

RESEARCH ARTICLE

# Increasing Entrepreneurial Intention with the Application of Experiential Learning Theory: An Innovative Learning Method and Empirical Test

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**Abstract:** Entrepreneurship is widely recognized by many scholars and the governments around the world as an essential driver of the economic prosperity. Over the past decades, entrepreneurship research has sought to understand the creation and execution of the entrepreneurial activity, with entrepreneurial intention becoming recognized as an excellent predictor of entrepreneurship activity and its subsequent consequences. As such, the researchers delved into how an entrepreneur's intention is affected by their educational process, with the role of opportunity evaluation examined by the use of Experiential Learning Theory [ELT]. *Liñán's* Entrepreneurial Intention [EI] Model was used to help with the evaluation of the study's perceived desirability and perceived feasibility as the sources of entrepreneurial intention. From this process, an innovative learning method named 'opportunity evaluation through experiential learning [OETEL]' was developed and applied, from which it was hypothesized that OETEL would mediate perceived desirability, perceived feasibility, and entrepreneurial intention. This was subsequently followed by the participation of 160 Thai university students who participated in the OETEL experiment through their entrepreneurship activities. From the use of the SPSS PROCESS macro, results revealed that the OETEL process affected perceived desirability, perceived feasibility, and entrepreneurial intention significantly. Furthermore, the results revealed how the innovative learning application of experiential learning theory affects entrepreneurial intention. Practitioners can adapt this teaching method in entrepreneurial classrooms and policymakers can strategically encourage experiential learning in entrepreneurship education programs.

**Keywords:** experiential learning, entrepreneurial intention, OETEL, opportunity evaluation, Theory of Planned Behavior

Influenced by the evolution of an open innovation era, we are currently witnessing a dramatic transformation of industries and business landscapes. Entrepreneurs make use of open innovation by leveraging external knowledge and commercialization opportunities by managing the flows of innovation-related knowledge and technologies across corporate boundaries (West & Bogers, 2013).

Krueger and Carsrud (1993), have also indicated that in entrepreneurial behavior research, entrepreneurial intention is considered one of the better predictors of entrepreneurship. This is consistent with Ajzen (1991) and Armitage and Conner (2001) which have also reported that intentions are good predictors of behavior. Other researchers have also made connections between entrepreneurial intention and entrepreneurship education, as it is one of the few measurable outcomes (Fitzsimmons & Douglas, 2011; Franke & Luthje, 2004).

Holcombe (2003, p.25) stated that "Entrepreneurship occurs when an individual acts to take advantage of a profit opportunity that presents itself in the economy." Filion (1999) also indicated that entrepreneurship is the ability to take advantage of new opportunities in the business environment, while Shane and Venkataraman (2000) said that entrepreneurs are continually discovering, evaluating, and exploiting new business opportunities.

From these experts, guidance was taken for the study's examination of open innovation knowledge which was hypothesized as an underlying component of experiential learning in the opportunity evaluation process which can measure entrepreneurial intention. Furthermore, for the examination of open innovation, the researchers adopted the platform of entrepreneurship education and training from the research classroom format. While there are many studies related to entrepreneurial intention (e.g., Gorman, Hanlon, & King, 1997), we found no notable research that links the opportunity evaluation in an open innovation era to it. That is, we have no research that explains how individuals can maintain their entrepreneurial intention in the world that is full of information and opportunities. Also, while previous studies have shown that understandings of the "what" affect in entrepreneurial intentions, the

literature review shows that entrepreneurship education is still limited to explain "how" to innovatively teach a method that improves entrepreneurial intention in classrooms.

Fayolle and Liñán (2014), have also explained that there is little knowledge regarding the potential causal link between various educational variables and the effect of entrepreneurship education programs on the dimensions of intention and/or behavior, such as attitudes, values, and skills. Furthermore, Fayolle (2013) also stated the need for a new direction in future entrepreneurship research to address the interrelationships between entrepreneurship education and entrepreneurial intention.

Other studies have also shown that particular entrepreneurship support programs are successful in encouraging entrepreneurial intentions, but the researchers found no notable research that explains 'teaching methods' used in entrepreneurship education which improves entrepreneurial intention. Also, the evolution of digital technologies such as open innovation creates numerous knowledge flows between open sources and related platforms. This process also increases opportunities and helps move ideas faster. Consequently, traditional education and training does create efficient channels for entrepreneurial educations.

Therefore, to fill the gap in entrepreneurship research, this study aims to explore how the author's OETEL process improves entrepreneurial intention in nascent entrepreneurs. From an examination of the literature review, the research instrument and framework were developed. Furthermore, the OETEL process was used for the evaluation of the experiential learning methods which was designed to exploit information from open innovation sources and digital data bank of knowledge (e.g. patent databanks, online libraries, Google, etc.). Finally, the researchers analyzed this effect of opportunity evaluation on entrepreneurial intention and reported the results, and consequently discussed the managerial implications.

