

## A Study on Entrepreneurial Intention among Engineering Technology Students

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### Abstract

*This study aims to investigate the factors that influence entrepreneurial intention among engineering technology students at the Malaysian Institute of Information Technology (MIIT), Universiti Kuala Lumpur (UniKL). Many universities have introduced entrepreneurship education to inculcate interest among students to become future entrepreneurs. Aligned with UniKL vision to be the leading entrepreneurial technical university in Asia, this study observes the relationship between entrepreneurial intention, self-efficacy and the need for achievement among MIIT students. In this study, a total of 52 bachelor students were involved and the data was gathered using a single set of questionnaires. Descriptive and inferential statistical analyses were used to analyse the research questions. The research findings reveal that there is a significant relationship between entrepreneurial intention, the need for achievement and self-efficacy. However, the result shows that there is no significant relationship between family business background and entrepreneurial intention. The findings also show that entrepreneurial intention among students is influenced by self-efficacy. However, the results do not show any difference between male and female students in entrepreneurial intention. It is hoped that the results of this study will serve as meaningful guidelines for future development of ways to improve students' intention towards entrepreneurship.*

**Keywords:** entrepreneurship, entrepreneurial intention, engineering technology, need for achievement, self-efficacy.

### 1. Introduction

Entrepreneurship has become a very important subject in many schools and universities. By studying this subject, students will have the basic knowledge and interest in becoming an entrepreneur once they have graduated from university. Many factors might influence students' entrepreneurial intention such as personality and environment factors. According to Zaidatol Akmaliah (2009), there is a need for universities to improve their teaching strategies if they wish to improve entrepreneurial self-efficacy and desire amongst their students to follow entrepreneurship as a career choice. This is particularly necessary in the fields of finance, management and marketing competencies.

At the Malaysian Institute of Information Technology (MIIT), UniKL, there are a few entrepreneurship courses offer to students. It is hoped that these courses will provide and prepare students with the necessary knowledge and create awareness so that they can apply them to their area of specialization to become an entrepreneur. According to Ooi, Selvarajah and Meyer (2011), universities should seek to balance the needs of students and industry when designing their curriculum.

The purpose of this study is to investigate factors that might influence entrepreneurial intention among MIIT students. We studied a range of factors including self-efficacy, need for achievement and family business background. The research questions posed in the study are as below:

- What is the students' intention towards entrepreneurship based on gender?
- What is the relationship between family business background and entrepreneurial intention?

- What is the relationship between self-efficacy, the need for achievement and entrepreneurial intention?
- What are the contributory factors influencing entrepreneurial intention among MIIT students?

## 2. Hypotheses

Ho1: There is no significant mean difference between gender and students' intention towards entrepreneurship.

Ho2: There is no significant relationship between family business background (parent's occupation) and entrepreneurial intention.

Ho3: There is no significant relationship between the need for achievement, self-efficacy and entrepreneurial intention.

Ho4: There is no significant contributory factor between family background, the need for achievement and self-efficacy and their entrepreneurial intention.

These four null hypotheses were tested through inferential and descriptive analyses. The first hypothesis was tested using t-test, the second hypothesis was tested using One Way Anova, the third hypothesis was tested using Pearson Correlation and the last hypothesis was tested using Multiple Linear Regression. The finding of the research may help MIIT to improve the structure of the entrepreneurship syllabus, to create awareness and to nurture the importance of entrepreneurial interest as this will lead students to choose entrepreneur as their career choice.

## 3. Literature Review

A considerable amount of research has been published on entrepreneurship. Among the earliest research done by Miller (1983), it was shown that entrepreneurship education is a life-long learning process. Entrepreneurship intention also can be developed as early as secondary school Gibb (1988) through activities related to business and entrepreneurship. In addition, McCracken (1986) also mentioned that school is the best place for students to gain experience and exposure to their future career. Therefore, many schools and universities have introduced entrepreneurship subjects as part of the syllabus to build interest in self-employment among students.

According to Gnyawali and Fogel (1994), universities can make a substantial contribution to the development of entrepreneurship by creating an environment where entrepreneurship is encouraged.

