.09	-.19	3.1	1.01	1	5	-.11	-.39
	Y7	3.6	.90	1	5	-.35	-.08	3.3	1.02	1	5	-.20	-.62

Note: X1 = Being self-employed is a challenging career, X2 = Self-employed people must always be prepared, X3 = Being self-employed is interesting, X4 = Self-employed people can benefit you and the nation, X5 = Self-employed professionals can expand their business to a large size, X6 = I feel gratified if people are self-employed, X7 = Self-employment can create employment, X8 = Entrepreneurs can think and initiate new things themselves, X9 = Entrepreneurs can always persuade people to get involved, X10 = Entrepreneurs have the spirit to compete and create their own business strength, X11 = The state has a policy to promote entrepreneurship, X12 = The university offers entrepreneurship courses in education programs, X13 = Educational courses increase training hours for more entrepreneurial practice, Y1 = I prefer self-control for becoming an entrepreneur in the future, Y2 = I work hard to gain the knowledge, skills and capital necessary to become an entrepreneur in the future, Y3 = I have a clear plan to develop myself as an entrepreneur, Y4 = I definitely intend to attend an exhibition about self-employment in the future, Y5 = I intend to have an independent career in the future, Y6 = I intend to do business while studying to push myself to be an entrepreneur, Y7 = I definitely intend to plan being an entrepreneur in the future without hesitation to work.

($R^2 = .532$), indicating that the variance of NEB could be explained by all other latent variables.

Table 3 shows the results of construct validity. Construct validity revealed:

1. Convergent validity was found in the following two values: (a) all values of average variance

extract (AVE), except ATT value, passed the required criteria of $> .5$ (Hair et al., 2010) and (b) all values of CR were higher than the values of AVE (Malhotra & Dash, 2011), indicating that the indicators in each latent variable explained variance altogether at a high level.

Table 2

Factor Loading of Indicators Used in the SEM

Exogenous Latent Variables	Indicators	β	S.E.	t	R^2	FS	Endogenous Latent Variables	Indicators	β	S.E.	t	R^2	FS
ATT	X1	.608	.047	21.122	.370	.009	PBC ($R^2=.334$)	Y1	.968	-	-	.937	.809
	X2	.674	.049	24.709	.454	.146		Y2	.804	.029	24.732	.646	.611
	X3	.711	.036	26.371	.505	.118		Y3	.972	.026	34.225	.944	.966
	X4	.642	.040	23.083	.413	.093	EI ($R^2=.170$)	Y4	.647	-	-	.418	.125
	X5	.652	.050	23.046	.425	.129		Y5	.951	.120	8.772	.950	.867
	X6	.627	.052	19.679	.393	.184	NEB ($R^2=.532$)	Y6	.809	-	-	.654	.365
	X7	.559	.035	20.120	.312	.063		Y7	.787	.046	19.314	.619	.385
EP	X8	.553	.036	16.129	.305	.020	$\chi^2 = 106.716, df = 87, p = .074, \chi^2/df = 1.227,$ $GFI = .992, SRMR = .019, RMSEA = .013$						
	X9	.559	.051	15.493	.312	.036							
	X10	.443	.037	12.393	.196	.075							
SN	X11	.913	.057	37.627	.833	.082							
	X12	.902	.052	36.956	.813	.117							
	X13	.875	.034	35.862	.766	.150							

Table 3

Construct Validity, Discriminant Validity, and Correlation Coefficient (r) is Below the Diagonal Line, Square of Correlation Coefficient (r^2) is Above the Diagonal Line, and Square Root of AVE is Along the Diagonal Line

	CA	CR	AVE	MSV	ASV	PBC	EI	NEB	ATT	SN	EP
PBC	.838	.941	.843	.249	.162	.843	.000	.176	.200	.184	.201
EI	.723	.790	.662	.105	.027	.014	.662	.023	.003	.002	.105
NEB	.738	.778	.637	.378	.225	.419	.153	.637	.378	.362	.184
ATT	.816	.865	.487	.362	.200	.447	.058	.615	.487	.263	.157
SN	.903	.925	.804	.261	.191	.429	-.042	.602	.513	.804	.261
EP	.723	.670	.405	.591	.287	.499	-.324	.429	.396	.511	.450

Note: MSV stands for maximum shared variance; ASV stands for the average shared variance.

