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A Study of Entrepreneurial Characteristics and Entrepreneurial Intention among Electrical and Electronic Engineering Students

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Abstract: Entrepreneurship is flourishing all over the world. It promotes the economic growth and development of a country. It is important for job creation, innovation and growth. Therefore, it is the engine that drives the national economy. Regarding the unemployment problem among graduates, policy-makers and academicians have raised serious concerns. The first objective was to identify the entrepreneurial characteristics among electrical and electronic engineering students. The second objective was determining entrepreneurial intention among electrical and electronic engineering students. The third objective of the study was to identify the relationship between entrepreneurial characteristics and entrepreneurial intention among the electrical and electronic engineering students at UTHM. The scope of this study is limited to electrical and electronic engineering students at UTHM. This study uses the quantitative research method of questionnaire to collect data, and the data sources include primary and secondary data. Descriptive analysis and correlation analysis are used for this study to analyze the collected data. The key finding of this research is that entrepreneurial characteristics have a significant positive relationship with entrepreneurial intention. However, the scope of this research is limited, so the suggestion for future research is to expand the scope research.

Keywords: Entrepreneur, Entrepreneurial intention, Entrepreneurial characteristics

1. Introduction

Entrepreneurship is a precious and priceless resource that plays an important role in all human societies. Not only a source of creativity, but it can also be an endless resource. Entrepreneurship has been considered an important part of modern economic power. They are self-employed and started to organize, manage and assume business responsibilities. Entrepreneurs presented many personal challenges instead of being an employee of others. Entrepreneurs are people who create new businesses in the face of risks and uncertainties. They aim to find opportunities, combine the necessary resources,

and use the discovered opportunities for profit and growth. (Scarborough, 2012). The characteristics of entrepreneurs can be divided into five main categories: personal characteristics, motivation, demographic factors, lifestyle behaviour and skill division (Pourrajab & Mohammadi, 2011).

This paper examines the relationship between entrepreneurial characteristics and entrepreneurial intention among electrical and electronic engineering students. This chapter will effectively introduce entrepreneurship. Subsequently, the unemployment problem, problem statement, research question, research objective, scope and significance were discussed.

1.1 Research Background

Entrepreneurship is booming all over the world. It is important for job creation, innovation, and a country's economic growth and development. Therefore, it is the engine that drives the national economy. The profile of an entrepreneur includes a desire for responsibility, a preference for moderate risk, confidence in personal success, a passion for immediate feedback, a high level of energy and future positioning, and organizational skills. For entrepreneurs, money is a way to keep score, but not as important as achievement. The main aim of this study was to identify the entrepreneurial characteristics and intentions among electrical and electronic engineering students. The cognition of entrepreneurial activity originates from personal motivation and is understood as the detonating factor that detonates behaviour and gains energy to support and guide it to the goal (Haynie *et al.*, 2010). Entrepreneurs are the bearers of risks brought about by changes in market demand (Cantillon, 1755). According to Palmer (1971), entrepreneurship functions mainly involve risk measurement and risk-taking within the business organization. Whereby Gartnet (1989) claimed that entrepreneurship is the process of the birth of a new organization. Unemployment is a problem in Malaysia and the world (Zaliza Hanapi *et al.*, 2014).

1.2 Problem Statements

Regarding the unemployment problem among graduates, policy-makers and academicians have raised serious concerns. These graduates can choose to be self-employed to overcome this problem. Many recent graduates have the knowledge and skills to start their businesses. Still, only a very small number of students choose to become self-employed immediately after graduation (Ministry of Higher Education, 2010). It may be due to a lack of self-confidence or lack of encouragement or assurance (Islam *et al.*, 2020). During this covid-19 pandemic, the unemployment rate has increased significantly (Blustein *et al.*, 2020). Therefore, this research aims to identify the entrepreneurial characteristics and entrepreneurial intention among electrical and electronic engineering students.

1.3 Research Questions

This study aimed to address the following research questions:

- (i) What is the level of entrepreneurial characteristics among electrical and electronic engineering students?
- (ii) What is the level of entrepreneurial intention among electrical and electronic engineering students?
- (iii) What is the relationship between entrepreneurial characteristics and intention among electrical and electronic engineering students?

