

Predictors of Entrepreneurial Mindset among University Students

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Abstract: *Entrepreneurship Education (EE) is a learning process of developing learners' skills and mindset, which creates a pathway to transform creative ideas into entrepreneurial action. In today's tumultuous working environment, it is important for university students to gain entrepreneurship experience before graduating as many employers are seeking for students with entrepreneurial mindset. This is essential because students who have an entrepreneurial mindset are accountable for their own actions, brings new perspectives and youthful ideas into the workplace. Hence, this study explores the significant predictors of university student's entrepreneurial mindset. This study endeavoured to answer the research questions through employing quantitative research method. The data was gathered by using simple random sampling, which consists of 366 university students. Findings indicated that University students have moderate level of entrepreneurial mindset and discovered that the level of self-entrepreneurial competencies was overall moderate level. The findings also found out a high correlation between self-entrepreneurial competencies with entrepreneurial mindset, followed by regression analyses revealed that risk propensity, creativity, planning and financial literacy are the significant predictors for university student's entrepreneurial mindset. The results from this study provide in-depth insights about university students' entrepreneurial mindset and create a delineate directions for further research and analyses. Implications and recommendations of the findings are presented in the paper.*

Keyword: *Entrepreneurial mindset, Self-entrepreneurial competencies, University students*

1. INTRODUCTION

Entrepreneurship, is widely acknowledged as an important growth strategy for sustaining the country's economic growth (Israel & Johnmark, 2014), particularly in career perspectives and business opportunities which generate profits (Gurol & Atsan, 2006; Othaman, Ghazali & Cheng, 2005). Viewed in this context, successful entrepreneurs contribute towards the development of society and advancement of economic growth (Wu, 2009). These resulting new entrants into the entrepreneurial industry are generating intense competition, which requires learners to adopt entrepreneurial mindset to survive the competition. While this account for the overwhelming majority of colleges and universities around the world to offer entrepreneurship courses (Fayolle & Klandt, 2006) to equip students with the essential entrepreneurial knowledge and skills (Henry, 2003).

Entrepreneurship Education (EE) is a learning process of developing learners' skills and mindset, which creates a pathway to transform creative ideas into entrepreneurial action. This is vital as it triggers learner's competencies, supports personal development and enhances social inclusion as well as employability (Sözen, 2015) which eventually contribute to an entrepreneurial spirit or behaviour. EE is not synonymous with vocational education, nor does it mean the same thing as business education. EE is aimed to promote creativity, innovation and self-employment among students by instilling the entrepreneurial knowledge, competences and attitudes in the learners (Israel & Johnmark, 2014).

Entrepreneurial mindset simply defined as the feelings and the belief of a particular ability to think out of the box (Lackeus, 2016; 2013). Commencing with the pioneer work of Bruyat & Julien (2001) who discussed the idea of entrepreneurial mindset on self-competency, much research since been undertaken on the term in the context of not only self-competency but also in several other fields (Lackeus, 2015; Solesvik, et al., 2013). There is also prior research on entrepreneurial mindset research within the broader field of entrepreneur research. In view of the multidisciplinary nature of prior research, there are varying definitions of entrepreneurial mindset and it is problematic to

determine an exact meaning of entrepreneurial mindset. However, in this study, entrepreneurial mindset is considered a holistic perception of generating novel ideas, evaluating opportunities and risks, or starting and running a business, whereby an individual internally assesses his or her perceptions based on holistic rather than functional attributes.

1.1. Problem Statement

The rate of unemployed among graduates has been alarming lately (Hanapi & Nordin, 2014). According to the National Economic Advisory Council (NEAC) on the New Economic Model (NEM), in 2008, about 30% graduates from local public universities remained unemployed for six months (NEAC, 2010). This unparalleled phenomenon for university graduates especially in public sector can be explained by the fact that wages employment or ‘secure’ employment is no longer a guarantee (Arokiasamy, 2010; Ooi, Selvarajah & Meyer, 2011). As a result, the Government has endorsed the Malaysian Education Blueprint 2013-2025 policy, which emphasize on the “entrepreneurial mindset” among students and institutions urging graduates to create jobs, rather than only seeking for jobs (Annual Report of Malaysian Education Blueprint 2013-2025, 2014). Therefore, this study aimed to investigate the significant predictors of university student’s entrepreneurial mindset.

1.2. Research Questions of the Study

- 1) What is the level of entrepreneurial mindset among UPM students?
- 2) What is the level of each dimension of self-entrepreneurial competencies in developing entrepreneurial mindset among UPM students?
- 3) What is the relationship between dimensions of self-entrepreneurial competencies with entrepreneurial mindset?
- 4) Is there any relationship between self-entrepreneurial competencies with entrepreneurial mindset?
- 5) What are the predictors of entrepreneurial mindset?

