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Do Prior Knowledge and Personal Capabilities Influence Entrepreneurial Intentions among Science and Technology Undergraduate Student?

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Abstract: The purpose of this research is to examine the relationship and impact of prior knowledge and personal capabilities and entrepreneurial intention among science and technology students at public universities in Kota Samarahan, Sarawak. A total of 214 respondents in both public universities at Kota Samarahan, Sarawak participated in the survey. Data obtained was analyzed using Statistical Package for Social Science (SPSS) version 22. The result reveals prior knowledge was found to be significant with moderate correlation and positive relationship with entrepreneurial intention. The main contribution of this paper has provided empirical evidence about the relationship between personal capabilities, prior knowledge and social factor on entrepreneurial intention. Moreover, it reveals the factor that influencing the most on the entrepreneurial intention among science and technology students specifically in Kota Samarahan area. Areas for future research are also discussed in this research.

Key words: Entrepreneurial Intention · Personal Capabilities · Prior Knowledge

INTRODUCTION

A survey of technology students from four different countries reveals that the career preferences and entrepreneurial convictions are influenced by the image of entrepreneurship as a career alternative and the support received from the university environment [1]. According to Duval-Couetil *et al.* [2] 70 percentage concerning college students surveyed felt so much that entrepreneurship instruction should expand theirs career possibilities choices, approximately 70 percent concerning all engineering students pronounced that they have been just interested into working for a mediocre in accordance with enormous size employer after graduation. They were also more likely to have an idea for a business, product, or technology. Nevertheless, 30 percent of non entrepreneurship students also reported having an idea for a business, product, or technology.

From the past research, the data collected are related to learning outcomes relied on students' self-report of abilities and knowledge. Duval-Couetil *et al*. [2] also suggest future research should include additional measures to triangulate these findings. This is one of the reasons for the researcher to challenge themselves to do this research. With this of future research suggestion and limitations has come up with factors that influence the entrepreneurial intention among engineering students in his research. These factors are personal capabilities, prior knowledge and social factors that will be the independent variables and will be test towards entrepreneurial intentions [3].

Personal capabilities are important to create an existence of entrepreneurial intention towards an individual. Bandura [4] 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. In fact, Refaat [5] states that personal capabilities can be influences by three factors, which are personality traits, psychological attributes and genetic factors to make strong bonds. According to Boyd & Vozikis [6] the self-efficacy is the prior development to entrepreneurial intentions and prior to development of the entrepreneurial actions. However, there are limited empirical research studies on personal capabilities towards entrepreneurial intention among engineering

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students in Malaysia. Duval-Couetil *et al*. [2] and Mcgee *et al*. [7] suggest the future researchers should look forward to gain insight on such important phenomena in the future using the measures of entrepreneurial self-efficacy refined in their study. Other findings from researcher on similar topic found that self-efficacy has highest impact towards involvement of women in entrepreneurial activities [22].

Same goes to prior knowledge, where one must have past experiences or direct experiences to give them starting view before they step in actual situation. According Teixeira & Forte [8] students enrolled in business economics or engineering technological related major's fields of study are the ones that have the most extensive possibilities of learning entrepreneurship and particularly likely to create fast growing knowledge-based incentivizing the focus of entrepreneurial intention studies on those students. The past research, prior entrepreneurial exposure, combines role models, work experience and international exposure and has only a very limited impact on the two attitudinal variables preceding entrepreneurial intention and on the entrepreneurial intention directly [8]. According Che Mat *et al*. [3], recommended future researchers should look into other variables that have not been tested in this study. Next influence is social factor. Both the full-scale environment and the smaller scale environment are essential for new pursuit creation. Entrepreneurial orientation not only has a direct influence on entrepreneurial intention but also it interacts strongly with other constructs such as entrepreneurial skills in explaining entrepreneurial intention [9]

Thus, objectives of this study are to examine the relationship of students' personal capabilities and student prior knowledge towards entrepreneurial intention. Secondly, is to identify the most critical factor between student personal capabilities and prior knowledge towards entrepreneurial intention. Finally, to identify whether is there any differences between UiTM and UNIMAS students towards entrepreneurial intention.