1.4 Research Objectives

The research objectives of this study are:

- (i) To identify the level of entrepreneurial characteristics among electrical and electronic engineering students.

(ii) To identify the level of entrepreneurial intention among electrical and electronic engineering students.

(iii) To identify the relationship between entrepreneurial characteristics and entrepreneurial intention among the electrical and electronic engineering students in UTHM.

1.5 Scope of the Study

The scope of this research is limited to electrical and electronic engineering students at UTHM. There are two main reasons for choosing engineering students. First, because there is a severe shortage of engineers worldwide, and second, studying their attitudes and behaviours is particularly important in a knowledge-based economy. Each respondent to the study will be asked to complete a short questionnaire to complete this research.

1.6 Significance of the Study

The contribution of young Malaysians to entrepreneurship will stimulate the country's economic growth and may help Malaysia to become a developed country by 2020. It is because they are the people who can help the country move towards a more advanced and prosperous economy. Nevertheless, unfortunately, self-employment is not their main career choice (Rajendran, 2011).

Therefore, this research is of great significance to the future career path of university students. Identifying their strengths and weaknesses, and intentions provide better career development options. Furthermore, they can determine their characteristics, attitudes and self-efficacy, which helps to clarify their intentions towards self-employed persons.

This research is also very important for implementing policies for the future development of undergraduate entrepreneurship plans. By having a good understanding of the factors that influence students' entrepreneurial intentions, all the plans provided by the government for them will be fully utilized. Furthermore, this research will give Malaysian decision-makers insights into the state of entrepreneurship education to stimulate entrepreneurs' intentions and thereby increase the rate of new corporate venture capital. Practical information will be provided in the in-depth investigation of entrepreneurial intentions because decision-makers can make better and more informed decisions when designing entrepreneurship course structures, which will help increase student participation in business in the future (Ooi, 2008).

Finally, the public will learn about their role in enhancing the intentions of university students and providing social support. For example, family background affects an individual's willingness to become an entrepreneur (Kolvereid, 1996). Therefore, business parents can offer college students prior business knowledge and experience to enhance their self-confidence in self-employment. In short, when there are more entrepreneurs in the country, the unemployed may be employed by these entrepreneurs, thereby reducing the unemployment rate. In addition, it will benefit the public by providing a better quality of life and standards.

2. Literature Review

The literature review discusses the concepts and theories of entrepreneurial characteristics and intention. In addition, the literature review aims to introduce previous work on this topic to formulate the goals and theoretical framework of the current research.

2.1 Entrepreneurship

Entrepreneurship is the process by which individuals seek opportunities regardless of the resources they currently control (Stevenson & Jarrilo, 2010). Entrepreneurship is an international activity, and there is a strong connection between venture creation and intention (Henley, 2007). Entrepreneurship originated from the French word "Entrepreneur". Entrepreneurs are also called self-employed. The

entrepreneur has no fixed definition because people from different research fields have further understandings and reports of it. Economists define entrepreneurs as those who combine resources to make them valuable. For psychologists, entrepreneurs are usually driven by certain forces, such as the need to obtain or obtain something, conduct experiments and achieve goals. For business people, entrepreneurs may be threats and active competitors. Still, they may also be allies, sources of supply, customers or people who create wealth for others and find better ways to use resources, reduce waste and provide jobs (Hisrich, Peters & Shepherd, 2005).

Becoming a successful entrepreneur is not easy. Requires long-term, systematic planning and business expertise, such as developing business models, forming new risk teams, raising funds, establishing partnerships, managing finances, and leading and motivating employees. Therefore, it is important to determine a person's entrepreneurial intentions before becoming an entrepreneur. It can give a person a clear goal of what kind of person he wants to be and what to do to achieve his goals and success.

2.2 Entrepreneurial Characteristics

Research on entrepreneurship usually focuses on the differences in personality characteristics between successful entrepreneurs and non-entrepreneurs (Armstrong & Hird, 2009). These characteristics include attitudes toward risk, innovation, enthusiasm, sense of accomplishment, internal control sources, and self-efficacy. As a result, many different methods and models have been adopted to measure the relative entrepreneurial nature of individuals and organizations. This research will focus on three characteristics: behavioural control, subjective norm and attitude towards self-employment. Entrepreneurial characteristics refer to individual factors, and well-known trait models pay attention to the personality characteristics of entrepreneurs (Koh, 1996). The model assumes that entrepreneurs have certain unique characteristics, values and attitudes that distinguish them from others (Koh, 1996).