## **Literature Review**

### *Entrepreneurial Intentions*

Shapiro has frequently been credited with creating the starting point for the study of entrepreneurial

intentions nearly 40 years ago (Shapero & Sokol, 1982), with EI described as an excellent predictor in the creation of new ventures (Ajzen, 1991). This is consistent with Bird (1988, p.442), which stated that “Entrepreneurs’ ideas and intentions form the initial strategic template of new organizations and are essential underpinnings of new venture development.” Furthermore, entrepreneurial research has moved towards a process view (Gartner, 1985, 1989), which has additionally helped in contributing to its development.

Krueger, Reilly, and Carsrud (2000) explained how entrepreneurial intentions offer a method to both help explain and predict entrepreneurship, with intentions being used to describe a self-prediction to engage in a behavior (Ajzen, 1991; Ajzen & Fishbein, 1977). Furthermore, in psychological literature, intentions have often been proven to be an excellent predictor of planned behavior, especially when behavior is rare, hard to observe, or involves unpredictable time lags (Bagozzi, Baumgartner, & Yi, 1989; Krueger et al., 2000). In support of this, multiple studies in entrepreneurship research have determined that entrepreneurial intention as one of the critical antecedents of actual entrepreneurial action (Krueger & Carsrud, 1993; Lee, Wong, Foo & Leung, 2011).

Regarding the study’s entrepreneurship intention model, we relied on two earlier contributions due to their influence on recent research acceptance (Davids, 2017). These included the Entrepreneurial Event Model [EEM] by Shapero and Sokol (1982) and the highly structured Theory of Planned Behavior [TPB] by Ajzen (1991). EEM found that a person’s answer to an external event will depend on their perceptions about the accessible alternatives. Additionally, EEM discusses two basic kinds of perceptions, which includes perceived desirability [PD] and perceived feasibility [PF] (Krueger, 1993).

PD is the degree to which an individual feels attracted to the idea of becoming an entrepreneur and reflects an individual’s preferences for entrepreneurial behavior. PF, on the other hand, is related to the degree an individual considers themselves personally capable of starting a business. PF is also concerned with the amount in which individuals are confident that they are personally able to start their enterprise

while considering the feasibility of becoming an entrepreneur.

Ajzen’s TPB was developed to explain entrepreneur behavior, which can be used to explain all voluntary behaviors (Ajzen, 2001; Kolvereid, 1996a, 1996b). TPB also discusses this “intentionality” is driven in part by three factors, including perceived behavioral control [PBC] which is the perception of the ease in which entrepreneurial behavior is performed. The second factor is an entrepreneur’s attitude, which is how favorable an individual is to an entrepreneurial career. Finally, the subjective norms in which becoming an entrepreneur is an “acceptable” career choice (De Clercq, Honig, & Martin, 2013; Kolvereid, 1996b; Kolvereid & Isaksen, 2006; Liñán & Chen, 2009).

Moreover, TPB has been used to forecast and study entrepreneurial intention based on an individual’s feasibility and desirability driven motivations (Fitzsimmons & Douglas, 2011; Krueger et al., 2000). While feasibility driven motivation encompasses Ajzen’s (1991) PBC dimension, the desirability counterpart includes both attitude and subjective norms (Kolvereid, 1996b). The difference between feasibility and desirability also reflects position in career choice literature, which suggests that people’s interests in a particular career choice is based on whether they perceived themselves as capable of doing the job and whether it is attractive and desirable (Betz & Rottinghaus, 2006; Lent, Brown, & Hackett, 1994).

In summary, Ajzen’s (1991) TPB consists of three elements that predict the creation of intention. This includes (1) the attitude toward the behavior, (2) the degree of perceived behavioral control (self-efficacy) and, (3) subjective norms. TPB also states that any behavior requires a certain amount of planning and can be predicted by the intention to implement that behavior. This is comparable to the perception of the personal desirability of the behavior in Shapero’s model.

PBC also refers to the perception of situational competence and reflects the perceived ability to become self-employed, which has been referred to as ‘self-efficacy’ by Bandura (1997). This is equivalent to perceived feasibility in Shapero’s model.

Finally, subjective norms measure the perception of social pressure and peer pressure from family,

friends, or significant others (Ajzen, 1991). This includes the family's expectation for an individual's behavior and the expectation for support from other significant people. However, social and peer pressures can be difficult to measure, which can also have a less predictive influence on individuals with a high internal locus of control or a strong orientation toward taking action (Bozorgi, 2009). Besides the less predictive influence for particular individuals, several studies also have found no significant direct relationship between subjective norms and entrepreneurial intention (Krueger et al., 2000; Autio, Keeley, Klofsten, Parker, & Hay, 2001). Consequently, we will not include subjective norms in our model but instead, follow the suggestion of Krueger et al. (2000) to examine the effect of entrepreneurial exposure on intentions.