Liñán, and Rueda-Cantucho (2010) stated that entrepreneurial education need to be provided to all students to make more people aware and have interest in this career option and also to make more people try to start a new venture. Among the contents that need to be teaching to the students are the concept of entrepreneurship, the role of the entrepreneur and the development of the business.

In line with UniKL's vision to be the leading entrepreneurial technical university in Asia, research should be carried out to determine factors that might influence students' intention towards entrepreneurship. Research conducted by Mazzarol, Doss and Thein (1999) among entrepreneurs in Australia, discovered that social factors and personality, including character and background, influence the drive to establish a self-owned business,

Prior relevant researchers have focused on factors that influence students' intention towards entrepreneurship. Business and self-employment have contributed a lot to the economic growth of a country. Therefore, it is crucial that people are provided with the necessary skills and their interest promoted to venture into self-employment as these will provide both increased income for the individual and for the population at large. University students can make a considerable contribution to the future economic health of the country by setting up self-owned businesses. This is important in times when paid salary jobs are scarce.

In this research, factors such as demography, which includes gender and family business background and personality such as entrepreneurial intention, need for achievement and self-efficacy, are discussed.

### 3.1 Demographic factor and Family background

Demographic factors such as gender and family business background play an important role in contributing to the entrepreneurial intention of students. Schiller and Crewson (1997) found that there a significant differences between males and females in their desire to enter and success in self-employment. This may because self-employment is generally regarded as high risk and males are more suitable for this field. However, according to Devine (1994), a study in the United States showed that there were increased percentages of women in self-employment from 1975 to 1990.

Family business background may also affect a person's desire to venture into self-employment. By having a role model in the family, they have encouragement and motivation from their parents or sibling to become a successful

entrepreneur. According to XueFa Tong, David Yoon Kin Tong and Liang Chen Loy (2011) in their study on four local universities in Malaysia showed that there is a positive significant relationship between family background and entrepreneurial intentions of students to start a self-owned business.

Moreover, a study on university students in Singapore found that the level of interest in starting a self-owned business is related to family business background and those from a family owned business are more likely to be interested in entrepreneurship (Clement and Poh-Kam, 2004).

### 3.2 Personality Factors

Factors, such as the need for achievement and self-efficacy that might influence entrepreneurial intention are discussed in this section. Self-efficacy, as defined by Bandura (1997), is the subjective conviction that one is capable of action in a given situation and being able to cope with the resulting tasks. With proper guidance and skills, students were taught on how to handle a certain project and assignment independently without too much reliance on lecturers or friends. McLelland (1961) showed those who possess a high level of need for achievement correspondingly see themselves as moderate risk takers. He also mentioned that goal achievement was valued higher than financial reward.

Entrepreneurship is an on-going process. Students need to be provided with skills and activities to enhance their interest in self-employment when they graduate. According to Bird (1998), intention is the state of mind that directs a person's desire for and action towards self-employment as opposed to organizational employment. He also states that intention is a thinking situation consisting of concentration, experience and individual behaviour towards a specific goal or certain behaviour. Kreuger (1993) defines entrepreneurial intention as individual commitment to start a new business.

## 4. Methodology

This study is a survey study that was conducted at Malaysian Institute of Information Technology (MIIT), Universiti Kuala Lumpur (UniKL). The instrument was administered to 52 students from bachelor students in the middle of the semester using random sampling. The questionnaire used was adapted from the Kristiansen and Indarti (2004). Of those surveyed, 31 were male students and 21 were female students. The instrument was divided into 7 constructs; attitude towards entrepreneurship, perceived support and barriers, locus of control, need for achievement, entrepreneurial interest, instrumental readiness and subjective norms. The Likert scale 4 was used and scores were labelled; 1-strongly disagree, 2-strongly agree, 3-agree and 4-strongly agree.

With Alpha Cronbach reliability analysis technique conducted by Salwah, Siti Mistima and Norhatta (2013), the instrument shows a high reliability as the value of Alpha Cronbach is 0.884. As shown in the Table1 below, the values of Alpha Cronbach for all the constructs were more than acceptable Nunally (1978). The data was then analysed using the Statistical Package for Social Science (SPSS) where the descriptive and inferential statistics were used to analyse all the research questions.