(a) *Perceived Behavioral Control*

Attitudes are developed from behavioural beliefs. Assume that people with higher attitudes towards behaviour are likelier to adopt monitored behaviours (Ajzen, 2002). Behaviour control will affect the individual's action intention based on the perception of the difficulty of performing a specific behaviour (Ajzen, 1991). In addition, some internal and external factors encourage and discourage individuals, such as looking at friends or previous owners, the availability of resources, or the experiences of close people and others. Perceived Behavioral Control (PBC) is an individual's perceptual ability to become an entrepreneur (Kolvereid, 1996).

(b) *Attitude*

Attitude is the tendency to react positively or negatively to things, people, institutions or moments (Ajzen, 2005). Attitude represents the way an individual evaluates and compares objects and available options based on their thoughts (cognition), beliefs (values), and emotions about the object (Hoyer & MacInis, 2004). This study defines entrepreneurial attitude as a tendency to respond positively or negatively to entrepreneurship. Studies have found that attitudes and behavioural intentions correlate positively (Crisp & Turner, 2007). Attitudes towards behaviour lead to intentions and actual behaviours (Ajzen, 1991). In entrepreneurship, attitudes towards self-employment are defined as "the difference between an individual's perception of the desire to become self-employed and the desire to organize employment" (Souitaris, Zerbinati, & Al-Laham, 2007, p. 570). Attitude to entrepreneurship is the degree to which an individual has a positive or negative personal evaluation of becoming an entrepreneur (Liñán & Chen, 2009).

2.2 Entrepreneurial Intention

Human beings are active development promoters (Brandtstädter & Lerner, 1999). They started their business not accidentally but deliberately out of choice (Krueger, 2007). The employment status selection model focusing on entrepreneurial intention has always been a topic of considerable interest in entrepreneurial research (Kolvereid, 1996b). According to Bird (1988), entrepreneurship intention is a conscious mental state that directs personal attention, experience and behaviour to planned entrepreneurial behaviour. Entrepreneurship provides graduates with opportunities for self-employment. It reduces social ills, and public policy-makers are emphasizing and attracting college students to engage in entrepreneurial activities to increase the employment rate (Branchet *et al.*, 2011). They found that attitudes toward behaviour, subjective norms and perceived behavioural control significantly increased the likelihood of students reporting entrepreneurial intentions (Engle *et al.*, 2010).

2.3 Entrepreneurial Characteristics and Entrepreneurial Intention

Research is being performed to determine what motivates people to become entrepreneurs and establish new enterprises (Hazzouri *et al.*, 2014). The author says that any model based on entrepreneurial goals is the best approach to forecasting entrepreneurial activities. According to the scholars, entrepreneurship refers to a way of thinking that focuses on opportunities rather than threats, and the process of identifying opportunities is intentional, so they provide a better explanation and prediction of the entrepreneurial precursor's method, or in other words, entrepreneurship (SM Kabir, 2017).

In a study conducted by Hazzouri *et al.* (2014), determining the intention of participating in entrepreneurial activities is based on their entrepreneurial attitude. Kolvereid and Tkachev (1999); Dohse and Walter (2009); Paço, Ferreira, Raposo, Rodrigues and Dinis (2011) found that attitudes towards behaviour have a direct positive impact on entrepreneurial intentions. According to Scholten *et al.* (2004), the results show that attitude greatly influences choice; attitude is the decisive variable of intention; every change in attitude will directly lead to the same degree of change in entrepreneurial intention.

The influence of subjective norms on entrepreneurial intention was found to be weak, but when it comes to entrepreneurial intention, perceived behavioural control quickly became a more important factor (Autio *et al.*, 2013). Kolvereid (1996b), Basu and Velik (2008), and Ruhle *et al.* (2010) claimed that there is a significant relationship between perceived behavioural control and intention. Ruhr *et al.* (2010) further mention that the self-assessment of perceived behavioural control greatly influences students' intentions because the scope of support for perceived feasibility can enhance entrepreneurial intentions.

