

# The role of university and image of entrepreneurship on entrepreneurship inclination of engineering students

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## ABSTRACT

This study investigates the inclination towards entrepreneurship amongst engineering students. The main aims are to examine the relationship between the role of university, image of entrepreneurship and inclination towards entrepreneurship. An empirical test of pilot study was carried out on the data gathered from seventy-one questionnaires demonstrates that university role and image of entrepreneurship have significant relationship on entrepreneurship inclination among students. Male students have higher inclination of entrepreneurship than female students. However, past working experience and participation in entrepreneurship program in university have small impact on students' inclination towards entrepreneurship. Finally, based on the findings of the pilot study, implications of the study have been forwarded.

**Keywords:** Role of University, Image of entrepreneurship, Entrepreneurial Inclination

## I. INTRODUCTION

Entrepreneurship is regarded as one of the best economic development strategies to develop country's economic growth and sustain the country's competitiveness in facing the increasing trends of globalization (Schaper and Volery, 2004; Venkatachalam and Waqif, 2005 as cited by Ooi et al. 2011).

Entrepreneurship education is a major step to nurture students' tendency on entrepreneurship (Jumaat et al. 2012). As government is giving more emphasize on entrepreneurship, universities play a very important role in developing more

entrepreneurs which would help to reduce unemployment problems among fresh graduates.

## II. LITERATURE REVIEW

### A. Role of university and entrepreneurship inclination

Universities play a functional role in promoting entrepreneurship education to develop regional and society economies (Binks, Starkey et al. 2006; Co and Mitchell 2006 as cited by Ooi et al. 2011). Universities play a very important role in social and national economic growth (Conel, 2006 as cited by Jumaat et al. 2012). Entrepreneurship can be nurtured and developed among the students; therefore, universities should become the most important societal subsystem in imparting entrepreneurship education to students. According to Landstrom (2005), universities are the ideal place to shape entrepreneurship cultures and aspiration among students while they are fresh and young. The purpose of university course, from the point view of both the university and the individual student, is to train and prepare young people for their future endeavors which may bring them into close contact with commercial or social enterprise (Volkman and Tokarski (2009). Therefore university should position itself in delivering entrepreneurship education to their students in ensuring its success as entrepreneurship is not an easy journey even though the success outcome would be lucrative. In addition, university is the best platform to provide training, share knowledge and business advice, beside mentoring and coaching young entrepreneurs besides positioning themselves as a

hub of entrepreneurship by making substantial contributions in nurturing an entrepreneurial environment that combines factors that contribute to the development of entrepreneurship (Gnyawali and Fogel 1994 as cited by Ooi et al. 2011). Universities have a key role to play in fostering entrepreneurship, since educational institutions are considered the ideal place for shaping entrepreneurial cultures and aspirations among students surviving in today's robust business milieu (Mahlberg, 1996, Gasse and Tremblay, 2006). Even though entrepreneurship education is considered important and has been growing dramatically, however entrepreneurship remains primarily as elective subject (Wilson, 2007). In addition, entrepreneurship subject is usually taught as stand-alone subject and it is not well integrated throughout the curriculum (Wilson, 2007). As a provider of entrepreneurship training programmes, universities must do all the best it could to create an entrepreneurially supportive environment that could encourage entrepreneurial activity in turn would help to develop an enterprise culture among university students who are tomorrow's entrepreneurs (Roffe 1999).

H1: The role of university increases the students' inclination to entrepreneurship.

### B. Image of Entrepreneurship and Entrepreneurship Inclination

The image of profession more often than not would influence students in pursuing their career. According to Volkman and Tokarski (2009), image and attitudes of entrepreneurs have an impact on students especially in motivating them to become entrepreneurs. Beside knowledge of entrepreneurship, image of entrepreneurship would determine students' entrepreneurial inclination. It is suggested that universities should improve the image of entrepreneurship and promote entrepreneurship as a possible career choice among students by providing suitable entrepreneurial networks and good role models in teaching entrepreneurship (Levie, 1999). Autio, Keeley, Klofsten, & Ulfstedt (1997) in their study on entrepreneurial intentions of technology and sciences students across four countries consistently conclude that university teaching environments are the most influential factors that affect students' perceptions towards entrepreneurial career and

entrepreneurial convictions. Hence it is important to present a positive image of entrepreneurship as career option to draw students' attentions within the university environment by providing the resources and other facilities available to them.