2. Discriminant validity or divergent validity was found in the following two values: (a) all values of AVE were higher than all values of r^2 , indicating that every pair of latent variables possessed discriminant validity (Farrell & Rudd, 2009) and (b) almost all values of MSV were lower than the values of AVE, whereas all values of ASV were lower than the values of AVE and the values of square root AVE (the diagonal line) were higher than the values of r (below the diagonal line). This could be interpreted as all latent variables showing discriminant validity (Hair et al., 2010).
3. Reliability estimation revealed (a) all values of Cronbach's alpha (CA) passed the required criteria of $> .7$, and (2) all values of construct reliability (CR) passed the required criteria of $> .7$ criteria (Hair et al., 2010).
4. According to the correlation matrix of latent variables, a majority of values of r among latent variables showed a positive correlation. The variables with the highest value of r were a pair of ATT and NEB ($r = .615$), followed by a pair of SN and NEB ($r = .602$).

According to Table 4, NEB gained direct effects from ATT, SN, EI, and EP, with effect sizes of .353, .328, .201 and .171, respectively, at a significance level of .01. NEB gained indirect effects from EP, ATT, PBC, and SN, with effect sizes of -.078, .046, .034, and .022, respectively, at significance levels of .01 and .05. In addition to the direct and indirect effects influencing NEB, the effects influencing a number of latent variables are demonstrated below.

1. EI gained direct effects from EP, PBC, and ATT, with effect sizes of -.500, .170, and .146, respectively, at a significance level of .01.
2. PBC gained direct effects from EP, ATT, and SN, with effect sizes of .334, .248, and .131, respectively, at a significance level of .01.

The development of the SEM of NEB among undergraduate students demonstrated that ATT, EP, SN, PBC, and EI were causal factors affecting NEB, as shown in Table 5 and Figure 2.

Table 4

Effect Sizes of the SEM

Dependent Variables	R^2	Effect	Independent Variables				
			ATT	EP	SN	PBC	EI
PBC	.334	DE	.248**	.334**	.131**		
		IE	—	—	—	—	—
		TE	.248**	.334**	.131**		
EI	.170	DE	.146**	-.500**	.066	.170**	
		IE	.042**	.057**	.022**	—	—
		TE	.188**	-.443**	.088**	.170**	
NEB	.532	DE	.353**	.171**	.328**	.032	.201**
		IE	.046**	-.078**	.022*	.034**	—
		TE	.339**	.092**	.350**	.066	.201**

Note: 1. * $p < .05$, ** $p < .01$ and $|t| > 1.96$ meaning $p < .05$, $|t| > 2.58$ meaning $p < .01$

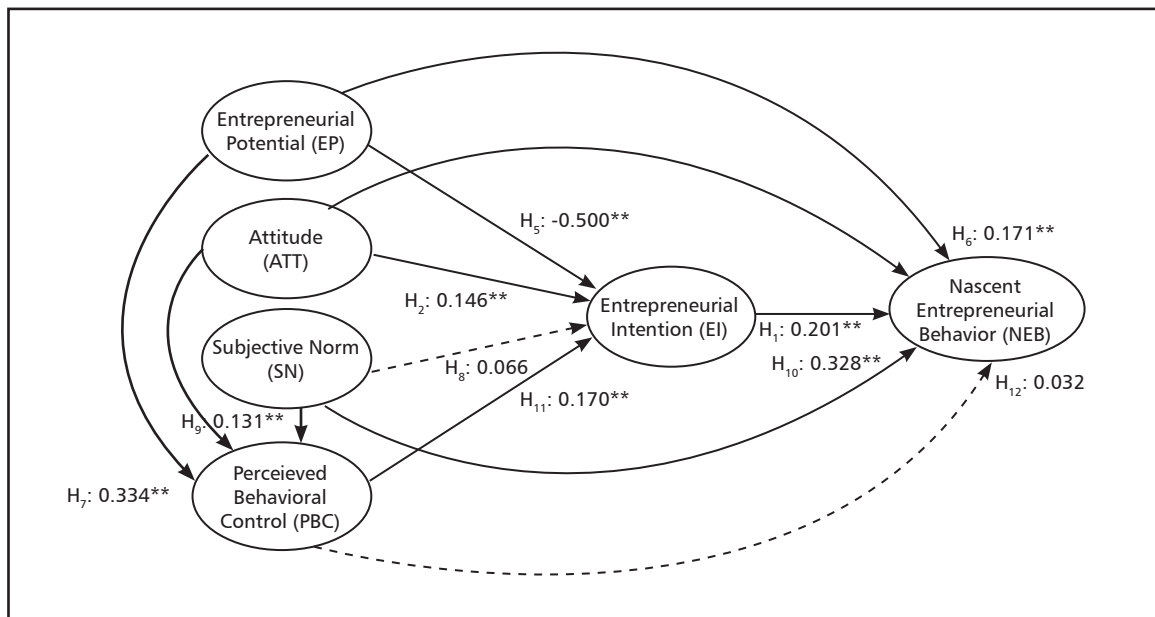


Figure 2. SEM of NEB among undergraduate students (Standardized values)