Kolvereid and Isaksen (2006) tested the norms of founders of Norwegian companies and found that subjective criteria are significantly related to entrepreneurial intentions. Yordanova and Tarrazon (2010) found that the more supportive the subjective norms of entrepreneurial behaviour, the stronger the individual's willingness to start a business. Based on the above discussion, hypotheses can be formed:

Hypothesis 1: perceived behavioural control

H0: There is no significant relationship between perceived behavioural control and entrepreneurial intention

H1: There is a significant relationship between perceived behavioural control and entrepreneurial intention

Hypothesis 2: Subjective norm

H0: There is no significant relationship between subjective norm and entrepreneurial intention

H1: There is a significant relationship between subjective norm and entrepreneurial intention

Hypothesis 3: Attitude

H0: There is no significant relationship between attitude and entrepreneurial intention

H1: There is a significant relationship between attitude and entrepreneurial intention

3. Research Methodology

A detail of the methodology used in the analysis is given in the research methodology. This part will describe the sampling techniques and methods, data collection, processing, analysis, and the research field. Research methodology also highlights the constraints and issues faced while collecting data. The concept of the research design, the sampling plan for determining the sample size and the data analysis method for the research are explained in detail. The methodology involves preparing a thoroughly organized study to collect and analyze data according to the required suitability. It is a tool to support and ensure that the research results are true, correct and accurate (Hin, 2007).

Furthermore, the research methodology will explain the types of survey methods used to research questions. In this section, the development of the questionnaire design has been fully discussed. Finally, at the end of this part, the methods of collecting survey data and the types of statistical tools used for data analysis are discussed. The topics discussed in the research methodology are critical to determining the methods and strategies used to complete this research. The details discussed in this chapter are research design, framework, population, sampling, data collection, and data analysis.

3.1 Research Design

Research design guides research by giving basic directions for conducting research, designing tools, conducting fieldwork, collecting data, and analyzing data. (Samuel *et al.*, 2007). The descriptive design uses the study to describe a population regarding the significant variables or what is being studied on the characteristics or data such as study on frequency, mean and other statistics.

Different approaches of research methodologies may be used while doing research. For example, qualitative research, quantitative research, and a combination of qualitative and quantitative research are the methods.

This study will adopt the quantitative research approach to answer the study questions. Quantitative methods are the most suitable when the goal of the demand has a deep insight into the phenomenon (Ghauri, Grønhaug & R Strange 2020, 98). Quantitative research involves objectively collecting and analyzing numerical data to describe, predict, or control variables of interest. The goal of quantitative analysis is to test the causal relationship between variables, make predictions and extend the results to a wider population (Saul Mcleod, 2019). In addition, quantitative researchers aim to establish general laws of behaviour and phenomena in different contexts/environments (Saul Mcleod, 2019). Finally, research tests the theory and ultimately supports or rejects the hypothesis (Saul Mcleod, 2019).

Population refers to the universe of population interests, representing a large group of people with information (Gates *et al.*, 2007). A population is a group of individuals with the same characteristics who want to be investigated by researchers (Mohd Yusof, 2005). Sampling is related to determining the number of responders or the sample size of the target population (Oosthuizen, 2005). The target population is electrical and electronic engineering students at University Tun Hussein Onn Malaysia (UTHM). This study only focuses on the Faculty of Electrical and Electronic Engineering (FKEE) students at the University Tun Hussein Onn Malaysia (UTHM). According to the Academic FKEE unit,

the total number of undergraduates in FKEE is 1,719. Therefore, according to the Krejcie and Morgan tables (Appendix A), the study's sample size is 313 randomly selected from UTHM FKEE undergraduates.

3.2 Data Collection

The data used in the research includes primary data and secondary data. Data collection is used to collect preliminary data, and the questionnaire is considered the research tool used in this study. The primary data is collected for the current specific research question using a program suitable for the research question (Hox, J. J., & Boeije, H. R, 2005). Secondary data represents information collected by others and is available to researchers (Clark, G, 2005).

(a) *Primary Data*

The primary data is the original data obtained by the researcher. The preliminary data of this study is obtained using the survey research method or called survey method, which collects information by submitting a set of questions to an individual sample selected from the population to be studied. In this study, the survey method through primary data was conducted in the form of questionnaires distributed to respondents. The questionnaire was distributed via email and social media (such as WhatsApp, Telegram or Facebook). This study will use the established questionnaire to collect the data (Appendix B).

