

# Analyzing Form 3 Students' Intentions to Choose Business Subject as an SPM Elective: A Study Using T-Test and ANOVA

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## Abstract

The objective of this study is to examine the differences in students' intention in Business subject based on demographic factors such as gender and parental income level. The study employed a survey approach using a self-administered questionnaire to collect data, with the sample comprising 250 Form 3 students from selected secondary schools in a district in Perak, Malaysia, chosen through random sampling. The data were analysed using T-test and One-Way ANOVA analysis via IBM SPSS, Version 29. The findings of the study indicate no significant difference in intention in Business subject based on gender. Generally, it can be concluded that both male and female students perceive their intention in Business subject similarly. However, respondents with varying family income levels showed differing perceptions of their intention in Business subject. This is due to the influence of differing family income levels on students' perceptions of their intention in the subject. The study highlights that the approach to teaching Business subject should not overly rely on gender factors but should instead consider socioeconomic factors. The findings of this study can serve as a reference for relevant authorities to adapt teaching methods for Business subject to be more inclusive and relevant, ensuring that all students, regardless of background, can fully understand and benefit from the learning process.

**Keywords:** Intention in Business Subject, SPM Elective Subject, Entrepreneurship, Demographic Factors.

## Introduction

The increasing role of entrepreneurship as a mechanism for job creation and a driver of economic growth has been widely recognised. Entrepreneurial activities remain a key component of the economic development process (Hill et al., 2023). Entrepreneurship has proven to be a vital tool for stimulating economic growth and addressing unemployment, provided it is effectively utilised (Padi and Musah, 2022). Job creation constraints disproportionately affect young people, a pressing concern given the World Bank's projection that by 2025, over three billion individuals under the age of 25 will be impacted globally (Jena, 2020). Despite being the most educated generation, they face persistent challenges in

securing employment. Entrepreneurship, emphasising innovation and adaptability, has emerged as a critical solution to address these pressing issues, making it an essential strategy for tackling the challenges of the 21st century (Karlsson et al., 2021).

Malaysia has recognised the potential of entrepreneurship to catalyse economic development. The National Entrepreneurship Policy 2030 (NEP 2030) under the New Development Model aims to foster a robust entrepreneurial ecosystem and culture. This initiative focuses on developing highly knowledgeable, competitive, and productive individuals capable of meeting the evolving needs of industry (Ministry of Entrepreneur Development, 2019). Encouraging entrepreneurship among Malaysians is integral to boosting household income and addressing the poverty gap (SME Corporation, 2021). Moreover, fostering entrepreneurship from a young age can empower individuals to contribute meaningfully to the nation's economic growth and ensure sustainable development.

Recognising the significance of entrepreneurial knowledge for future generations, the Ministry of Education Malaysia (MOE) has integrated entrepreneurship elements into the national curriculum, spanning from primary to secondary education. To further support this effort, the Business subject has been introduced as an elective for upper secondary students taking the Sijil Pelajaran Malaysia (SPM). This subject aims to prepare students with essential knowledge, skills, and values in entrepreneurship, equipping them for careers as business professionals. Globally, education is often used to instill an entrepreneurial mindset and aspirations among students (Sun et al., 2020). Studies show that students with positive entrepreneurial attitudes are more likely to pursue entrepreneurship as a career choice (Lim et al., 2022).

Despite these efforts, there remains a gap in students' knowledge and understanding of business and entrepreneurship. Lower secondary students often exhibit varying perspectives when deciding on their academic streams in Form 4, and the number of SPM candidates choosing the Business subject has been steadily declining (Omar and Othman, 2021). This trend raises concerns about the effectiveness of current initiatives and whether factors such as demographics contribute to students' limited interest in Business Studies. Therefore, this study seeks to address these concerns by:

- i. Identifying differences in interest in the Business subject based on gender.
- ii. Identifying differences in interest in the Business subject based on parents' income level.

By investigating these areas, the study aims to provide valuable insights into enhancing students' interest in entrepreneurship education, ultimately contributing to the broader goal of fostering an entrepreneurial society.

## **Literature Review**

### *Business Subject*

The Business subject is an Elective Specialised Subject (MPEI) within the Arts Specialised group, offered to students in Forms 4 and 5. It was introduced by the MOE in 2016 and began being implemented in secondary schools in 2017, replacing the Commerce subject. The Business subject is part of MOE's initiative to prepare well-rounded, balanced, morally upright, critical, creative, innovative individuals who practise professionalism to face the

challenges of the 21st century. This aligns with the development of technology in Malaysia's industries towards achieving the goals of a developed nation.