H2: The image of entrepreneurship increases the students' inclination to entrepreneurship.

### III. RESEARCH METHODOLOGY

The empirical study employed a questionnaire approach designed to collect data for testing the validity of the model and research hypotheses. Variables in the questionnaire included background information, tacit knowledge sharing, innovation and organizational performance. All the independent and dependent variables were based on a seven-point Likert-type scale ranging from 1= "strongly disagree" to 7 = "strongly agree".

This study is a preliminary study of inclination towards entrepreneurship with the effects of role of university and image of entrepreneurship among engineering students. This pilot study was undertaken to help refining data collection plans with respect to both the contents of data and the procedure to be followed. The pilot study explored the inclination of entrepreneurship among students in higher institution. Seventy one respondents from science and technology clusters were taking part in the questionnaire survey. Table 1.0 shows the details of respondents.

Table 1.0: Demographic Profile

		Frequency	%
Years of Study	2 <sup>nd</sup> Year	13	17
	3 <sup>rd</sup> Year	35	46
	4 <sup>th</sup> Year	28	33
Faculty	Electrical Engineering	9	12
	Mechanical Engineering	43	57
	Applied Science	24	31
Have attended Entrepreneurship program	Yes	34	43
	No	46	57

## IV. ANALYSIS AND RESULTS

### A. Reliability Test

Reliability test is an assessment of the degree of consistency between multiple measurements of a variable. The Cronbach alpha coefficient was used to measures (Nunnally, 1978). Table 2 presents the alpha coefficients that were above the required level of 0.7 as suggested by Malhotra et al. (1999).

**Table 2 Reliability Test**

Factors	Items	Cronbach's Alpha
Entrepreneurial Inclination	4	0.858
Image of Entrepreneurship	3	0.868
University Role	6	0.884

The result of reliability test showed that the items measured are reliable.

### B. Correlations

The role of university is strongly correlated to entrepreneurial inclination and image of entrepreneurship. However, the correlation between the categories is not that high therefore multicollinearity does not exist among the variables. Table 3 shows the correlations of the variables.

**Table 3: Correlations**

	University Role	Image of Entrepreneurship	Entrepreneurial Inclination
University Role	1	0.567**	0.411**
Image of Entrepreneurship	0.567**	1	0.384**
Entrepreneurial Inclination	0.411**	0.384**	1

### C. Entrepreneurial Inclination and Gender

An independent-samples t-test was conducted to compare Entrepreneurial Inclination and Gender. Males are more inclined towards entrepreneurship compared to females. There was significant differences in scored for males (M=5.233, SD= .781) and female (M= 4.100, SD= .602);  $t = 2.455$ ,  $p= 0.005$ . Table 4 shows the details. In addition, one-way ANOVA shows that the there is significant different of

Entrepreneurship Inclination between Males and Females ( $F= 9.434$ ,  $p<0.01$ )

**Table 4: T-test of Entrepreneurial Inclination and Gender**

	Gender	N	Mean	SD
Entrepreneurial Inclination	Male	45	5.233	0.781
	Female	26	4.100	0.602

An independent-samples t-test was conducted to compare Image of Entrepreneurship and Gender. Male students have high regards of entrepreneurship compared to female students. There was a significant differences in scored for males (M=6.22, SD= .856) and females (M= 5.73, SD= .955);  $t = 2.082$ ,  $p= 0.05$ . Table 4a shows the details. Besides, one-way ANOVA shows that the there is significant different of Image of Entrepreneurship between Males and Females ( $F= 8.665$ ,  $p<0.01$ )

**Table 4a: T-test of Image of Entrepreneurship and Gender**

	Gender	N	Mean	SD
Image of Entrepreneurship	Male	45	6.22	0.856
	Female	26	5.73	0.955

However, past working experience doesn't have strong impact on entrepreneurial inclination as shown in Table 4b which is contrasted to the finding by Abdul Jumaat and Jasmin (2012). However, one-way ANOVA shows that the there is significant different of Entrepreneurship Inclination and past working experience ( $F= 3.964$ ,  $p<0.05$ )

**Table 4b: T-test of Entrepreneurial Inclination and Past working experience**

	Past working experience	N	Mean	SD
Entrepreneurial Inclination	Yes	39	4.956	0.857
	No	5	5.800	0.213