(b) *Secondary Data*

Secondary data is data collected by other researchers. In addition to the primary data obtained through the questionnaire survey outlined above, further information is needed to strengthen the research further. This data is the most important source of information because it is required to clarify the research title and obtain the facts and findings of previous research. The secondary data source comes from research journals and manuals from the Tunku Tun Aminah Library of Tun Hussein Onn University in Malaysia. In addition, online resources such as Emerald, Science Direct, Research Gate, Google Scholar, and Mendeley are also used as references. Secondary data aims to identify problems, establish methods to solve them and answer some questions. Secondary data is supporting data to understand the more detailed research conducted. The supporting data that can be used include the data reliability, the data's sustainability, and the data's adequacy.

3.3 Data Analysis

A data review was conducted to determine the study's results and identify whether the research would accomplish the research objectives. The descriptive analysis approach and correlation analysis will be used to evaluate data obtained from the primary data of the questionnaire.

(a) *Descriptive Analysis*

Descriptive analysis views percentages, averages, mean values and frequencies (Flynn, 2011). Percentages, averages, mean values and frequencies will be used to achieve research objectives 1 and 2, identifying the level of entrepreneurial characteristics and entrepreneurial intention among electrical and electronic engineering students. Researchers would use descriptive analysis in this research to explain how to obtain population data from the survey. The SPSS program is the statistical tool used to analyze the data for this report. In addition, the analysis will demonstrate the percentage and mean for the research on the basic results and data information. Descriptive analysis is used to examine the characteristics of individual variables. Thus, the researcher has reviewed the data to describe the mean and standard deviation for all variables: perceived behavioural control, subjective norm, attitude toward the self-employed, and entrepreneurial intention. Besides, this analysis is an efficient way to differentiate each part in the mean distribution based on the Likert Scale to measure the level of all independent and dependent variables. This analysis is used to analyze the demographic of respondents,

such as gender or age. The descriptive analysis examines this study's demographic frequency or percentage of respondents. The descriptive analysis was also used to analyze the average value for each variable.

(b) Correlation analysis

Correlation analysis assesses variables' relationships (Akhilesh, 2019). In this study, the researcher will use correlation analysis to know how to measure the extent of correspondence between the variables. Spearman's correlation coefficient method is used to express the strength of the relationship between variables when the normality test shows that the data is not normally distributed (Patrick *et al.*, 2018).

This analysis is to achieve the first objective described in Chapter 1, which is to identify the relationship between the entrepreneurial characteristics of electrical and electronic engineering students and their entrepreneurial intentions. The Spearman or Pearson correlation coefficient is a value from -1 to +1. A deal with +0.1 indicates that the variables are in a linear relationship, showing an increasing relationship; a value with -1 indicates that the variables are in a linear relationship, establishing a decreasing relationship, and a zero value indicates that there is no linear relationship between the variables. If the correlation coefficient is greater than 0.8, there is a strong correlation, but if the correlation coefficient is less than 0.5, there is a weak correlation.

Table 1: Rule of thumb about correlation coefficient size (Hair *et al.*, 2007)

Coefficient Range	Strength of Association
0.91 – 1.00	Very Strong
0.71 – 0.90	High
0.41 – 0.70	Moderate
0.21 – 0.40	Small but definite relationship
0.10 – 0.20	Slight, almost negligible

(c) Pilot Test

Pilot testing refers to pre-testing research surveys in which a small number of interviewees are surveyed to identify unforeseen problems, such as the process and wording of the questions. According to Connelly (2008), the existing literature indicates that the pilot study sample should be 10% of the expected sample of the larger parent study. However, Isaac and Michael (1995) and Hill (1998) recommend that 10 to 30 participants participate in the pilot test. Therefore, a pilot test was conducted on 30 samples to improve the reliability and effectiveness of the problem and to determine the flaws in the problem design before the actual investigation.

(d) Normality analysis

Normality analysis is required before continuing to the next test, which is correlation analysis. According to Asghar and Saleh (2006), the Normality test determines whether the study population is normally distributed. If the data is normally distributed, then the parametric data test is used by conducting the Pearson correlation test. However, if the information is not normally distributed, the non-parametric test will be performed using the Spearman correlation test. Besides, the researcher needs to use whether Kolmogorov-Smirnov or Shapiro-Wilk test to determine the distribution of data normality.

