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# The Effects of Academic Environment through Self-Efficacy on Entrepreneurial Intention: SEM-PLS Approach

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## Abstract

Entrepreneurship has been the central focus for both policy makers and scholars alike for its role in economic and social transformation of a nation. University students are widely regarded as future builders of nation and thus, their role and intention towards entrepreneurship is of much concern. This study applies the theory of planned behaviour to analyse the factors affecting university students' entrepreneurial intention with the inclusion of university environment. This study aims to incorporate the various variables as a comprehensive model simultaneously analysing the relationships between using SEM-PLS technique. A quantitative research design was employed with the use of 317 sample of university students from Malaysia and China universities. The study explores the effect of individual factors: attitude, subjective norm and perceived behavioral control; together with university environment on their effect on university students' entrepreneurial intention. The finding suggests that university environment is a significant influence of university students' intention to entrepreneurship as a career choice. A conducive environment and support within the university elevates student's belief in their capability to be an entrepreneur and the intention to embark on an entrepreneurial journey.

**Keywords:** Entrepreneurial intention; Theory of planned behaviour; Academic entrepreneurship; Student entrepreneurship; Malaysia.



## 1. Introduction

New venture creation plays a pivotal role in developing the economies of nations. Particularly for developing nations, growth in terms of economic and employments as well as social growth are strongly associated with the outcomes of entrepreneurship (Wang Y. L. *et al.*, 2013). Hence, the need for entrepreneurship to be an attractive option as a career choice is an active agenda for many governments in encouraging university graduates to embark the entrepreneurship journey. To this end, entrepreneurship researchers have attempted to uncover the factors that determine the intention of university graduates on being an entrepreneur. Knowing what pushes and motivates the next generation in their drive to starting up may help us to improve the starting up rate and the sustainability of the new entrepreneurs itself. In this current study, university students form the foundation of the study as students are considered as future builders of nation. Better comprehensions of future intentions are central for nation building in developing the right policies and incentives to improve entrepreneurial activities.

The early research being conducted in this area have converged around the range of characteristics of the entrepreneur and the environmental factors (Lüthje and Franke, 2003). Particularly, studies on traits of an entrepreneur including the demographic traits have reached a saturation point in its predictive value and further investigation in this line would be very unlikely to uncover new findings (Autio et al., 2001). To date, there are several factors which have been identified as predictors to entrepreneurial intentions such as self-efficacy (Laviolette and Lefebvre, 2012), personality (Mustafa *et al.*, 2016; Wang J. H. *et al.*, 2016) and demographics (Ismail *et al.*, 2009).

Limitations of past literatures is that the studies have examined various antecedents to entrepreneurial intention but as separate factors (Mustafa *et al.*, 2016). This limits our understanding on the influences of behavioural motives and the environmental background on the intention for entrepreneurship especially when being studied together. The purpose of the study aims to incorporate all the antecedent factors to entrepreneurial intention as a comprehensive model. In addition, the role of behaviour as a mediator between university environment and entrepreneurial intention is also being examined. This paper contributes to the area of entrepreneurial intention research through comprehensive examination of university students' entrepreneurial intention with the application of Theory of Planned Behaviour (TPB) model. In addition, academic environment is being included to examine its effect on entrepreneurial intention.

To understand the behaviour of an entrepreneur and where the behaviour is not easy to observe, it is posited that the behaviour can instead be observed and predicted by intention instead (Ajzen and Driver, 1991). Previous foray into examination of links between personality traits and entrepreneurial activity failed to produce any strong relations. This indicates that a new approach with a deterministic view may be the new direction to take in accounting the different behaviours over different situations. TPB theory focuses on situations where an individual has incomplete control over the situations in which the individual is unable to deicide to perform certain behaviour at will Autio *et al.* (2001). It is very well suited to the study of entrepreneurial intention as it is a process that is a planned behaviour. Throughout the process, the decision to embark on entrepreneurial journey may be influenced by

external factors such as availability of support, financial resources, and possible opportunities which are all beyond the control of the individual. This study attempts to further our knowledge on university students and their entrepreneurial intentions through the lenses of TPB model which puts forth intentions can be established by attitudes, subjective norms and perceived behavioural control.