Table 5

Hypothesis Testing Results

Hypothesis	Coef.	t-value	Results
H ₁ : EI has a direct effect on NEB.	.201	5.234**	supported
H ₂ : ATT has a direct effect on EI.	.146	2.895**	supported
H ₃ : ATT has a direct effect on PBC.	.248	7.444**	supported
H ₄ : ATT has a direct effect on NEB.	.353	7.838**	supported
H ₅ : EP has a direct effect on EI.	-.500	-6.200**	supported
H ₆ : EP has a direct effect on NEB.	.171	2.638**	supported
H ₇ : EP has a direct effect on PBC.	.334	7.738**	supported
H ₈ : SN has a direct effect on EI.	.066	1.330	unsupported
H ₉ : SN has a direct effect on PBC.	.131	3.478**	supported
H ₁₀ : SN has a direct effect on NEB.	.328	7.049**	supported
H ₁₁ : PBC has a direct effect on EI.	.170	3.901**	supported
H ₁₂ : PBC has a direct effect on NEB.	.032	0.883	unsupported

Note: * $p < .05$, ** $p < .01$ and $|t| > 1.96$ meaning $p < .05$, $|t| > 2.58$ meaning $p < .01$

Discussion

The main objective of this research was to develop an SEM of NEB among undergraduate students in Thailand. The findings showed that all variables combined could predict 53.2% of NEB. Points of discussion concerning the effects of the causal fact, that is, EI, ATT, EP, SN, and PBC, on dependent variables are explained below.

EI has a Direct Effect on NEB (H_1)

The results were in line with TPB's attitude and SN proposed by Bell and Bell (2018) and Krueger (2017), which described that entrepreneurial behavior was formed by strong EI. Further, all kinds of behavior were planned, or any action was performed by intention. This study was also supported by a statement from Adam and Fayolle (2015), which suggested that EI was a person's commitment to achieving the goal of entrepreneurship. EI was related directly to NEB because both variables possessed an underlying relationship between intention and behavior. Accordingly, NEB would be performed once the goals of entrepreneurship had been set, for example, attending training programs or taking an entrepreneurial internship.

ATT has a Direct Effect on EI (H_2), PBC (H_3), and NEB (H_4)

ATT can be evaluated either positively or negatively towards entrepreneurship. According to TPB, people showing a positive attitude towards entrepreneurship tend to have a higher level of entrepreneurial intention than those showing a negative attitude towards entrepreneurship (Mbawuni & Nimako, 2015; Yotongyos & Sukmaungma, 2016). The direct effect of ATT on EI was supported by TPB, which indicated that the relationship between ATT and SN has a direct effect on PBC. Accordingly, once entrepreneurship intention has been targeted and reference groups have agreed on private business ownership, a person tends to perform PBC and thereby comes up with self-development plans to aim for achievement (Mbawuni & Nimako, 2015; Yotongyos & Sukmaungma, 2016). Meanwhile, ATT directly affects NEB, implying that students showed a positive attitude to self-employment towards NEB. They tend to do business while studying to push themselves to be entrepreneurs. Additionally, they tend to plan for being an entrepreneur in the future. In this study, students probably showed a clearer

understanding and perception of personal actions. Thus, they evaluated all aspects of attitudes towards entrepreneurship in positive ways at an extremely high level. Attitude showed a higher effect than all other variables in the model, suggesting undergraduate students can understand and become aware of entrepreneurship from the policies of government sectors, universities, and news from various sources, as well as those who most likely present successful entrepreneurship continuously.

EP has a Direct Effect on EI (H_5), NEB (H_6), and PBC (H_7)

The results were in line with hypotheses about personal potential; a person with high potential tends to possess higher entrepreneurship intention than those with low potential (García et al., 2017; Phelan & Sharpley, 2012; Ramli et al., 2018). Ramli et al. (2018) found that the quality of students can reflect their EP or their personality traits in terms of skills and leadership, decision-making, and business familiarity. All aforementioned EP or personal traits possessed an influential effect on EI because it will enable students to have the multi-faceted characteristics needed for being successful entrepreneurs. Multi-faceted characteristics include personal habits, human relationships, responsibility, core competency, patience, determination, leadership, working determination, healthiness, financial readiness, business planning readiness, competitive readiness, business familiarity, and emotional stability. Meanwhile, the students can improve their skills when they become aware of a policy to promote entrepreneurship, entrepreneurship courses in education, and training hours for more entrepreneurial practice. They tend to do business while studying to push themselves to be entrepreneurs, or they tend to plan for being an entrepreneur in the future. Therefore, a person possessing several aspects of EP, that is, leadership, determination, and responsibility, tends to possess self-controllability and developmental plans to aim for career achievement.