**Table 1.** Reliability of all constructs

Construct	Number of items	Cronbach's Alpha
Subjective norms	3	0.781
Attitude towards entrepreneurship	7	0.668
Locus of control	14	0.642
Needs for achievement	5	0.756
Entrepreneurial intention	9	0.781
Instrumental readiness	3	0.778
Perceived and support barriers	8	0.639

## 5. Results

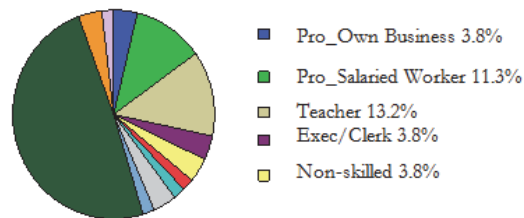
### 5.1 Respondents

The sample comprises a total of 52 degree students from Bachelor of Business Technology in Computer Entrepreneurial programme. The distribution of respondents by gender is illustrated in Table 2. From the total number of respondents, 60% of students were male and 40% were female.

**Table 2.** Gender of respondents

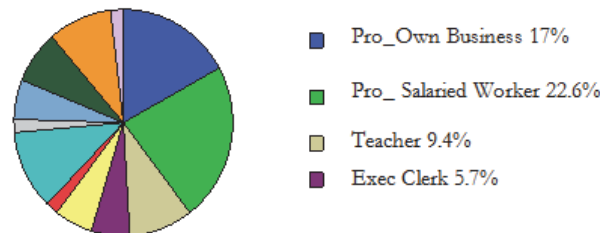
	Frequency	Percent	Cumulative Percent
Male	31	60	60
Female	21	40	100
N	52	100.00	

From the result of the study as shown in the pie chart below, only 3.8% of the respondent's mother have their own business, 11.3% are professional salaried workers, 13.2% are teachers, 3.8% are executive/clerk, 3.8% are non-skilled workers and 64.1% are from various occupations.

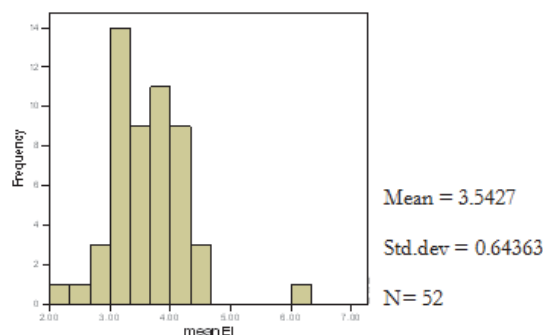


**Figure 1.** Distribution of family background by parent's occupation

For father's occupation, only 17% have their own business, 22.6% are professional salaried worker, 9.4% are teachers, 5.7% are executive/clerk and 45.3% are from various occupations.



**Figure 2.** Distribution of family background by parent's occupation



**Figure 3.** The distribution of entrepreneurial intention among respondents.

From the figure 3 above, it is shown that the level of entrepreneurial intention among students is medium (3.5427).

## 5.2 T-Test

In this study, 0.05 was set as an indicator. Table 3 indicates that the p-value is greater than 0.05. Since the p-value is greater than 0.05, it can be concluded that hypothesis 1 can be accepted. As such, there is no significant difference between gender and entrepreneurial intention. In other words, the levels of entrepreneurial intention amongst male and

female students are equal.

**Table 3.** The summary of independent t-test based on gender

	Gender	N	Mean	Std. Deviation	t	* p
Entrepreneurial Intention	Male	31	3.6057	.76165	0.855	.396
	Female	21	3.4497	.41347		

### 5.3 Pearson Correlation

**Table 4.** The summary of Pearson Correlation test between entrepreneurial intention, self-efficacy and the need for achievement

		Entrepreneurial Intention	Subjective Norms	Need Achievement
Entrepreneurial Intention	Pearson Correlation		.469(**)	.328(*)
	Sig. (2-tailed)		.000	.017
Subjective Norms	Pearson Correlation	.469(**)		.422(**)
	Sig. (2-tailed)	.000		.002
Need Achievement	Pearson Correlation	.328(*)	.422(**)	
	Sig. (2-tailed)	.017	.002	