2. LITERATURE REVIEW

An enterprising mindset is about having a way of thinking, which sees opportunities, rather than barrier, that sees possibilities rather than failure and wants to do something to make a difference rather than sit and complain about the problems (Souitaris, et al., 2007; Osterbeek, et al., 2010). While self-entrepreneurial competencies are defined as “cluster of associated knowledge, attitudes, and skills which an entrepreneur must obtain through managerial training and development that will enable students to produce outstanding performance and maximize profit” (Inyang & Enuoh, 2009, p. 3).

Numerous prior studies had been conducted to examine the successful entrepreneurs’ characteristics (McClland, 1961; Brockhaus, 1982; Begley & Boyd, 1987; Lumpkin & Dess, 1996; Kolvereid & Moen, 1997). A number of characteristics are considered in almost each of these studies. However competencies can range from personality traits, individual motivations with specific skills and knowledge (McKinsey Global Institute, 2005).The ultimate goal of entrepreneurial education is to expand the level of self-entrepreneurial competencies among learners in terms of knowledge, skills and/or attitudes (Solesvik, et al., 2013; ASTEE, 2014).

While in this study, self-entrepreneurial competencies are categorized into thirteen competencies as stated below in Table 1.0.

Table1.0. Definition for each self-entrepreneurial competencies dimension

Dimension of self-entrepreneurial competencies	Definition
a) <i>Scanning</i>	Scanning plays an important element in skimming for new information and novel ideas to seek opportunities in establishing a successful business and thriving career by browsing internet, listening to news, reading magazines or trade publications and interacting with people.
b) <i>Connectedness</i>	Connectedness is the ability or skill of relating information, which is more likely to practise what students had learnt and apply the knowledge they acquire.
c) <i>Evaluation</i>	Evaluation is the aptitude or the capability of an entrepreneur to make a rational choice in choosing the right opportunity and developing a growth-orientated business.

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d) <i>Risk Perception</i>	Rational or irrational belief held by an individual who takes the risk by venturing into business, which has a high potential of loss or doing poorly.
e) <i>Risk Propensity</i>	Risk Propensity is the measure of an entity's willingness to take chances and face the risk by seeing the possibility of starting a business.
f) <i>Core Self-evaluation</i>	Core self-evaluation encompasses the ability and confident of a person who able to evaluate and control their own ability.
g) <i>Entrepreneurial knowledge</i>	Entrepreneurial knowledge is the ability to understand the role of entrepreneurs, which focuses on 1) assessing the students' perceived knowledge on how to gauge business opportunities, 2) the role and function of entrepreneurs play in society, as well as 3) the various prospective of entrepreneurial career options that exist.
h) <i>Creativity</i>	Creativity is the main ingredients for entrepreneurs to establish new ways of the stimulating creative thinking through imaginative skill in order to identify and discover business opportunities.
i) <i>Financial Literacy</i>	Successfully engagement in entrepreneurial activities requires an entrepreneur to have the capability to understand financial statements and budgets such as cash flow, return investment and etc. It is important that the entrepreneur must at least have a basic understanding of the financial concept in order to be trustworthy to external and internal stakeholders.
j) <i>Managing Ambiguity</i>	In order for entrepreneurial activities be successfully performed, it is important for an entrepreneur to manage and cope with uncertainty and ambiguity in the process of implementing and exploiting a business idea.
k) <i>Marshalling of Resources</i>	Marshalling of resources is known as the essence of entrepreneurship to exploit business opportunity through the ability to assemble and organize resources.
l) <i>Planning</i>	The focal point of planning is the ability of an entrepreneur to sketch and structure the tasks by setting appropriate goals and thus, successfully executing the strategic plans.
m) <i>Innovative Employee</i>	It is important for employees to think and act like entrepreneurs to realize their innovative potential whereby it allows them to have the problem solving skills to solve their problems in their own ways of doing.

Source: Adapted from Solesvik, et al., 2013; ASTEE, 2014.

Following an analysing on entrepreneurial mindset competency, Solesvik, et al., (2013) and ASTEE (2014) was adopted as the preferred measurement tool to measure predictors of entrepreneurial mindset among university students for this research.

3. METHODOLOGY

3.1. Design and Sampling

In this study, quantitative correlational design is used. This study was conducted at one of the public university in Malaysia. The sample size consist 366 students which were selected from four Faculty of Study, which are Faculty of Science, Forestry, Educational Studies and Human Ecology using simple random sampling.