## 2. Literature Review

Entrepreneurial intention is described as the mind-set that direct and guide the basic concepts of a new venture in its development, implementations and evaluation. As it is difficult to observe the actual behaviour of starting up a new business, the intention to be an entrepreneur is used as a proxy in its place. Hence TPB is well suited to be applied to this study as TPB posits that intention determines the behaviour of an individual. TPB suggests that intention to behave can be explained using three factors; attitude (ATT), subjective norm (SN) and perceive behavioural control (PBC). All the three factors are behavioural in nature that is subjective to the control of the individual. Many studies have identified intention as the main determinant to a planned behaviour such as entrepreneurial behaviour (Davidsson and Honig, 2003).

In this first component of TPB, attitude is a construct that is concerned about the extent of an entrepreneur to either favour or not favour to be an entrepreneur at a point of time. Attitude is made up of affective and evaluative considerations (Liñán and Chen, 2009). Attitudes of a person can be influenced by behavioural beliefs which connects the behaviour to different outcomes and other attributes. When an attitude develops a certain belief about a situation, the individual will develop a certain attitude towards it. Individuals with high level of motivation to be their own boss possess the ability to make their own decision and thus possesses high level of autonomy. This translates to a higher sense of level of independence and as a result a higher probability of venture start-ups.

In a study by Kolvereid (1996), attitude was established to display direct significant effect on entrepreneurial intention. The construct of SN is related to perceived social pressure on the individual to display entrepreneurial behaviour. The explanation can be further attributed to the blending of two-components influencing the behaviour; normative beliefs and motivation to conform. The normative belief component is the perceived possibility for a referent that individual respects will support or disapprove certain behaviours. The benchmark for the norm or standard of how one should act is set by the referent. The next element, motivation to comply refers to the reflection of an individual's willingness to conform to the norms as set by the referent. That is, how motivated is the individual in behaving according to the expected set of behaviour. PBC is the central construct to which TPB is based on as intention is strongly influenced by PBC which is the totality of the individual's perceived and actual control of the behaviour. The self-efficacy dimension is used as a measure of PBC and it is defined as the belief that one can successfully carry out the behaviour required producing the desired outcome (Bandura, 1998). A high level of self-efficacy supports the continuous effort of an individual to achieve certain goals even when faced with failures and stressful conditions. In the process of new venture creation, self-efficacy is an important component in driving the entrepreneurs towards their goals. Previous literatures have found that entrepreneurs who possess strong skills, willpower and commitment to objectives set have shown to have a stronger sense of task focus. Therefore, individuals with high level of PBC and high levels of self-confidence would relate to higher levels of entrepreneurial intention.

Many past entrepreneurship literatures have broadly confirmed the prediction power of the TPB model. It has been established the positive association between attitude, subjective norms and perceived behavioural control and the intention to be an entrepreneur (Autio *et al.*, 2001). However, there are also studies (Liñán and Chen, 2009; Moriano *et al.*, 2012) that found no significant correlations among attitudes and self-efficacy in predicting the power of entrepreneurial intention. This indicates that there exist anomalies in the outcome on predictive power of the variables on entrepreneurial intention across various research from different countries (Iakovleva *et al.*, 2011). This study aims to confirm and examine the results of interactions between the antecedents and the dependent variable and this study posits that:

H1: Higher level of attitude is linked to stronger entrepreneurial intention among students

H2: Higher level of subjective norm is linked to stronger entrepreneurial intention among students.

H3: Higher level of perceived behavioural control is linked to stronger entrepreneurial intention among students

The effect of environment on entrepreneurs must be studied as both the entrepreneur and new venture do not exist in vacuum. The interaction between environment, entrepreneurial characteristics and behaviour acts to favour the starting of new ventures (Suresh and Ramraj, 2012). The role of universities has gained much attention in shaping the young generation towards entrepreneurial activities. University entrepreneurial programs have been the most efficient vehicle to prepare students with right skills, knowledge and attitudes towards entrepreneurial path. An environment that is conducive for entrepreneurship includes support in areas such as: marketing, access to role models and customized support. The right environment provides much needed confidence for students to initiate the starting of new business ventures.

A supportive university environment can be translated as the perceived education support for the students equipping them with essential skills, networking and opportunities needed to commence a new business (Saeed *et al.*, 2015). In a broader sense, entrepreneurial intention of university students increases when there exists a conducive university environment which encourage students' awareness in entrepreneurship as a possible career choice. Through higher skillsets and support for incubation centres within the university environment, students can hone their competencies and hence increase their confidence to start-up on their own. The intention to be an entrepreneur is enhanced through the increase of their knowledge, confidence and self-efficacy. Thus, right

university environment not only creates interest in entrepreneurship, but it also influences through PBC with increase in their self-efficacy. Hence, this study posits that:

H4: Higher level of supporting university environment is linked to stronger entrepreneurial intention among students.