### D. Regression

Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the  $t$ -statistics of their estimated coefficients. Stepwise model-building techniques for regression designs with a single dependent variable are described in numerous sources

(e.g., see Darlington, 1990; Hocking, 1966, Lindeman, Merenda, and Gold, 1980; Morrison, 1967; Neter, Wasserman, and Kutner, 1985; Pedhazur, 1973; Stevens, 1986; Younger, 1985 as cited by Ooi et al. 2011). The basic procedures involve (1) identifying an initial model, (2) iteratively "stepping," that is, repeatedly altering the model at the previous step by adding or removing a predictor variable in accordance with the "stepping criteria," and (3) terminating the search when stepping is no longer possible given the stepping criteria, or when a specified maximum number of steps has been reached. All independent variables namely Gender, past working experience, entrepreneurship participation, university role and image of entrepreneurship are included. The entrepreneurial inclination is the dependent variable. The findings shows that only three variables are the indicator for entrepreneurial inclination namely; gender ( $\beta = 0.302$ ,  $p < 0.01$ ); Image of Entrepreneurship ( $\beta = 2.58$ ,  $p < 0.05$ ) and role of university ( $\beta = 0.280$ ,  $p < 0.05$ ). The analysis showed that image of entrepreneurship explained 22.9% ( $R^2 = 0.229$ ) variance of Entrepreneurial Inclination. A combination of Image of Entrepreneurship and Gender contributed 30.5% ( $R^2 = 0.305$ ) variance of Entrepreneurial Inclination. When Role of University was included together with Image of Entrepreneurship and Gender, all these three variables contributed 36.8% ( $R^2 = 0.368$ ) variance in Entrepreneurial Inclination with significant change in  $R^2$ ,  $F(3,53) = 10.100$ ;  $p < 0.00$ . The value of collinearity statistics of all variables was below 0.10 indicated that there is no multicollinearity problem exists. In addition, standard residual is within the range of  $\pm 3$  (2.243) showed that the data has no problem pertaining to extreme outliers. Based on these findings, hypothesis 1 and 2 were supported.

## V. DISCUSSION AND CONCLUSION

This pilot test was conducted to preliminarily investigate the role of university and image of entrepreneurship towards entrepreneurial inclination amongst the engineering students.

The finding of this study showed that past working experience doesn't have impact on students' entrepreneurial inclination which contrasted to findings done by Ooi et al. (2011). However, overall students are inclined towards entrepreneurship where males students showed higher tendency compared to females.

This finding is supported by previous studies done by Ghazali, Ghosh et al. 1995; Kourilsky and Walstad, 1998; Phan, Wong et al. 2002 where male students are more highly inclined or interested in entrepreneurship. This also shows that students are interested in entrepreneurship and see the potential of entrepreneurship for their future.

In this study, the role of university and image of entrepreneurship support entrepreneurial inclination of the students. This is supported to the earlier findings of Edwards and Muir, 2005, Postigo, Iacobucci et al. 2006, Nurmi and Paasio, 2007 that showed strong position of university in promoting entrepreneurship. Therefore, university must play aggressive role in nurturing entrepreneurship amongst its students such as promoting entrepreneurial culture, showcasing more entrepreneurship activities and encourage more lecturers to play their roles in instilling entrepreneurship interest among the students through their curriculum. In addition, past working experience should provide students some experience that would help them to decide for their future. Therefore, it would be beneficial if students be advised on choosing their part time work in acquiring certain knowledge and skills that would assist them in future. Lecturers should play their roles in motivating their students to explore and understand in depth of entrepreneurship.

The findings from this pilot study can be used to further explore to further encourage creativity among the students. Future findings of creativity would assist the educators in finding a ways or approach in nurturing creativity amongst the students and linking it to entrepreneurship. Students high in emotional intelligence have stronger entrepreneurial intentions which suggest that entrepreneurship programs may want to find ways to enhance the awareness and level of emotional intelligence.

One of the limitations of this study is the use of small number of students' sample. Bigger sample across the universities and faculties might provide different findings which would help to access the real scenario of entrepreneurship education in Malaysia. Another limitation is a possibility of self-reporting bias. Inclusion of entrepreneurship curriculum and the role of educator or trainer give more information on entrepreneurship inclination amongst students in university.

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