3.2. Instrument

Entrepreneurial questionnaires are obtained from Solesvik, et al., 2013 which consist 15 items. Meanwhile, self-competencies instrument was based on ASTEE (2014) which consist of 64 items with 13 dimensions namely; (i) Scanning, (ii) Connectedness, (iii) Evaluation, (iv) Risk perception, (iv) Risk propensity, (v) Core self-evaluation, (vi) Entrepreneurial knowledge, (vii) Creativity, (viii) Financial literacy, (x) Managing ambiguity, (xi) Marshalling of resources, (xii) Planning and (xiii) Innovative Employee. The response are modified by researcher into five point-Likert scale range from strongly disagree (1) to strongly agree (5). The questionnaires are modified to suit Malaysian culture and entrepreneurial practice.

3.3. Validity and Reliability

The instruments indicated overall excellent Cronbach α value for entrepreneurial mindsets ($\alpha = .931$) and self-competencies ($\alpha = .961$) as supported by the George & Mallery (2001, p. 127) rule of thumb, therefore the instruments are accepted for consideration in this study. Students' participation was voluntary.

3.4. Data Analyses

The level of entrepreneurial mindset and self- entrepreneurial competencies was based on the mean score obtained from descriptive analysis. The level of entrepreneurial mindset among UPM students is calculated based on Gravetter & Wallnau, (2009) formula that was classified into three levels namely; low level (1.000 – 2.339), moderate level (2.34 – 3.669) and high level (3.67 – 5.00). Pearson correlational analysis was conducted to determine the correlation between entrepreneurial mindsets and self-competencies to measure significance relationship between two or more variables. Finally, multiple regressions was used to explore the influence of entrepreneurial mindsets on self-competencies. Preliminary analyses was conducted to check normality and linearity of the sample showed that scores were approximately normally distributed with a skewness of .0195 (SE= .128) and a kurtosis of -.139 (SE = .254). All data collected were analysed by using the Statistical Package for Social Science (SPSS) Version 21.0.

4. FINDINGS

RQ 1: *What is the level of entrepreneurial mindset among UPM students?*

Mean scores, standard deviations and level of entrepreneurial mindset and self-entrepreneurial competencies are presented in Table 1.1. All the variables were normally distributed, as the mean rating scale for each variable is approximately 3.0 midpoint on the rating scale. The entrepreneurial mindset indicated that moderate level with mean score is 3.30 and standard deviation is .73. The result indicated that the students’ entrepreneurial mindset development is sensible and modest. It clearly stated that students are still lacking in establishing their own firm and problem solving skills. Similarly, the level of self-entrepreneurial competencies showed moderate level with mean score is 3.58 (SD = .52). It clearly indicated that the progress of self- entrepreneurial competencies skills in students deficient in term of considering entrepreneurial as a career option, finding possibilities and seeking for new ideas.

Table1.1. *Mean and standard deviations entrepreneurial mindset and self-entrepreneurial competencies*

Item	Mean	SD	Level
Entrepreneurial mindset	3.30	.73	Moderate
Self-entrepreneurial competencies	3.58	.52	Moderate

Source: *Developed for this Research*

RQ 2: *What is the level of each dimension of self-entrepreneurial competencies in developing entrepreneurial mindset among UPM students?*

The level of each dimension of self-entrepreneurial competencies in developing entrepreneurial mindset among UPM students based on the descriptive statistic result as shown in Table 1.2. The result of this study showed that the dimension of self-entrepreneurial competencies, which are Scanning, Core Self-evaluation, Entrepreneurial Knowledge, Marshalling of Resources, Planning and Innovative Employee showed high level followed by Connection, Evaluation, Risk Perception, Risk Propensity, Creativity, Financial Literacy and Managing Ambiguity showed moderate level. These competencies are described as the underlying characteristics in developing entrepreneurial mindset among UPM students, which result in effective actions and performances for an entrepreneurial mindset.