H5: Perceived behavioural control mediates the relationship between university environment and entrepreneurial intention.

# 3. Research Method

This study consists of a total of 317 undergraduate university students who have enrolled in at least one entrepreneurship course in Malaysia or China. China is the main trading partner to Malaysia with RM11bil in exports and RM14.6 of imports in 2016 (Department of Statistics, 2017). With China as Malaysia's top trading partner and a world economic superpower, entrepreneurial intention of China students is of great importance. The respective universities sampled are Guangdong Ocean University, Beihai University and Shanghai University located in China. From Malaysia, the universities polled are University Tunku Abdul Rahman (UTAR), Nottingham University and UCSI University. The universities were chosen for the presence of strong business programmes. Data was generated through convenience sampling where students were chosen randomly from the general university population. The respondents were required to respond through a personally administered questionnaire. The descriptive analysis showed 48.9% male and 51.1% female students participated in the study. Most are of between the ages of 21 to 25 years (60.6%) and 26 to 30 years (27.8%). An almost equal representation is obtained from respondents of Malaysia (50.2%) and China (49.8%). Regarding the cultural differences on the level of intention, a t-test was conducted on the samples to test for differences among the two groups. The results showed no significant differences between students in China (M= 3.47, SD= 0.71) and Malaysia (M= 3.35; SD= 0.57) in terms of their level of entrepreneurial intention $t(298.84)= -1.619$, $p= 0.106$.

The survey used consists of six segments to include demographic, four independent variables and dependent variable. Except for demographics, the indicators were assessed using a five-point Likert scale with the range of "1" representing "strongly disagree" to "5" being "strongly agree". All measurement items employed in this current study were adapted from well-established previous studies. The dependent variable was measured using entrepreneurial intention items adapted from Liñán and Chen (2009). Four independent variables; attitude, subjective norm, perceived behavioral control was adapted from Liñán and Chen (2009); and Autio *et al.* (2001). Lastly, university environment construct was adapted from Autio *et al.* (2001). The study employs the variance-based Structural Equation Modeling (SEM-PLS) technique. SEM-PLS uses ordinary least square regression-based estimation which maximizes the explained variance $R^2$.

The objective of PLS is to predict the key constructs of the model. Both the measurement model and the structural model of the proposed model will be tested using SmartPLS2.0 software. SEM is deemed to be a suitable technique in this study as it concurrently models the relationships among numerous independent and dependent constructs. SEM-PLS has also been shown to be a reliable and accurate technique in handling mediation effects as it accounts for errors that can improve the validity of theory Henseler *et al.* (2009).

# 4. Results

## 4.1. Measurement Model and Structural Model

Measurement models are examined on the latent variables and the observed variables to determine the associations between a construct and its indicators. Cross-loadings of the indicators are examined, and none was detected with loading below 0.5 (Figure 1). The reliability of the items are assessed using composite reliability (CR). Table 1 shows the results for all five constructs and all have shown to achieve the recommended level of 0.7. Hence, all five constructs are said to be reliable measure. For validity measure, the study examines both the convergent and divergent validity. Table 1 shows the results of the validity tests. Convergent validity is examined through the analysis of AVE (average variance extracted) value. As shown in Table 1, all five constructs have achieved a value of above 0.5 and therefore achieve a good level of convergent validity. For divergent validity, the evaluation is performed by measuring the square root of AVE of each construct and then is contrasted with the correlation coefficient of the other constructs. Referring to Table 1, the results indicates that all constructs achieves a good divergent validity.

In the next step, structural model is built and examined with the graphical output as per Figure 1. The criteria used to evaluate the structural model's fitness include $R^2$ and $Q^2$. The $R^2$ is examined to gauge the effect of exogenous variables on endogenous variable while $Q^2$ (Stone-Geisser test) is to check for the predictability of the indicators related to the endogenous construct. Referring to the results (Table 3), the $R^2$ of two constructs are 0.555 (entrepreneurial intention) and 0.328 (PBC). Hair *et al.* (2014) recommends the $R^2$ of 0.75, 0.50 and 0.25 as substantial, moderate and weak respectively. Thus, the $R^2$ in this study can be categorised as moderate. The other evaluation criteria is the $Q^2$ which displayed a value 0.294 which is above zero and thus, the model is inferred to achieve the level of predictive relevance.