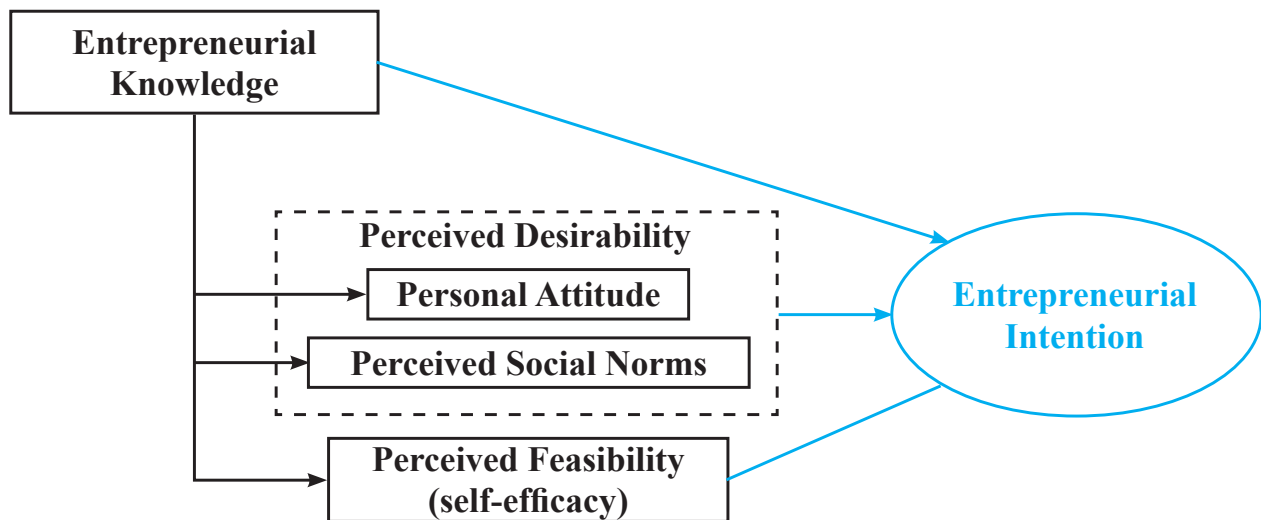
To study the relationship between these models of entrepreneurial intention and their antecedents, Krueger et al. (2000) compared Shapero's model and Ajzen's model using a sample of 97 USA seniors enrolled as business students, from which it was determined that Shapero's model is superior for assessing entrepreneurial intention. Therefore, these two models (Figure 1) present a high level of mutual compatibility and overlapping (Krueger et al., 2000), which when integrated as a single model can be a good choice for an integrated entrepreneurial intention model (Liñán, 2004, 2007, 2008).

### *Entrepreneurship Education*

According to Fayolle, Gailly, and Lassas-Clerc (2006), entrepreneurial education is concerned with educational pedagogical programs or processes which are used for entrepreneurial attitudes and skills education. Additionally, entrepreneurial education has a relatively long history, which has developed into an extensive phenomenon (Katz, 2003; Kuratko, 2005).

However, entrepreneurship education can be targeted toward particular stages of development (Bridge, O'Neill, & Cromie, 1998; Gorman et al., 1997; McMullan & Long, 1987), and specific audiences (Liñán, 2004). For example, educational awareness education is for students who have no experience at starting a business, so the purpose of the training is to allow students to develop entrepreneurial skills and to assist them in choosing a career (Liñán, 2004).

As the students advance to the university-level, programs are created to increase entrepreneurial awareness and to prepare aspiring entrepreneurs (Garavan & O'Connell, 1994; Weber, 2011). As entrepreneurial education has increased in global popularity, its supposed benefits have received much praise from researchers and educators. Nevertheless, the outcomes and effectiveness of entrepreneurship education programs have gone mostly untested (Pittaway & Cope 2007a, 2007b; von Graevenitz, Harhoff, & Weber, 2010).



*Figure 1.* Entrepreneurial Intention Model. Source: Liñán (2004, p.15)

However, there continues to be intense discussion as to what variables determine an individual's decision to start a venture, with cognitive approaches having attracted considerable recent interest (Baron, 2004) as well as entrepreneurial intention (Autio et al. 2001; Kolvereid 1996a, 1996b). Also, according to Fayolle, Gailly, and Lassas-Clerc (2007) and Weber (2011), TPB can be a useful tool in the evaluation of educational programs for potential entrepreneurs. Therefore, there is a need to clarify which elements play the most influential role in shaping an individual's decision to start their own company.