Table1.2. *Level of each dimension of self-entrepreneurial competencies in developing entrepreneurial mindset*

No.	Dimension of self- entrepreneurial competencies	Mean Score	SD	Level
1	Scanning	3.73	.61	High
2	Connection	3.35	.73	Moderate
3	Evaluation	3.51	.65	Moderate
4	Risk Perception	3.43	.76	Moderate
5	Risk Propensity	3.51	.79	Moderate
6	Core Self-evaluation	3.92	.63	High
7	Entrepreneurial Knowledge	4.26	.64	High
8	Creativity	3.60	.66	Moderate
9	Financial Literacy	3.31	.89	Moderate
10	Managing Ambiguity	3.51	.71	Moderate
11	Marshalling of Resources	3.71	.68	High
12	Planning	3.67	.73	High
13	Innovative Employee	4.01	.72	High

Source: *Developed for this Research*

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RQ 3: *What is the relationship between each dimension of self-entrepreneurial competencies with entrepreneurial mindset?*

The correlation matrix between dependent variable (entrepreneurial mindset) and independent variables (self-entrepreneurial competencies) are exhibited in Table 1.3. Findings also indicated statistically significant correlations among all the 13 dimensions of self-entrepreneurial competencies with entrepreneurial mindset based on Hinkle, Wiersma & Jurs (2003) Rule of Thumb.

Table 1.3. *Relationship between each dimension of self-entrepreneurial competencies with entrepreneurial mindset*

No.	Dimension of self-entrepreneurial competencies	r
1.	Scanning	.576**
2.	Connection	.526**
3.	Evaluation	.597**
4.	Risk perception	.281**
5.	Risk propensity	.753**
6.	Core self-evaluation	.345**
7.	Entrepreneurial knowledge	.328**
8.	Creativity	.570**
9.	Financial literacy	.544**
10.	Managing ambiguity	.492**
11.	Marshalling of resources	.473**
12.	Planning	.571**
13.	Innovative Employee	.457**

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

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

Source: *Developed for this Research*

RQ 4: *Is there any relationship between self-entrepreneurial competencies with entrepreneurial mindset?*

Correlation analysis was performed to determine the relationship between entrepreneurial mindset and self-competencies. Based on Table 1.4, there is high positive correlation between entrepreneurial mindset and self-entrepreneurial competencies ($r = .717$, $p < .05$) based on Hinkle, Wiersma & Jurs (2003) Rule of Thumb.

Table 1.4. *Correlation between self-entrepreneurial competencies and entrepreneurial mindset.*

Variables		Entrepreneurial mindset	Self-competencies
Entrepreneurial mindset	Pearson Correlation	1	.717** (.000)
Self-competencies	Pearson Correlation	.717** (.000)	1

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

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

Source: *Developed for this Research*

RQ 5: *What are the predictors of entrepreneurial mindset?*

The findings from this study further clarifies that, the dimension Risk Propensity in the self-competencies received the strongest weight in the prediction (Standardized $\beta = .562$, $p < .05$), followed by Creativity (Standardized $\beta = .155$, $p < .05$) and Planning (Standardized $\beta = .571$, $p < .05$) as portrayed in Table 1.5. These three variables showed statistically significant relationship in making a significant unique contribution to the prediction of entrepreneurial mindset. It can be concluded that 33.5 % of the variance in self-entrepreneurial competencies can be explained by entrepreneurial mindset. However, there are still 66.5% variation of entrepreneurial mindset can be explicated by other variables which is not carried out in this research. The regression analysis showed that self-competency was partially related to entrepreneurial mindset. This finding highlights the sense of learners in seeing potential of starting and entrepreneur business. This study makes a novel contribution by evaluating student self-entrepreneurial competencies to bear uncertainty when the outcome is not known.

Table 1.5. Estimates of Coefficients for Entrepreneurial Mindset

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.323	.197		1.637	.103					
	MeanScanning	.083	.053	.070	1.562	.119	.576	.083	.047	.453	2.206
	MeanConnection	.059	.048	.059	1.224	.222	.526	.065	.037	.389	2.569
	MeanEvaluation	.036	.057	.032	.622	.534	.597	.033	.019	.351	2.851
	MeanRiskPerception	-.053	.032	-.056	-1.666	.097	.281	-.088	-.050	.828	1.208
	MeanRiskPropensity	.513	.039	.562	13.000	.000	.753	.570	.394	.492	2.034
	MeanCoreSelfEvaluation	-.145	.044	-.127	-3.287	.001	.345	-.173	-.100	.617	1.622
	MeanEntrepreneurialKnowledge	-.026	.040	-.023	-.650	.516	.328	-.035	-.020	.735	1.360
	MeanCreativity	.169	.055	.155	3.056	.002	.570	.161	.093	.359	2.787
	MeanFinancialLiteracy	.084	.036	.103	2.306	.022	.544	.122	.070	.460	2.173
	MeanManagingAmbiguity	.097	.050	.095	1.953	.052	.492	.104	.059	.390	2.563
	MeanMarshalingResources	-.131	.060	-.123	-2.205	.028	.473	-.117	-.067	.296	3.382
	MeanPlanning	.136	.054	.136	2.511	.012	.571	.133	.076	.314	3.182
	MeanInnovativeEmployee	.043	.041	.042	1.041	.299	.457	.055	.032	.555	1.801

a. Dependent Variable: MeanEntreMindsets

(Adjusted R² = .665, F = 56.383, p < .005)