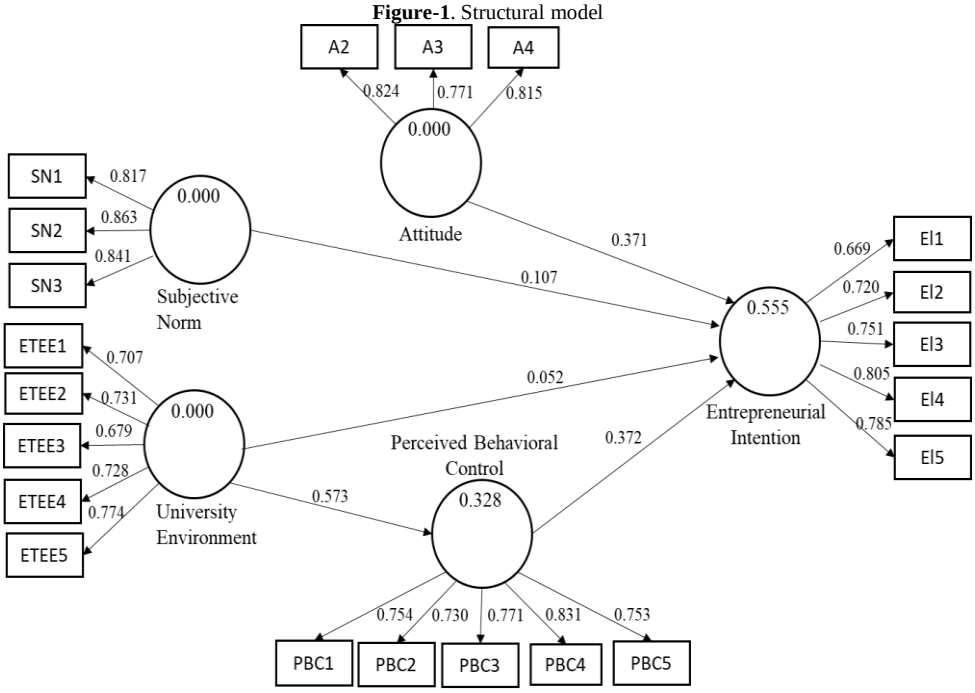
**Table-1.** Reliability and validity measures

| Constructs | Composite Reliability | AVE | University Environment | Attitude | Entreprneurial Intention | Perceived Behaviorial Control | Subjective Norms |
|---|---|---|---|---|---|---|---|
| University Environment | 0.847 | 0.526 | **0.725** | | | | |
| Attitude | 0.846 | 0.646 | 0.422 | **0.804** | | | |
| Entreprneurial Intention | 0.863 | 0.559 | 0.465 | 0.634 | **0.748** | | |
| Perceived Behaviorial Control | 0.878 | 0.590 | 0.566 | 0.478 | 0.635 | **0.768** | |
| Subjective Norms | 0.878 | 0.706 | 0.441 | 0.598 | 0.546 | 0.523 | **0.840** |

## 4.2 Hypothesis Testing

The testing of hypothesis is conducted by performing path analysis and outcomes of the path analysis are shown in Table 2. Based on the results, the *t*-values for all the four hypotheses are confirmed to be significant.

**Figure-1**. Structural model




In H1, the analysis confirms the direct and positive impact of attitude on entrepreneurial intention ($\beta$ = 0.371, $t$ = 6.292). Hence, H1 is supported. Likewise, the direct relationship of subjective norm in H2 on entrepreneurial intention is also confirmed and hypothesis supported ($\beta$ = 0.107, $t$ = 1.776). H3 is also supported in its relationship of PBC on entrepreneurial intention as the strongest effect among all antecedents ($\beta$ = 0.373, $t$ = 5.758). In this study, university environment is one of the focus variable supporting the TPB model is explaining the students' entrepreneurial intention. The association between university environment and entrepreneurial intention was hypothesised in H4. The results have supported H4 with significant impact ($\beta$ = 0.052, $t$ = 5.114). However, the direct effect on intention is found to be the weakest compared to other behavioural variables.