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

In this study, 0.01 significant level was set as an indicator. The above table illustrates the information of the result analyzed. Based on the test result on self-efficacy, the level shows that  $r = 0.469$  and the  $p$  value is less than 0.01. It means that there is a significant relationship between the level of self-efficacy and entrepreneurial intention. Also, test results on the need for achievement level shows that  $r = 0.328$  and the  $p$  value is less than 0.01. It means that there is a significant relationship between the level of the need for achievement and entrepreneurial intention. In addition, the result shows that there is a significant relationship between self-efficacy and the need for achievement ( $r = 0.422$ ,  $p < 0.01$ ). Therefore, it can be concluded that there is a significant relationship between self-efficacy and the need for achievement towards entrepreneurial intention among students.

### 5.4 Anova

**Table 5.** Mean and standard deviation entrepreneurial intention based on father's occupation

Entrepreneurial Intention	N	Mean	Standard Deviation
Professional and own business	9	3.23	0.406
Professional and salaried worker	12	3.83	0.954
Teacher	5	3.64	0.380

Table 5 shows that professional and salaried worker (mean = 3.83 and std = 0.954) have more entrepreneurial intention compared to professional and own business (mean=3.23 and std= 0.406) and teacher (mean = 3.64 and std = 0.513). Table 6 below shows the significant difference of entrepreneurial intention based on father's occupation.

**Table 6.** Entrepreneurial intention difference based on father's occupation

Entrepreneurial Intention	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.330	10	0.333	0.767	0.659
Within Groups	17.797	41	0.434		
Total	21.127	51			

From table 6 above, it shows that there is no significant difference between entrepreneurial intention based on father's occupation. ( $F = 0.767$  and  $sig = 0.659 > 0.05$ ).

**Table 7.** Mean and standard deviation of entrepreneurial intention based on mother's occupation

Entrepreneurial Intention	N	Mean	Standard Deviation
Professional and own business	2	3.5	0.70711
Professional and salaried worker	6	3.5	0.66944
Teacher	26	3.6838	0.73816

Table 7 shows that teacher (mean = 3.684 and std = 0.738) have more entrepreneurial intention compared to professional and own business (mean=3.5 and std = 0.707) and professional and salaried worker (mean = 3.5 and std = 0.669). Table 8 below shows the significant difference of entrepreneurial intention based on mother's occupation.

**Table 8.** Entrepreneurial intention difference based on mother's occupation

Entrepreneurial Intention	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.984	10	0.198	0.425	0.926
Within Groups	19.143	41	0.467		
Total	21.127	51			

From the table 8 above, it shows that there is no significant difference between entrepreneurial intention based on mother's occupation.( F = 0.425 and sig = 0.926 > 0.05).

### 5.5 Multiple Linear Regressions

The table below summarizes Multiple Linear Regression test results between self- efficacy, the need for achievement and entrepreneurial intention. According to Alias Baba (1997), multiple regressions are used where we can predict one variable on the basis of several other variables. It is also a statistical approach to modelling the linear relationship between independent variables and dependent variables. Therefore, multiple regression is used in this study to test the hypothesis to see how many and which set of variables is influencing and affect our students entrepreneurial intention.

**Table 9.** Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.640	1	4.640	14.070	.000(a)
	Residual	16.488	50	0.330		
	Total	21.127	51			

From the above stepwise regression analysis table, it is shown that self-efficacy (F =4.640, sig = 0.000) seems to be the significant factor that contribute to the prediction model of entrepreneurial intention. However, the need for achievement did not contribute significantly to the prediction model of entrepreneurial intention. Self-efficacy contribution to the entrepreneurial intention is shown in the table below.