Source: Developed for this Research

5. DISCUSSION

It clearly indicates that successful entrepreneurs plan and prioritize work to ensure time is managed effectively (Wentzel & Brophy, 2013). Hence, students able to work methodically and effectively by allocating time and resources as well taking necessary steps to skim through the challenges when the goal is not met. Besides that, entrepreneurial knowledge plays an important role with the aim of assessing students’ perceived knowledge about business opportunities, the role of an entrepreneur in the society and seeking information for the entrepreneurial career path (Jones & Iredale, 2010). Innovation and imagination is seen as an important element in university education particularly for undergraduate students (Barnett, 2011; Özkul, 2012). These skills require creativity and innovate to stimulate young entrepreneurs with the ability to think out of the box and discover business opportunities (Baron, 2012; Boyle, 2007).

Nevertheless, students are still lacking in term of financial literacy. Planning ability and financial literacy are interrelated entrepreneurial skill (Moberg, 2014). It is important for students to understand financial statements and budgets while planning and structuring their entrepreneurial activities (Delmar & Shane, 2003). This finding highlighted that Creativity, Risk Perception, Risk Propensity, Evaluation and Managing Ambiguity showed students are lacking in exploiting the gaps and challenges in the market. It is important for students to facilitate these self-entrepreneurial skills to facilitate the integration and accumulation of fresh knowledge to stimulate an entrepreneurial mindset to discover the better opportunities (von Graebenitz, et al, 2010).

There is a positive significant relationship between entrepreneurial mindset and self-entrepreneurial competencies. This is due to self-competencies are determined by goal oriented, achievement and focused on proactive and creativity. Since the entrepreneurial mindset focus on innovativeness and risk-taking, however, it would not neglect the self-competencies skills. Significantly, “*EE has a greater impact on the entrepreneurial mindset of young people, their intentions towards entrepreneurship, their employability and finally on their role in society and the economy*” (European Union, 2012, p. 7). University students are more oriented to higher entrepreneurial mindset when they perceived risk-propensity. Prior research on the influence of personality on risk-taking behaviour revealed that risk propensity is determined by individual characteristics. For example, personality traits such as impulsivity, sensation-seeking, and low self-control generally exhibit risk-taking behaviour (Mishra & Lalumière, 2011). The findings is also in line with Solesvik, et al., (2013) and ASTEE (2014) as their studies stated that students become more risk averse and realistic when they have higher entrepreneurial mindset.

6. CONCLUSIONS

In a nutshell, University students have moderate entrepreneurial mindset. Similarly, the level of self-entrepreneurial competencies among university students showed moderate level. However, there is a positive significant relationship between entrepreneurial mindset and self-entrepreneurial competencies. This study revealed that risk propensity, creativity and planning received the strongest weight in the prediction. In a broad perspective, this study highlights the important of students to incorporated self-entrepreneurial competencies to exhibit entrepreneurial mindset.

7. IMPLICATION OF THE FINDINGS

The findings from this study are essential for practical reasons as university students should exhibit self-entrepreneurial competencies to evaluate and explore business opportunities in seeking their career path. This study can confirm a productive way to link educational intervention towards entrepreneurial learning outcomes. The underpinning principles of promoting self-entrepreneurial competencies among University students with the aim to develop entrepreneurial mindset among university students, seems to be able to result in formation of entrepreneurial identities, increased self-efficacy, increased uncertainty and ambiguity tolerance and increased self-insight.

8. RECOMMENDATIONS

To increase the pool of potential entrepreneurs among University students, Universities need to

- Construct a learning environment characterized by uncertainty and ambiguity as well as building on strong teamwork to develop student entrepreneurial mindset.
- Develop creativity, critical thinking, and curiosity among university students by providing seminars and training.
- Involving and encouraging university students to participate in business partnership.
- Recommend future research in entrepreneurial mindset in different settings - secondary schools and other universities across the country or within Malaysia.

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Keetanjal Arivayagan always has a growing desire to contribute towards the education world. This has stimulated her to explore the ideal quality of school leadership, school management and entrepreneurship education together with the integration of creativity and problem solving skills. Her passion and strong determination has encouraged her to persuade her studies in Master of Education specializing Educational Administration in University Putra Malaysia (UPM), which is one of the top public universities in Malaysia. The findings of this study would be very useful in civilizing and sustaining the quality of university and entrepreneurship education.