**Table-2.** PLS path model results

| | Relation | Path Coefficient | Standard Error | t-value | $R^2$ | $Q^2$ | Decision |
|---|---|---|---|---|---|---|---|
| H1 | Attitude -> Intention | 0.371 | 0.060 | 6.292*** | 0.555 | 0.294 | Supported |
| H2 | Subjective Norms -> Intention | 0.107 | 0.060 | 1.776** | | | Supported |
| H3 | Perceived Behaviorial Control -> Intention | 0.373 | 0.067 | 5.758*** | | | Supported |
| H4 | University Environment -> Intention | 0.052 | 0.049 | 5.114*** | | | Supported |
| | University Environment -> Perceived Behaviorial Control | 0.573 | 0.046 | 12.140*** | 0.328 | 0.190 | |

***p<0.01, **p<0.05

To assess the mediation, the relationship between university environment and PBC together with PBC and entrepreneurial intention is first established to be significant. Following the Preacher and Hayes (2008) procedure, the bootstrapping technique of estimating the indirect effects in simple mediation model is performed. A bootstrapping procedure was conducted with a re-sampling size of 5000. The results were presented in Table 3. To test for H5, the bootstrapping test indicated the indirect effect of university environment and entrepreneurial intention being mediated by PBC ($\beta$= 0.214) to be significant with $t$-value of 5.736. At 95%, the bootstrapping confidence interval [LL=0.141, UL= 0.287] is shown not to straddle zero in between. To determine the strength of the mediator, VAF was calculated and found to be partial mediation (45%) as recommended by Hair *et al.* (2014). Hence, it is concluded that there is a partial mediation effect and H5 is supported.

**Table-3.** Mediation analysis results

| | | | | | | | Bootstrapped Confidence Interval | | |
|---|---|---|---|---|---|---|---|---|---|
| | Path a | Path b | Indirect Effect | Direct Effect | SE | *t-value* | 95% LL | 95% UL | VAF |
| Environment>PBC>EI | 0.573 | 0.373 | 0.214 | 0.265 | 0.037 | 5.736 | 0.141 | 0.287 | 45% |

## 5. Discussion and Conclusion

This study attempts to understand the effects of antecedent variables of entrepreneurial intention using TPB with the addition of university environment. A favourable attitude towards entrepreneurial intention coupled with subjective norm, and the greater the perceived behavioural control forms the basis of high level intention. Together with the influence of the environment, the model explains the motivation of students in choosing entrepreneur as a career choice. Conclusions from this study showed that attitude, subjective norm, perceived behavioural control and university environment to have a significant positive effect on entrepreneurial intention. The findings of a significant and positive effect of SN on intention differs from the studies of Autio *et al.* (2001); (Liñán and Chen, 2009); Moriano *et al.* (2012). In this study, the cultural differences does not seem to exert any influences the important effect of a referent. In the era of globalization, the social standing of entrepreneurs gains universal recognition and are less effected by local social values. The positive results from academic environment indicates that intention is influenced by encouragement and support received within the university environment. Thus, support in the forms of infrastructure, networking opportunities, delivery of knowledge and mentorship are the basics in forming the entrepreneurial characteristics. The findings also validates the usability of the process approach to analysing the entrepreneurial behaviour and it supports studies of Laviolette and Lefebvre (2012); (Liñán and Chen, 2009). In fact, with the inclusion of sample to include both Malaysian and China students, this study further contributes to the literature through proof of robustness and uniformity of the intent approach even in different culture environment. Hence, the central expectations are uniformly confirmed.

Numerous policies and initiative from government as well as the private sector has been developed to boost entrepreneurial start-ups in universities. Most of the programs developed aims to encourage start-up rate through the influence of behaviour neglecting the component of intent and cognitive. The significant mediation effect of university environment on intention through PBC establishes the importance of PBC as mediator. A supportive university environment can only partially explain the entrepreneurial intention of students. From cognitive perspective, self-efficacy and strong belief in their capabilities answers a more intrinsic need. Students are influenced through encouraging attitude towards business ventures in universities. As found in current study and in (Laviolette and Lefebvre, 2012), role models that students identify with holds favourable attitudes towards entrepreneurship and undergo positive emotional connection to identify with entrepreneurial role model. Hence, universities should consider increasing the use of positive role models in the programs to foster positive role image of entrepreneurship as career choice.

The present study attempts to propose a framework in relation to the effective variables leading to entrepreneurial intention together with university environment. Based on the analysis, the model is found to be acceptable and appropriate even across different cultural environment. The result of simultaneous examination of existing relationship in the model demonstrated that attitude, subjective norm, perceived behavioural control and university environment have positive impact on entrepreneurial intention of university students.

In addition, university environment is important in influencing the intention through the elevation of perceived behavioural control of the individual.

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