### *The Opportunity Evaluation Process*

According to Shane and Venkataraman (2000), deciding which opportunities to pursue and how to exploit them, are defining features of entrepreneurship, with opportunity being a central construct in entrepreneurial endeavors (Jones & Coviello, 2005, Shane, 2012).

Opportunity evaluation is also a process of uncertainty reduction whereby individuals continuously review the subjective elements of circumstances and events (e.g., opportunity), such that they are seen (or not) as a desirable and feasible future reality (Dimov, 2009, 2011; Shepherd, McMullen, & Jennings, 2007).

Although opportunity evaluation is a crucial prerequisite of entrepreneurial action, empirical research on how individuals recognize and evaluate third-person opportunities is surprisingly lacking. Furthermore, according to Haynie, Shepherd, and McMullen (2009), a potential entrepreneur's evaluations process is focused on whether the opportunity is 'attractive to me' in the context of existing knowledge, skills, and abilities.

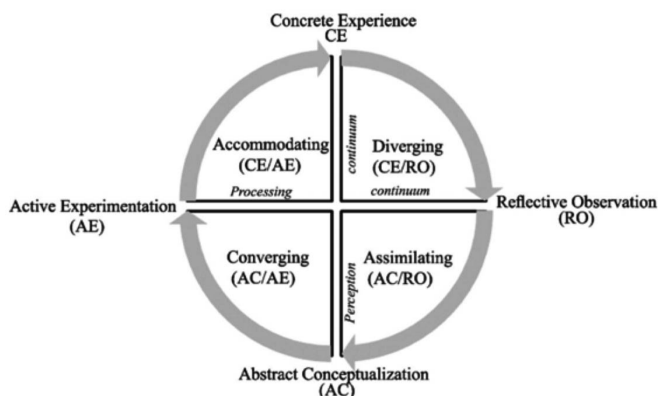
Thus, Hastie (2001) has indicated that opportunity evaluations are future-focused judgments, where doubtful events, outcomes, and consequences are evaluated as in the context of how things will positively affect the potential entrepreneur. Klein (2008) also indicated that how decisions are made in taking entrepreneurial action are the essence of opportunities, as judgments are opportunities. This suggests that opportunity evaluation is an informative

process that results in entrepreneurs evaluating similar circumstances differently.

### *Experiential Learning Theory (ELT)*

According to Healey and Jenkins (2000), Kolb's ELT is one of the best known educational theories in higher education, with Kolb (1984, p.41) stating that ELT is a process in which knowledge is created through experience transformation, with knowledge results coming from the combination of grasping and transforming experience. Kolb's ELT found its foundation in earlier works on human learning and development. It is also a philosophy of education originating from John Dewey's call for a theory of experience to guide educational innovation (Kolb & Kolb, 2017). ELT is also a dynamic, holistic theory of the learning process gathered from experience and a multi-dimensional model of adult development.

The core of Kolb's ELT is a four-stage model, which has simple descriptions of a learning cycle that shows how experience can be translated through reflection into concepts (Figure 2). These include concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE) (Al-Qahtani & Al-Gahtani, 2014; Healey & Jenkins, 2000). As the name implies, ELT relies on the importance of experiential activities, such as fieldwork, workshops, laboratories, and hands-on sessions. However, it does not prioritize these forms of learning but instead takes the student through each stage which ensures that useful links are made.



**Figure 2.** Kolb's learning cycle (Source: Al-Qahtani & Al-Gahtani, 2014).

Kolb's model offers a transparent review of theoretical courses where the value of prior experience or knowledge of students is unimportant (Healey & Jenkins, 2000). Also, according to Jenkins (1977), ELT is similarly critical of activities where students receive little preparation for the experience or no practical chance to reflect upon the experience and its relationship to a more theoretical aspect of the course. Within the model there are two primary axes containing an abstract conceptualization-concrete experience (AC-CE) dimension and an active experimentation-reflective observation (AE-RO) dimension (Al-Qahtani & Al-Gahtani, 2014), which according to Healey and Jenkins (2000) reflect the two main dimensions of the learning process that relate to two significant ways by which students learn. The AC-CE dimension is primarily concerned with how students perceive or grasp new information or experiences, while the AE-RO dimension focuses on how students process or transform what they perceive (Kolb, Boyatzis, & Mainemelis, 1999).