The curriculum of the Business subject is designed to prepare students with knowledge, skills, and values in business to become smart consumers, competent workers, confident entrepreneurs, ethical, and responsible citizens, contributing to the well-being of themselves, their families, communities, and the nation (Curriculum Development Division, 2016). The purpose of offering this subject is to prepare students to consider business as a career (Raja and Othman, 2023). Teaching and learning (PdP) in the Business subject is carried out using a practical-oriented approach that helps students foster an entrepreneurial culture and strengthen learning through hands-on experience.

Furthermore, PdP in the Business subject uses a project-based approach, which helps students cultivate an entrepreneurial mindset and reinforces learning through practical experiences. Student involvement in entrepreneurial activities in schools should not stand alone as a single method for learning business and entrepreneurship management; instead, it should complement the subject (Ishak et al., 2018). Key components in the Business subject include the fundamentals of business, management and leadership, financial management, marketing, human resource management, business ethics and social responsibility, technology and information, entrepreneurship, business law, international trade, and problem-solving and decision-making. In conclusion, this subject aligns with the MOE's goals in the Malaysia Education Development Plan (PPPM) 2015–2025, which aims to develop future leaders capable of elevating Malaysia to a higher level.

#### *Student intention in the Business Subject*

Intention is one of the psychological aspects that help individuals achieve their goals. Intention is important for an individual to engage in an activity without external encouragement (Abang Tar and Mahmud, 2021). In this study, intention refers to students' interest in the Business subject. Previous studies show that intention plays a key role in determining the success of teaching and learning (PdP) in the Business subject. One way to assess the effectiveness of teaching methods used by teachers is to observe students' intention. Students' intention serves as a catalyst for more quality and effective teaching and learning (Hushaini et al., 2020). This means that high intention among students can improve the effectiveness of PdP and make the teaching process more meaningful and impactful.

Moreover, educational support factors are crucial in influencing students' intention in entrepreneurship, in addition to factors such as the environment, curriculum, and family encouragement (Amran and Abu Seman, 2021). Educational support from these factors helps strengthen students' intention in entrepreneurship and provides them with the opportunities and motivation needed to succeed in the field. The use of diverse teaching materials and project-based PdP methods can also enhance students' interest and understanding of the Business subject (Chelliah and Othman, 2022). Research by Raja Zahri and Othman (2023) found that students' interest and understanding of the Business subject increased due to teachers using project-based PdP methods.

Students' intention in learning can also be influenced by teaching styles. Facilitator style, personal model style, and delegator style are teaching styles that can attract students'

intention in learning Business (Abdul Rahman and Buang, 2019). This means that by adapting different teaching styles, teachers can create a more engaging and effective learning experience, thereby increasing students' intention in studying the Business subject. In conclusion, previous studies indicate that students' intention in the Business subject is influenced by various factors, including the teaching methods used, educational support, and environmental factors. Therefore, teachers should ensure that they adopt diverse and appropriate approaches to enhance students' intention and the effectiveness of learning in this subject. Furthermore, research by Mageswaran and Othman (2022) shows that teachers' interest can influence students' intention in the Business subject as a whole.

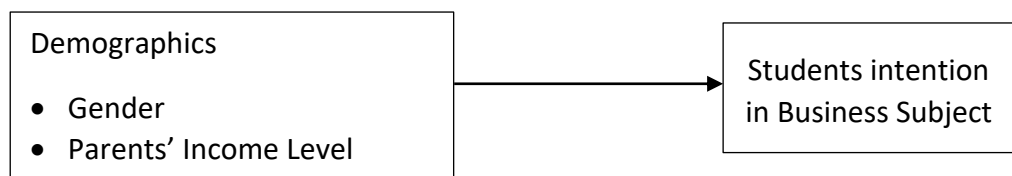


Figure 1: Conceptual Framework

Figure 1 illustrates the conceptual framework of this study. Specifically, the framework explains the differences between gender and parental income levels concerning students' intention in the Business subject. Therefore, this study's conceptual framework shows the influence of demographic factors such as gender and parental income levels on intention in the Business subject. Based on the discussion above, the following two hypotheses will be tested:

- i. There are significant differences intention in the Business subject between male and female students.
- ii. There are differences intention in the Business subject based on parental income levels.

## Methodology

### *Research design*

This study adopts a quantitative approach. Specifically, the research design is based on a survey method, which is suitable for measuring students' intention and various other factors. The study process involves two phases: a pilot study and the main study. The pilot study is conducted to test the validity and reliability of the research instrument, while the main study is conducted to answer the research questions. To obtain descriptive statistics for respondent profiles, data analysis is carried out using IBM SPSS version 29.0.