SN has a Direct Effect on EI (H_8), PBC (H_9), and NEB (H_{10})

First, EI gained a direct effect from SN, but with no statistical significance. This result was not in line with the hypothesis that predicted the extent of perceptions on the importance of other people in support of entrepreneurship solicited responding

actions (David & Lawal, 2018). Accordingly, a person tends to show low entrepreneurship intention due to the disclosure of the importance of the university and a lack of support in entrepreneurship despite the close relationship between the curriculum and university aiming to raise social engagement and awareness on the importance of entrepreneurship. Second, PBC gained a direct effect from SN. This hypothesis was supported by TPB, which pointed out that the relationship between ATT and SN has a direct effect on PBC. As a result, a person tends to perform PBC and thereby comes up with self-development plans to aim for achievement once entrepreneurship intention has been targeted and reference groups have agreed on private business ownership (Mbawuni & Nimako, 2015; Yotongyos & Sukmaungma, 2016). Finally, SN has a direct effect on NEB. This result correlated with the findings demonstrated by David and Lawal (2018), showing that a person recognizing other people as important supporters in entrepreneurship tends to possess higher EI. This may be caused by perceptions of importance among other people in society, especially when universities have an important role in supporting entrepreneurship and a close relationship between students from the curriculum offered by universities that aim at social engagement to raise students' awareness of the importance of entrepreneurship. From the study, SN also has a direct effect on NEB. The direct effect of SN on NEB implies that students adopt some ideas from society; for example, entrepreneurs can think and initiate new things themselves, entrepreneurs can always persuade people to get involved, and entrepreneurs have the spirit to compete to create their own business strength. Therefore, they tend to do business while studying to push themselves to be entrepreneurs, or they tend to plan for being entrepreneurs in the future.

PBC has a Direct Effect on EI (H_{11}), and NEB (H_{12})

EI gained a direct effect from PBC. PBC includes the determination and effort for self-development planning in terms of knowledge, skills, and capital of entrepreneurship to become an entrepreneur, thereby creating higher EI (Bell & Bell, 2018; Mbawuni & Nimako, 2015; Ramli et al., 2018; Yotongyos & Sukmaungma, 2016). However, NEB gained no direct effect from PBC. This may be caused by a high level of NEB, by which a person possesses PBC for a short

period of time and, in turn, may have a direct effect solely on EI. The intention may not be strong enough to perform NEB due to hesitation or a lack of PBC.

In conclusion, the study of entrepreneurial behavior led to four causal factor groups when subdividing the entrepreneurial behavior into NEB. The expansion of the variable scope was conducted based on TPB and related studies gaining ATT, EP, SN, and PBC. All variables were used to develop the SEM, which can identify the direct and indirect effects among variables for a phenomenological explanation. According to the results, all four causal factor groups affected both direct and indirect effects. These findings will be useful as promotional guidelines for further curriculum development in related contexts.

Recommendations for the Utilization of Research Findings

In this study, the causal factors affecting NEB among undergraduate students at the highest level were ATT, followed by SN, EI, and EP, respectively. Therefore, the following recommendations are provided:

1. Policies should be implemented by universities aimed at steadily raising undergraduate students' awareness and recognition concerning the importance of entrepreneurship, particularly to help students understand the influential effects of environmental aspects affecting future careers in the national, ASEAN, and global contexts.
2. Learning content leading to outcome-based education (OBE) should be implemented in every single lesson or curricula, including BA and other related fields, by making various improvements in terms of contents and activities to promote the desired outcomes as well as the recognition of entrepreneurship. Pedagogically, activities promoting self-perception on potential should also be increased, such as discussions and knowledge exchange. Moreover, productive advice should be provided individually to students to maintain or develop their potential to meet individual needs. Obviously, a more positive attitude contributes to a higher level of NEB.

Recommendations for Further Studies

Due to several limitations of this study (e.g., different educational levels, curricula, and universities), the findings presented in this study may not be generalized to all sample groups. Thus, the sample size should be increased in future studies to generate a more reliable evaluation of the causal factors affecting NEB.

As for NEB promotion, work is required in several aspects in collaboration with government sectors, private sectors, family institutions, and educational institutions. Accordingly, influential variables affecting NEB at each level should be investigated further. In addition, some statistical techniques should be applied for data analysis, for example, multiple group analysis and longitudinal data analysis.

The study of NEB based on the EI model and socio-psychological approaches should be used for identifying the gap between intention and behavior with emphasis on the roles of commitment and implementation intention. The in-depth details of latent variables influencing intention and behavior should be emphasized in terms of more specific measuring instruments, and continuous effect testing for curriculum planning and development, teaching and learning management, as well as new approaches in human development, for example, life-long learning promotion.

Declaration of Ownership

This report is our original work.

Conflict of Interest

None.

Ethical Clearance

This study was approved by the Institutional Review Board (IRB) of Mahidol University (Certificate of Approval No. 2018/036.2002).

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