(e) Reliability Test

The Cronbach's Alpha Reliability test was used to identify the internal consistency approach for each item of scale in the instrument of the study. The resulting questionnaire has been analyzed using

SPSS. According to Bonett and Wright (2014), The Cronbach alpha value should be greater than 0.7 to be acceptable in research.

Table 2: Rule of thumb for Cronbach's alpha coefficient value (Zikmund *et al.*, 2010)

Alpha Coefficient Range	Strength of Association
<0.60	Poor
0.60 to <0.70	Moderate
0.70 to <0.80	Good
0.80 to <0.90	Very Good
>0.90	Excellent

4. Results and Discussion

The results and discussion section presents data and analysis of the study.

4.1 Results

This section discusses the result of the findings.

(a) Return Rate

Table 3: Return rate

Population	Sample size	Questionnaires Distributed	Return Questionnaires	Percentage (%)
1719	313	313	313	100

(b) Reliability Test

Table 4: Reliability test

Variable	Cronbach's Alpha	N-Items in Scale	N-Respondents
Entrepreneurial Characteristics	0.949	21	313
Entrepreneurial Intention	0.969	9	313
Overall	0.973	30	313

Table 4 shows the actual reliability test of this study. The Cronbach's Alpha value of entrepreneurial characteristics is 0.949, and the Cronbach's Alpha value of entrepreneurial intention is 0.969, reflecting acceptable reliability. The overall Cronbach's Alpha is 0.973, which means the reliability is very good.

(c) Demographic Background

Table 5: Demographic background

	Frequency	Percentage (%)
Male	217	69.3
Female	96	30.7
Total	313	100.0
Age		
19-21 years old	67	21.4
22-23 years old	203	64.9
24-27 years old	43	13.7
Total	313	100.0

Race		
Malay	167	53.4
Chinese	122	39.0
Indian	20	6.4
Others	4	1.3
Total	313	100.0
Programme		
Bachelor of Electrical Engineering (BEV)	212	67.7
Bachelor of Electronic Engineering (BEJ)	101	32.3
Total	313	100.0

(d) *Descriptive Analysis*

From Appendix, the highest mean value for perceived behavioural control is 3.9617, which indicates that the respondents want to improve their status. Conversely, the lowest mean value of perceived behaviour control is wanting to be a boss, and the mean value is 2.2907. Overall, the average value of perceived behavioural control is 3.4486, and the standard deviation is 1.3080, reflecting the medium level. From Appendix, the question is related to subjective norms. The highest average of 3.9169 means that respondents want to invest their savings, the lowest average is for the item 'want to do business because I want to use the skills learned in college, and the average score is 2.3099. Overall, the average value of the subjective norm is 2.9425, and the standard deviation is 1.3554, reflecting the medium level.

The highest mean value of respondents' attitude (Appendix) is 3.0383, showing that respondents are willing to provide employment. Conversely, the desire to provide job security has the lowest average attitude, with a mean value of 2.8211. The average mean value of attitude is 2.9604, with a standard deviation of 1.4355, indicating a medium level. From Appendix, the mean value of entrepreneurial intention is the highest at 3.1502, meaning that the respondents are prepared to do anything to become entrepreneurs. The lowest mean score of entrepreneurial intention is 2.5751, indicating that they would rather be entrepreneurs than business employees. The average mean value of entrepreneurial intention is 2.8342, with a standard deviation of 1.4086, indicating a modest level.

(e) *Normality test*

Table 6: Normality test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Perceived Behavioral Control	.125	313	.000	.944	313	.000
Subjective Norm	.178	313	.000	.909	313	.000
Attitude	.229	313	.000	.854	313	.000
Entrepreneurial Intention	.251	313	.000	.826	313	.000

Table 6 shows each element of its significance level under Kolmogorov-Smirnov and Shapiro-wilk. The results showed that entrepreneurial characteristics (perceived behaviour control, subjective norms, attitude) and entrepreneurial intention variables were significant values $p < 0.05$ ($0.000 < 0.05$), indicating that the data is not normal. As a result, researchers need to use Spearman's rho correlation test on the independent and dependent variables to complete the research goals. As the data is not normal, non-parametric testing will be used.