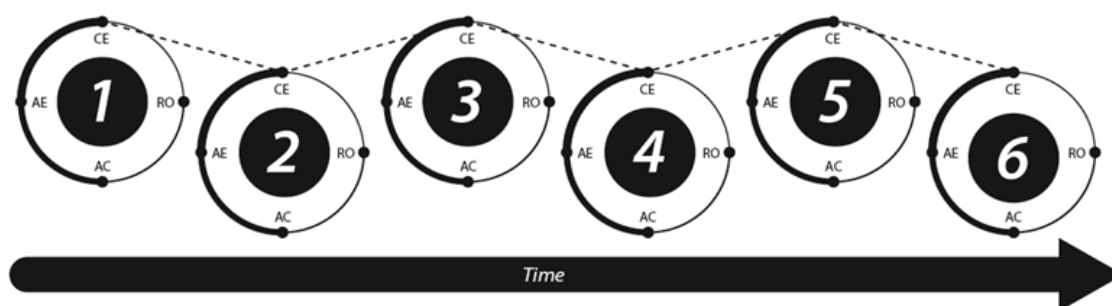
#### *The Application of Opportunity Evaluation Through Experiential Learning (OETEL) Model*

From the previous discussions, we can extract an idea that entrepreneurial education still lacks the methodological approach to empower individual entrepreneurial intention. Therefore, the research sought to fill in the gap by taking an innovative

educational approach by developing OETEL's innovative teaching instrument which the authors believe can help increase entrepreneurial intention. As previous entrepreneurship pedagogy has shown that regular education approaches have no impact on entrepreneurial intention, we then innovatively created a new learning method called OETEL.

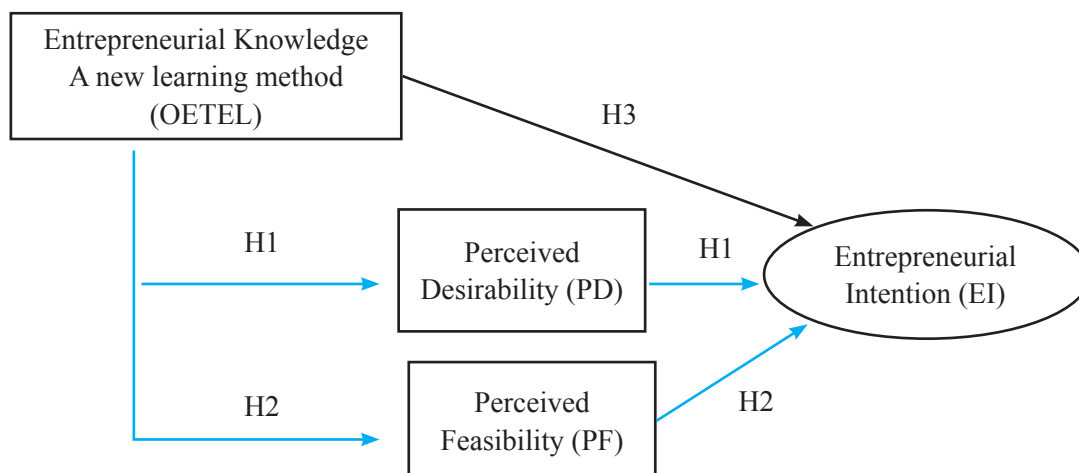
OETEL was mainly developed from entrepreneurship ELT based on an opportunity evaluation process (Cooper, Bottomley & Gordon, 2004; Corbett, 2005, 2007; Daly, 2001; Dhliwayo, 2008). Furthermore, evidence supports the idea that firsthand experience through an experiential learning cycle provides a better result in entrepreneurship education. To operationalize the OETEL application, students need to go beyond the classroom to test the recognized opportunity in the real world. To do so, OETEL provides the six opportunity evaluation modules shown in Figure 3 (Allen, 2009; Anthony, 2014; Aulet, 2013).

With the application of OETEL, the learning process will need to spiral through the consequences of Kolb's ELT cycle. We hypothesized that the OETEL Method would affect both perceived desirability, perceived feasibility and entrepreneurial intention which will prove that the innovative OETEL application works well for entrepreneurship advancement. Therefore, we propose the framework and hypothesis shown in Figure 4.



**Figure 3.** The OETEL Method.

*Note.* CE = Concrete experience, RO = reflective observation, AC = abstract conceptualization, and AE = active experimentation. 1 = Industry analysis, 2 = Market and Customer Analysis, 3 = Product / Service Analysis, 4 = Competitor Analysis, 5 = Finance Analysis, and, 6 = Operation and Team Analysis.



**Figure 4.** The conceptual model and hypotheses.

### *Conceptual Model and Hypothesis*

Borrowing ideas from Paço, Ferreira, Raposo, Rodrigues, & Dinis (2011), the authors used a psychological model of the TPB for modeling the development of entrepreneurial intention through the pedagogical process (Figure 4). In the model, entrepreneurial intention refers to one's desire to start a business (Krueger et al., 2000). PD, therefore, is concerned with the degree in which an individual is attracted to the idea of becoming an entrepreneur and reflects an individual's preferences for entrepreneurial behavior. PF, on the other hand, is related to the amount in which an individual is confident that he/she can start his/her own business and consider the feasibility to become an entrepreneur (Shapero & Sokol, 1982). The desirability includes both the attitude and subjective norm dimensions, while the feasibility motivation encompasses perceived behavioral control dimension (Giagtzi, 2013).