Entrepreneurial Intentions: Entrepreneurship has become of the most successful way for a country, either developed or developing, to strive their economic growth [10]. It is also referring to a process of innovation and exploring and exploiting opportunities by turning resources into output, [11]. So, anyone who wants to be an entrepreneur should first have the intention to become one. These intentions are being strengthened by many factors and ante decedents [3]. Lee *et al.* [12] extend that the entrepreneurial intentions literature introducing a multilevel perspective of individual and organizational factors building business creation intentions. Past research on entrepreneurial intentions found that main factors desirability perceptions of the personal make the person see the feasibility degree which one feels capable of doing so [13]. Lee *et al*. [12] theorize that self-efficacy strengthens the relationship on entrepreneurial intentions. High self-efficacy employees may be greater assured to starting successful corporations. Those factors are; consequently, influence to begin new organizations if they experience low job satisfaction.

Personal Capabilities: Refaat [5] states that personal capabilities can be influences by three factors, which are personality traits, psychological attributes and genetic factors. Examples of personality traits are optimism and creativity. Krueger & Carsrud [13] studied shows that entrepreneurial optimism needed self-efficacy in order to make strong bonds. He also states that it is important to point out that optimism about one's ability to achieve specific goals is not related to optimism in the sense of higher risk taking. Based on Sourav *et al.* [14], high levels of entrepreneurial alertness are related to high levels of entrepreneurial creativity and optimism. Both subjects must be equilibrium to enhance the entrepreneurial traits of a person.

Prior Knowledge: The differences between creative individuals and noncreative individuals are important in diverging perspective, ideas, experiences, norms and others [15]. Thus, to trigger individuals cognitive process a creative thinking beyond a particular task will domain and transform to another particular setting. The exposure like family will gain their prior knowledge by many resources and exposure such as direct experiences. Prior exposure from family and direct experiences can be the influences attitudes towards entrepreneurship [13]. To those entrepreneurs who's reported a positive and good view of their family's business experiences perceived starting a business as both desirable and feasible [16]. This shows that it is important to have a good entrepreneurial experience before starting a business. Besides that, they also found that experiences during childhood involved facing adversity or frequent relocation also brings positive effects on individual's perceived autonomy and attitude toward self-employment. Thus, prior exposure in the form of direct experience in starting or attempting to start a new business would affect attitudes and perceptions about entrepreneurship as career.

Study made by Sourav *et al.* [14] identifies entrepreneur's traits, social networks and prior knowledge as the antecedents of entrepreneurs alertness to business opportunities as written in The Theory of Entrepreneurial Opportunity. According to Ardichvili *et al.* [17], there are three major dimensions of prior knowledge are important to the process of entrepreneurial discovery, which are prior knowledge of markets, prior knowledge of ways to serve markets and prior knowledge of customer problems. Prior exposure to entrepreneurship education has a positive effect on student's attitudes towards a career in entrepreneurship and on perceived behavioral control or entrepreneurial self-efficacy [18]. In addition, individual's prior exposure to entrepreneurship in practice, both direct and indirect through their family background in business, is significantly linked to their attitudes, norms and perceived behavioral control regarding entrepreneurship. For example, by having a self-employed father, this will bring positive attitudes, stronger norms and greater self-efficacy with respect to entrepreneurship. Furthermore, student with self-employed father gained exposure to and get direct knowledge of entrepreneurship from early age, which affects their attitudes and perceptions of self-efficacy towards entrepreneurship.

MATERIAL AND METHODS

Respondent from Science and technology students from UNIMAS and UiTM Sarawak, Kota Samarahan campus are the sampling frame for this study. Purposive sampling was used through G-Power 3.1.9.2, with number of 4 predictors tested, therefore 85 respondents is the minimum requirement for this study. Thus, 250 questionnaires have been distributed to science and technology students from UiTM Kota Samarahan and UNIMAS. All the questionnaires adapted from the researchers whereby the dimensions measuring the entrepreneurial intentions and the factors related to science and technology students with Likert's scale five grades of answers.