**Table 10.** The summary of multiple linear regressions between self-efficacy and entrepreneurial intention

Variable	t	sig	Unstandardized Coefficients		Standardized Beta	r <sup>2</sup>	%
			B	Std error			
Self-efficacy	3.751	0.000	0.460	0.123	0.469		
constant	4.515	0.000	1.950	0.432			

In this study, 0.001 significant level was set as an indicator. Table 10 illustrates the summary of the test result on the entrepreneurial intention. Self-efficacy is the significant factor that contributes to the prediction model of entrepreneurial intention. Also, test shows that 20.4% variation in entrepreneurial intention can be explained by self-efficacy and 79.6% are other factors that might contribute to the entrepreneurial intention. From the finding, the prediction model can be written as the following linear equation:

$$y = 1.950 + 0.461x_1 + 0.432$$

where:  $y$  = entrepreneurship intention  
 $x_1$  = self-efficacy  
constant = 1.950  
standard error = 0.432

## 6. Discussion and Conclusion

This study examines whether engineering technology students have an intention to be an entrepreneur and factors that might affect their decision. The study also examined whether students' gender has significant relationship towards entrepreneurship intention. However, from the analysis of the data, it was found that there is no significant difference between genders towards entrepreneurial intention. The finding of this study concurs with Ismail et al.(2009) that students' intention in entrepreneurship was not influenced by gender. However, several past studies found that males had significantly higher entrepreneurial intention than females. Mazzarol et al (2009); Ooi, Selvarajah and Meyer (1996).

The analysis of the father's and mother's occupation, show that there are no significant difference between father's and mother's occupation and entrepreneurial intention among students. These results contradict with XueFa, Yoon, and Liang (2011) and Wang and Wong (2004) who claimed that family business background had a significant impact on self-employment.

The results of this study also show that self-efficacy and the need for achievement are important elements to entrepreneurship intention. The results show a significant relationship between self-efficacy, the need for achievement and entrepreneurial intention. In respect of the need for achievement, McLelland (1961) showed those who possess a high level of need for achievement correspondingly see themselves as moderate risk takers. Risk taking is a major issue for entrepreneurs as their own capital is often at risk. This also supported by XueFa, Yoon, and Liang (2011) in their study that the need for achievement has a significant impact on entrepreneurial intention and the strongest predictor that contributes to the entrepreneurial intention. Based on the finding, it may be assumed that the need for achievement plays an important role in students' intention to become self-employed.

The finding also shows that self-efficacy is a significant contributory towards entrepreneurship intention. Bandura (1977) claims self-efficacy is the subjective conviction that one is capable of action and the ability to cope with the resulting tasks is a reliable predictor of whether or not they will attempt the task, the amount of effort they will expend and their level of perseverance when confronted with unanticipated difficulties. Based on the finding, it can be assumed that self-efficacy is needed in students' behavior in order for them to choose to be self-employed.

In general, students at the MIIT UniKL should be equipped with necessary skills, experience and exposure if they want to choose entrepreneurship as a career choice. Since they have the intention to start their own business once they graduated, UniKL needs to encourage and promote students' interest in getting involved in entrepreneurship activities in the campus. The university needs to create and conduct entrepreneurship activities that will be able to attract the students to the ideas what is entrepreneurship and experience the thrill in each activity. These could help to nurture and inculcate students' interest towards entrepreneurship. Apart from this the syllabus or the formal classes need to be interesting and up to date with the current approach. The teaching approach need to be change from traditional lectures to problem based learning where higher thinking skill and analytical skill is required. This is consistent with Zaidatol Akmaliah (2009) who stated that universities should adopt different teaching practices to enhance entrepreneurial self-efficacy and desire amongst their students to follow entrepreneurship as a career choice.

Overall, the findings of this study will benefits lecturers and the university in determining the factors that might influence students' intention to become entrepreneurs of the future. As such, these elements could contribute to the global competitiveness and the country's economic growth when students become successful entrepreneurs after they graduate from the university.

## 7. Limitations of the Study and Future Research

Due to the small size of sample, the findings did not permit generalization and this study should be extended to all programmes offered in MIIT UniKL in order to obtain more accurate results. The variables that we discuss in this study did not cover the whole factors that may have influence the level of entrepreneurial intention. Thus, we recommend that future research should look in to other variables that have not been tested in this study.

## 8. Acknowledgement

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