Furthermore, according to Fayolle et al. (2007) and Weber (2011), the TPB is appropriate for the evaluation of entrepreneurship education programs. To test the increasing levels of student participation in entrepreneurship programs and their entrepreneurial intention, the authors developed and applied the opportunity evaluation model through experiential learning or OETEL as a learning method in the process of education. From this, the effects on entrepreneurial intention can be measured directly through the process of education. From ELT, the application of the

opportunity evaluation process can create a learning cycle that translates reflection into concepts, which results in positive outcomes. Therefore, the application of OETEL affected entrepreneurial intention through the effects on PD and PF which are the mediator variables. Thus,

- H1: The effect of OETEL on Entrepreneurial Intention (EI) is mediated by Perceived Desirability (PD).
- H2: The effect of OETEL on Entrepreneurial Intention (EI) is mediated by Perceived Feasibility (PF).
- H3: OETEL has a direct effect on Entrepreneurial Intention (EI).

## **Methods**

### *Experiment Design*

Using experimental design in the classrooms techniques, students who were selected to participate in the entrepreneurship OETEL Method program received an initial introduction from a lecturer guided slide presentation, from which students were guided in how they could systematically evaluate their entrepreneurial concepts through the experiential learning style. After this, students were given both a pre-test and post-test self-assessment questionnaire which was related to the six stages of OETEL Method model.

### *Sample and Data Collection*

Both Thai business administration undergraduate students (Panyapiwat Institute of Management) and postgraduate students (College of Management, Mahidol University) were selected for the study. Of the 160 students selected for the experiment, 120 were undergraduate students and 40 were postgraduate students. Each student's questionnaire response was supervised by one of the study's authors, with the pre-test consisting of items related to the OETEL Method application introduction. The post-test was accomplished from the results after the researchers had introduced and provided participants with an application of OETEL.

### *Measurement and Validity Test*

In this experiment, the application of OETEL by using viability questions as a proxy, entrepreneurial intention [EI], perceived desirability [PD], and perceived feasibility [PF] were measured by using a 12-item, self-assessment questionnaire. This included four items used for measuring the application of OETEL by using viability questions as a proxy; three items were concerned with EI, three items were concerned with measuring PD, while the final two items were concerned with measuring PF.

#### *Entrepreneurial Intent (EI)*

Using a 5-level, Likert type response scale, students were asked two questions about how likely it was that they would start their own business (5 representing very likely, 1 very unlikely) and one question asking whether they agreed (5 strongly agree, 1 strongly disagree) with the statement that they were considering starting their own business someday in the future. The source of these measures was Shook and Bratianu (2008). The Cronbach's alpha of 0.86 for the three items represented strong reliability.

#### *Perceived Desirability (PD)*

There were also three items that measured PD. Each of the three items was a holistic measure of the desirability of starting one's own business. The source of these measures was also Shook & Bratianu (2008).

The Cronbach's alpha of 0.914 for the three items represented strong reliability.

#### *Perceived Feasibility (PF)*

Concerning PF, two items reflecting a holistic assessment of the feasibility of starting one's own business were used (Shook & Bratianu, 2008). The Cronbach's alpha of 0.923 for the three items represented strong reliability.

#### *Opportunity Evaluation Through Experiential Learning (OETEL)*

The authors used the viability of the business idea as a proxy to measure the result of the OETEL evaluation. The perceived viability of the business idea was measured in terms of self-assessed perception of the business idea developed during the entrepreneurship course. Heinonen, Hytti, and Stenholm (2011) was used as a source of these measures. The outcome was a business idea developed in a student team, which was evaluated twice by external advisors. The respondents were asked to assess the viability and growth potential of the business idea by answering four items adapted from Puhakka (2007). Cronbach's alpha for the four items was 0.93, which indicated strong reliability.

Reliability tests on the questionnaire were performed before starting the experiment. Cronbach's alpha for the application of OETEL, EI, PD, and PF were 0.906, 0.914, 0.929 and 0.923, respectively. As the results, the questionnaire used in this experiment indicated acceptable reliability.

## **Results**

### *Statistical Analysis and Procedure*

Before the main hypothesis testing, the average scores on the viability questions that were used as a proxy for application of OETEL before implementing experiential learning and after implementing experiential learning were compared (Table 1). Results revealed that the average scores of all viability questions before the OTEL Method implementation were 3.66, 3.41, 3.63 and 3.61. After implementing



the experiential learning method, the average scores increased to 4.01, 4.00, 4.01 and 3.96, respectively. The increase in the average scores of viability questions implies that the participants are more confident with their business ideas after receiving the application of

OETEL.