(f) *Correlation Analysis***Table 7: Correlation analysis between perceived organizational support and innovative work behaviour**

Variables (Entrepreneurial Characteristics)	Spearman's rho	
	Correlation Coefficient	Sig. value
Perceived Behavioural Control	.814	.000
Subjective norm	.896	.000
Attitude	.930	.000

Table 7 shows Spearman's correlation coefficient between behavioural control and entrepreneurial intention is 0.814, which is statistically significant ($P = 0.000$). Moreover, Spearman's correlation coefficient between subjective norm and entrepreneurial intention is 0.896, which is statistically significant ($P = 0.000$). Finally, Spearman's correlation attitude and entrepreneurial intention are 0.930, which is also statistically significant ($P = 0.000$).

There was a high positive correlation between perceived behavioural control and entrepreneurial intention, which was statistically significant (correlation coefficient = 0.814, $P = 0.000$). Moreover, there was also a high positive correlation between subjective norm and entrepreneurial intention, which was statistically significant (correlation coefficient = 0.896, $P = 0.000$), and there was a very high positive correlation between attitude and entrepreneurial intention, which was statistically significant (correlation coefficient = 0.930, $P = 0.000$).

4.2 Discussions

(a) *To identify the level of entrepreneurial characteristics among electrical and electronic engineering students.*

The average score of the perceived behaviour control variable is 3.4486, indicating a moderate level of perceived behavioural control. The mean value of the subjective norm variable is 2.9425, reflecting the medium level. The level of attitude variables is medium, with an average score of 2.9604. Therefore, the overall entrepreneurial characteristics reflect the medium level of UTHM electrical and electronic engineering students.

(b) *To identify the level of entrepreneurial intention among electrical and electronic engineering students.*

Descriptive analysis analyzes the entrepreneurial intention of electrical and electronic engineering students. According to the analysis results, entrepreneurial intention reflects the medium level, with an average score of 2.8342.

(c) *To identify the relationship between entrepreneurial characteristics and entrepreneurial intention among electrical and electronic engineering students at UTHM.***Variable 1: Perceived Behavioral Control**

H₁: There is a significant relationship between perceived behavioural control and entrepreneurial intention.

The results show that the perceived behaviour control and entrepreneurial intention have a high positive correlation of 0.814, indicating that the higher the perceived behaviour control, the higher the entrepreneurial intention. The p-value of the researchers is $0.000 < 0.01$, meaning there is a significant

relationship between attitudes towards behaviour and entrepreneurial intentions. So the null hypothesis (H_0 : there is no significant relationship between perceived behaviour control and entrepreneurial intention) is rejected. The author's findings are also the same as Kolvereid (1996b), Basu and Velik (2008), and Ruhle *et al.* (2010), which means that there is a significant relationship between perceived behavioural control and entrepreneurial intention. The result also agreed with Ruhr *et al.* (2010) statement that the self-assessment of perceived behaviour control greatly influences students' intentions.

Variable 2: Subjective Norm

H₁: There is a significant relationship between subjective norm and entrepreneurial intention.

It shows a significant correlation between subjective norms and entrepreneurial intention, with a coefficient as high as 0.896. The p-value obtained by the researchers is $0.000 < 0.01$, meaning there is a significant relationship between subjective norms and entrepreneurial intention. So the null hypothesis (H_0 : no significant relationship between subjective norm and entrepreneurial intention) is rejected. The results are the same as Kolveried and Isaksen (2006), which means the subjective norm is significant to entrepreneurial intention. The findings also support that the more supportive the subjective norms of entrepreneurial behaviour, the stronger the individual's willingness to start a business (Yordanova & Tarrazon, 2010).

Variable 3: Attitude

H₁: There is a significant relationship between attitude and entrepreneurial intention.

The results show a significant relationship between attitude and entrepreneurial intention. Supporting statistics show that there is a very high positive correlation of 0.930 between attitude and entrepreneurial intention. It can be explained as the greater the attitude, the higher the entrepreneurial intention. According to the survey results, the researchers obtained a p-value of $0.000 < 0.01$, indicating a significant relationship between attitude and entrepreneurial intentions. Moreover, this also proves that the null hypothesis (H_0 : no significant relationship between attitude and entrepreneurial intention) was rejected. The result is the same as Kolvereid and Tkachev (1999), Dohse and Walter (2009), and Paço *et al.* (2011).