RESULTS

Demographic Profile: Gender results show male 36.4% followed by female 63.6% from the total of 214 respondents. Marital status dominated currently single which is 99% and 0.9% is married. The age results show that the highest percentage which is from 21 to 25 years old is 50.0%. Second highest is the age from 21-25 years old with 49% and 25-30 shows the lowest percentage which is 0.5%. Regarding Table 1, race was dominating by Malays from overall sample size by 60.3%. While, others were represented the second highest percentage which is 10.3% and the third highest is Chinese which is 8.4%. Students from the Bidayuh race represented 7.5%, then Melanau and Indian with 5.1% and 1.4% respectively. The highest frequency for university involve is 65.9% which are students from UNIMAS and the remaining 34.1% students from UiTM. The result 81.8% of the respondent level of education is at degree level followed by 18.2% from diploma level.

The highest frequency for states is dominated by students from Sarawak states which are 52.3%. The second highest frequency is from Sabah which is 11.2% and follows by Johor which is 8.9%. Next is followed by other states that are Selangor, 5.1%, Pahang, 4.2%, Perak, 3.7%, Kuala Lumpur and Kelantan, 3.3%, Kedah, 2.8%, Terengganu and Others 1.4%, Negeri Sembilan and Melaka, 0.9% and the lowest is Penang 0.5%. Frequency for faculty the highest percentage is 36% is from faculty science resources and management, second highest is 29.4% from faculty of engineering, follow by 12.6% from faculty of health and science and next is from faculty of applied sciences which is 9.3% follow by faculty of architecture planning and surveying which is 7.0% and the lowest is from faculty of science computer and information technology which is 5.6%. 70.1% of the respondent never involved in entrepreneurship involvement in campus and the remaining 29.9% involved.

Relationship between student's personal capabilities towards entrepreneurial intention among Science and Technology Student

Table 1: Pearson correlations coefficients of Personal capabilities and Entrepreneurial Intentions.

		Personal capabilities	Entrepreneurial intention
Personal capabilities	Pearson Correlation Sig.	1	.381
	(2-tailed)		.000
	N	214	214
Entrepreneurial Intention	Pearson Correlation Sig.	.381	1
	(2-tailed)	.000	
	N	214	214

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

Table 2: Pearson correlations coefficients of Prior Knowledge and Entrepreneurial Intentions

		Personal capabilities	Entrepreneurial intention
Prior knowledge	Pearson Correlation Sig.	1	.476
	(2-tailed)		.000
	N	214	214
Entrepreneurial Intention	Pearson Correlation Sig.	.476	1
	(2-tailed)	.000	
	N	214	214

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

Identifying the most critical factor between personal capabilities and prior knowledge towards entrepreneurial intention among Science and Technology student.

Table 3: Model of Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.708[a]	.501	.494	.58329

a. Predictors: (Constant), Mean_Personal_Capabilities, Mean_Prior_Knowldege

Table 4: The Relationship between Variable Standardized Coefficients Based on Beta Value

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	Constant	-.296	.277		-1.066	.288
	Mean_Personal_Capabilities	.091	.079	.066	1.143	.254
	Mean_Prior_Knowledge	.282	.080	.208	3.531	.001

a. Dependent Variables: Mean_Entrepreneurial _Intention

Based on table 1, the correlation analysis for personal capabilities, it shows that there is a positive relationship between personal capabilities and entrepreneurial intention with significant value of r = 0.381 that indicates the strength of the relationship between each dimension are weak and positive, p-value = 0.000 is significant at the 0.01 level (2-tailed). This means, the objective of this study is met as result shows that a personal capability is influenced by the entrepreneurial intention. Similar result also can be found in the study that supports the advancement of research and its relationship to entrepreneurial intentions by developing a more robust measure of ESE that can be used by researchers in a variety of contexts [13].