#### *Hypothesis Testing*

To test the model, PROCESS which is a *versatile computational tool for observed variable mediation, moderation, and conditional process modeling*

**Table 1**

*Comparison of The Average Scores for Viability Questions, Before and After Implementing Experiential Learning*

Viability Questions	Average Scores	
	Before Implementing Experiential Learning	After Implementing Experiential Learning
1. I believe that our business idea would have a great chance of growth	3.66	4.01
2. believe that the number of employees would grow rapidly with our business idea	3.41	4.00
3. I believe that the owners would earn fortunes with our business idea	3.63	4.01
4. I believe that the sales generated by our business idea would outstrip its potential customers	3.61	3.96

*Note.* These scores based on a 5 point Likert scale with 5= strongly agree and 1 = strongly disagree.

**Table 2**

*Results of PROCESS Analysis on the Application of OETEL by Using Validity Questions as Proxy, PD, PF, and EI*

Hypothesis	Results			
	Coeff	SE	t	p
<b>Indirect path</b>				
H1				
Application of OETEL through Viability → Perceived Desirability	0.6677	0.0315	21.2256	0.0000
Perceived Desirability → Entrepreneurial Intention	0.1873	0.0691	2.7101	0.0075
H2				
Application of OETEL through Viability → Perceived Feasibility	0.4432	0.0226	19.6032	0.0000
Perceived Feasibility → Entrepreneurial Intention	0.7261	0.0962	7.5505	0.0000
<b>Direct path</b>				
H3				
Application of OETEL through Viability → Entrepreneurial Intention	0.2203	0.0546	4.0378	0.0001

(Hayes, 2012) was operated on the application of OETEL by using viability questions as proxy as a predictor, PD and PF as mediators and on EI as the outcome of the statistical model.

Results revealed that H1’s effect of the application of OETEL through viability (V) on EI is mediated by PD (Figure 5). To test H1, two relationships were examined. This included the application of OETEL through V to PD and PD to EI. For the first relationship, Hayes’ Process analysis showed that application of OETEL through Viability significantly affected PD ( $p=0.0000$ ). In the second relationship, PD was shown to affect EI. Regarding these findings, it can be concluded that H1 is accepted and that the effect of the application of OETEL through V on EI is mediated by PD.

Results revealed that H2’s effect of the application of OETEL through V on EI is mediated by PF. To test H2, two relationships were analyzed including the application of OETEL through V to PE and PF to EI. Concerning the first relationship, the PROCESS analysis indicated that there is a significant effect from application of OETEL through V to PF ( $p=0.0000$ ), and in the second relationship, PF had a significant effect on EI ( $p=0.0000$ ). Also, the application of OETEL through V on EI was also mediated by PD.

Results revealed that H3’s effect of the application of OETEL through V had a direct effect on EI. According to the PROCESS analysis, it was determined that there is a significant direct effect from the application of OETEL through V to EI ( $p=0.0001$ ).

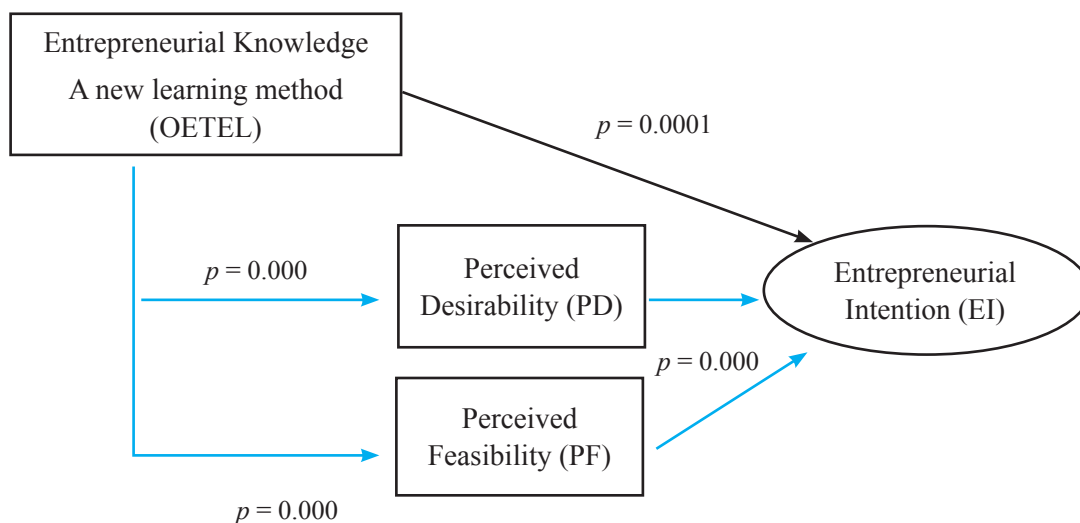


Figure 5. Result for Entrepreneurial Intention Model by using PROCESS analysis.