Furthermore, Scholten *et al.* (2004) pointed out that attitude greatly influences intention, similar to the author's research results. Therefore, based on the results of this research, we conclude that perceived behavioural control, subjective norms and attitudes are statistically significant and positively correlated with entrepreneurial intention. Therefore, it is supposed that entrepreneurial characteristics and intention are positively correlated and significant.

5. Conclusion

Although this study has achieved satisfactory results, there are some limitations. One of the limitations faced is that the end of this study is the time limit for obtaining data from the respondents. This research needs to be conducted in a limited time, so the sample size is small, and the number of questionnaires is small, so limited research has been undertaken. In addition, researchers have little time to collect information. Fortunately, the return rate of the questionnaire was 100% of the respondents' feedback.

The sampling location is also one of the limitations of this study. Because the sampling location is only at UTHM, researchers cannot obtain opinions from other universities. Therefore, this result cannot represent the opinions of all electrical and electronic students in Malaysia. In addition, only UTHM's FKEE engineering students are effective candidates for this study, and the sample size is limited to 313 respondents. Such a small sample size is difficult to test the reliability of the research, nor can it

represent the opinions of all UTHM undergraduates. Undergraduates from all faculties should be considered to understand entrepreneurial intentions better.

Another limitation is that this study was conducted through quantitative research methods only. It may result in respondents being unable to express their thoughts to the researcher because they only answered Likert scale-type questionnaires. Respondents could only choose one answer from the question and were not allowed to express their feelings or opinions. As a result, researchers may miss some respondents' views, and the research may not be accurate.

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Appendix A

Perceived Behavioural Control	Mean	Std. Deviation	Level
I want to be a boss	2.2907	1.4239	Low
I want to realize my dream	3.8562	1.1554	High
I want to Increase my status	3.9617	1.1485	High
I want to Increase my prestige	3.3802	1.3980	Medium
I want to have my freedom	2.9808	1.4740	Medium
I want to enjoy myself	3.4633	1.3656	Medium
I want to have a good economic environment	3.7764	1.2638	High
I want to challenge myself	3.1374	1.4155	Medium
I want to have the satisfaction	3.6997	1.3006	High
I want to have my growth	3.9393	1.1349	High
Total Average Score	3.4486	1.3080	Medium

Subjective Norm	Mean	Std. Deviation	Level
I want to do business because I want to use the skill learned in the university	2.3099	1.2872	Low
I have an entrepreneurial family culture	2.8403	1.4233	Medium
I want to follow the example of someone that I admired	2.9297	1.4372	Medium
I want to invest personal savings	3.9169	1.1517	High
I want to maintain my family business	2.7444	1.4137	Medium
I am enjoying taking the risk	2.9137	1.4195	Medium
Total Average Score	2.9425	1.3554	Medium

Attitude	Mean	Std. Deviation	Level
I want to provide a job security	2.8211	1.44113	Medium
I want to provide employment	3.0383	1.38390	Medium
I want to take advantage of my creative talent	2.9010	1.42092	Medium
I want to earn a reasonable living	3.0767	1.46996	Medium
I want to take the opportunities in the market	2.9649	1.46170	Medium
Total Average Score	2.9604	1.4355	Medium

Entrepreneurial Intention	Mean	Std. Deviation	Level
I prefer to be an entrepreneur rather than an employee in a company.	2.5751	1.5509	Medium
I am prepared to do anything to be an entrepreneur	3.1502	1.2909	Medium
I am very interested in being an entrepreneur	2.6741	1.3760	Medium
I shall work very hard at becoming an entrepreneur	2.9617	1.3769	Medium
I have already prepared myself to become an entrepreneur	2.7348	1.4511	Medium
My professional goal is to become an entrepreneur	2.9457	1.3565	Medium
I'll put every effort into starting and running my own business	2.7923	1.4450	Medium
I have thought seriously about starting my own business after completing my study	2.8658	1.3686	Medium
I want to be my boss	2.8083	1.4616	Medium
Total Average Score	2.8342	1.4086	Medium