Based on table 2, the correlation analysis for prior knowledge, it shows that there is a positive relationship between prior knowledge and entrepreneurial intention with significant value of r = 0.476 that indicates the strength of the relationship between each dimension are moderate and positive, p-value = 0.000 is significant at the 0.01 level (2-tailed). This means, the objective of this study is met as the result shows that prior knowledge is influenced by the entrepreneurial intention. This result is supported by Roxas *et al*. [19] who also found that entrepreneurial knowledge are positively related to higher levels of perceived desirability of entrepreneurship and it also positively related to lower levels of perception on associated with entrepreneurship.

Regression analysis was used to assess the strength of association among the variables and was measured by the coefficient of determination, r2 [20]. The linear regression test of the model disclosed that R Square of the model is 0.501. It illustrates that 50.1% of the variance in the Entrepreneurial Intention has been significantly explained by Personal Capabilities and Prior Knowledge in this study. Meanwhile, the remaining 49.9% cannot be explained. That means there were explained by other factors like creation of entrepreneurial-minded from friend, the motivation from family and influence by effort and time on entrepreneurship program about their career possibility [21].

Analysis of relationship between variables standardized Coefficient based on Beta Value, reveals that Prior Knowledge represents the highest Beta Value of 0.208 followed by Personal Capabilities with 0.066 respectively. This estimation of Beta Value notifies the amount of increase in Entrepreneurial Intention shows that personal factors leads to the most critical effect size towards entrepreneurial intention.

Table 5: Group Statistics

University	N	Mean	St.Deviation	Std.Error Mean
Mean_Entreprenurial_Intention_Unimas	141	3.0910	.88045	.07415
UiTM	73	3.2329	.68422	.8008

Table 6: Independent sample test

	Levene's Test for Equality of Variances		t.test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig (2-tailed)	Mean Different	Std. Error Difference	Lower	Upper
Mean_Entreprenurial_Intention	5.597	.019	-1.201	212	.231	-.14186	.11811	-.37467	.09095
Equal variances assumed									
Equal variances not assumed			-1.300	180.238	.195	-.14186	.10914	-.35721	0.7349

Means of entrepreneurial intention for UiTM and UNIMAS students are 3.0910 and 3.2329 respectively and it can be concluded that the perception towards entrepreneurial intention averagely the same response. Meanwhile, to identify the significant differences between UiTM and UNIMAS students towards entrepreneurial intention the researcher needs to refer to Independent Sample t– Test.

Based on table 6 above on Levene's Test for Equally of Variance shows a probability of 0.019 greater than 0.05, it can be concluded that the population variances are relatively equal. Therefore, the researcher uses the t – value, df and two tailed significance for the equal variance estimates to determine whether differences exist between UiTM and UNIMAS students. The two – tailed significance for entrepreneurial intention indicates that p = 0.231, p > 0.05 and therefore p – value is insignificance (p-value is significance at p<0.05), which can be concluded that there is no significant difference between UiTM and UNIMAS students towards entrepreneurial intention.

CONCLUSION

Each year, many fresh graduates involve in entrepreneurship upon finishing their study. These numbers keep increasing from time to time. Which indicate that not only student from business background can be an entrepreneur. Some of them are from different fields such as science, technology and medical programs. This study shows that science and technology students also have the intentions to become entrepreneurs. Many factors help to explain this scenario and one of them is the economic situation in this country which is not stable. This encourages students to think about their future by starting their own business. Based on the data gathered from the questionnaire, it is found that the strongest effect is Prior knowledge compared to personal capabilities. Prior knowledge plays an important role in determining the entrepreneurial intention among science and technology students. It is also found that personal capabilities do also affect the intention of science and technology students. Throughout this study, results have discovered some hidden and important dimension that triggers those students to be involved in business in Kota Samarahan. Hence, this study hopes to enhance knowledge on what triggers the entrepreneurial intention among science and technology students. This study also will be the guideline for students not only from science and technology background but also from other field to gain knowledge on how to get involved in entrepreneur.

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