Table 3  
Summary of Hypothesis Testing

Hypothesis	Hypothesis Testing Results
H1: The effect of the application of OETEL through Viability (V) on Entrepreneurial Intention (EI) is mediated by Perceived Desirability (PD)	Supported
H2: The effect of the application of OETEL through Viability (V) on Entrepreneurial Intention (EI) is mediated by Perceived Feasibility (PD)	Supported
H3: Application of OETEL through Viability (V) have a direct effect on Entrepreneurial Intention (EI)	Supported

## Discussion

This study has contributed to several theoretical implications. It provides further supporting evidence for the application of the TPB in predicting and understanding EI. Furthermore, this study contributes to the TPB by examining the effect of open innovation within opportunity evaluation on EI and its antecedents. The study also confirmed that the TPB could provide a useful framework to assess entrepreneurship education effectiveness. The study also developed and extended the TPB by incorporating opportunity evaluation as an antecedent cause of EI, and it examined the relationships between this variable and EI.

According to Shane and Venkataraman (2000), entrepreneurship research has focused on questions related to the investigation of how, by whom, and by what consequences opportunities exist to produce future goods and services are discovered, evaluated, and exploited. Each of these activities is inseparably linked to each other and help in defining the venture creation process (Choi & Shepherd, 2004; Shane & Venkataraman, 2000).

However, according to Haynie et al. (2009), opportunity evaluation is mostly ignored by researchers, with the most significant issue of understanding how entrepreneurs evaluate opportunities to produce future goods and services being an important topic for future research.

This study, therefore, took steps to fill these gaps and showed that viability analysis could be a useful proxy instrument in evaluating opportunities for entrepreneurs in the evaluation process. This is one of the main implications of this study; being able to understand how nascent entrepreneurs evaluate opportunity A over opportunity B.

Concerning practice, the study provided valuable information and insight for those who will use an opportunity evaluation instrument for their business decision making process and investment consideration. Also, the study found a practical process to formulate and deliver such training programs aimed at increasing EI. Furthermore, the implementation of *experiential learning* into an educational program was to move from reflection to implementation.

In particular, the findings suggest that an entrepreneurship education programs can develop students' EI through experiential learning, rather than through the use of traditional lectures, which suggests to educators that programs should be developed based on action based or experiential learning rather than traditional lectures. The authors can also suggest that if an entrepreneurship education program has attendees who are already highly motivated, the goal of an educational program should be "education for the start-up" rather than "entrepreneurial awareness education" (Liñán, 2007, p.239).

Although opportunity has been identified as being at the center of entrepreneurship, so too is the understanding of how entrepreneurs arrive at decisions relating to opportunity recognition, evaluation, and exploitation (Shane, Locke, & Collins, 2003; Shane & Venkataraman, 2000). Therefore, according to Neck and Greene (2011), more needs to be done in training students in how to create new business opportunities, which agrees with this study as opportunity evaluation significantly affected both PF and PD. Therefore, students should be equipped with tools enabling them to both evaluate and make opportunities (Neck and Greene 2011; Sarasvathy, 2008). Supporting this is Sardeshmukh and Smith-Nelson (2011), which also indicated that a students' ability to identify new business opportunities can be enhanced using a combination of classroom activities and experiential activities.

Educators also need to participate in a networking role to help in identifying opportunities, as social networks have been found to be an essential element in the opportunity identification process (Ozgen & Baron, 2007). Social networks have become the significant sources of new ideas and knowledge (Johannison, 1990), and have also have been associated with the number of perceived new opportunities (Ozgen and Baron 2007). Therefore, educators should devote attention to developing students' network skills in entrepreneurship education programs and should give them more opportunities to network with peers and other entrepreneurs (Lumpkin, Hills, & Shrader, 2004).

## Conclusion

In the examination research on the effect of the OETEL Model under the influences of open innovation which effect EI, it was confirmed that would-be student entrepreneurs who participated in the program significantly increased both their PD and PF of starting a business. Furthermore, future research should be undertaken to examine longer-term effects on the exposure to entrepreneurial educational programs, as research has suggested that an analysis of the cumulative impact of continuously exposing entrepreneurs to education and training over a long-term is needed.

This study has also shown that the PD and PF in starting a business are strongly influenced by opportunity evaluation through the experiential learning process, due to the importance of entrepreneurship education a business.

The results from the pilot and experimental studies also showed that OETEL affects PD, PF, and EI significantly, with innovative learning application of experiential learning theory positively affecting EI. Practitioners can adapt this teaching method in entrepreneurial classrooms, and policymakers can strategically encourage experiential learning in entrepreneurship educational programs, which have been confirmed to have an impact on students' perceptions concerning starting their enterprise.

However, the current study has several limitations. Suggestions for future research include should examine the specific characteristics, design elements, contents, and teaching approaches of entrepreneurship education programs, and their relationships to these outcomes.

## Ethical clearance:

The study was approved by the institution.

## Conflict of interest:

None.

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