### *Sample*

The researcher selected a population of Form 3 students from three secondary schools in the Perak state district, consisting of approximately 404 students. The selection of these schools is based on their academic performance level, which is relatively low. The study sample consists of 250 Form 3 students, chosen through random sampling. The researcher selected schools in Perak because it is one of the largest states in Malaysia and has more schools compared to other states, making the findings more robust to represent students across Malaysia.

*Research Instrument*

The research instrument uses a questionnaire adapted from several sources to measure all constructs outlined in the conceptual framework. The questionnaire is one of the most commonly used research instruments in both quantitative and qualitative research. It is used to systematically gather data from respondents who represent the study's population. The research instrument is a questionnaire adapted and modified from previous research instruments to address weaknesses in administering instruments, such as low response rates, difficulty in reading the questionnaire, and difficulty understanding responses. The questionnaire used in this study contains closed-ended questions, which are easy to analyse and enable respondents to provide answers by simply selecting one option from the choices provided. The questionnaire is based on instruments adapted from earlier studies to measure constructs such as gender, parental income levels, and students' intention in the Business subject.

*Data Analysis Method*

To obtain descriptive statistics for respondent demographics, data analysis was conducted using IBM SPSS version 29.0. All research data were entered and analysed to obtain descriptive statistics such as frequency, percentage, mean, and standard deviation, as well as inferential statistics such as T-tests and one-way ANOVA.

**Results***Descriptive Analysis Results*

Table 1

*Demographic Profiles*

Demography	Frequency (N)	Percentage (P)
Gender	123	49.2%
Male		
Female	127	50.8%
Age		
15 years old	247	98.8%
16 years old	3	1.2%
Ethnic		
Malay	146	58.4%
Chinese	45	18.0%
Indians	41	16.4%
Native People	18	7.6%
Religion		
Islam	148	59.2%
Hindu	42	16.8%
Buddha	41	16.4%
Christian	19	7.6%
Parents' Income Below RM1,000	81	32.4%
RM1,001-RM3,000	120	48.0%
RM3,001 and above	49	19.6%
Family Business Status		
Have a family business	44	17.6%
None	206	82.4%

Table 2 shows the detailed demographic profile of the respondents. The study involved 250 respondents, with 127 female students (50.8%) and 123 male students (49.2%). Most of the respondents who answered the survey were 15 years old ( $N = 247$ ,  $P = 98.8\%$ ), while the remaining respondents were 16 years old ( $N = 3$ ,  $P = 1.2\%$ ). The majority of the respondents were of Malay ethnicity, comprising 146 respondents (58.4%). This was followed by Chinese ( $N = 45$ ,  $P = 18.0\%$ ), Indian ( $N = 41$ ,  $P = 16.4\%$ ), and Indigenous ( $N = 18$ ,  $P = 7.6\%$ ) ethnicities. The majority of the respondents in this study were Muslim, comprising 148 respondents (59.2%). Most respondents' parents had an income between RM1,001 and RM3,000 ( $N = 120$ ,  $P = 48.0\%$ ). Table 2 also shows that 44 respondents (17.6%) had a family business, while the remaining 206 respondents (82.4%) did not.

### *Inferential Analysis Results*

After the relevant data were obtained, inferential data analysis was carried out using SPSS software to answer the research questions regarding students' intention in Business Subject based on demographic factors. A T-test and one-way ANOVA were conducted to confirm whether the study hypotheses were accepted or not. Through the T-test analysis, this study tested the difference in students' intention in Business subject based on gender. Meanwhile, the one-way ANOVA analysis was used to test the difference in intention based on family income level. A 95% confidence level ( $p < 0.05$ ) was used to determine statistical significance. A Levene's test was also conducted in advance to meet the assumptions for both the T-test and ANOVA. The Levene's test results indicated that the assumption of homogeneity was met ( $F(1, 248) = 1.234$ ,  $p = 0.267$ ). Therefore, the T-test analysis can be used.

*H1: There are significant differences intention in the Business subject between male and female students.*

Table 2

*T-test for the differences intention in the Business subject between male and female students.*

Gender	No.	Mean	Standard Deviation	t-value	Significance Level
Male	123	3.3935	.61414	-1.219	.224
Female	127	3.5008	.76693		

Table 3 shows the results of the T-test analysis, with a p-value greater than 0.05, that is,  $p = 0.224$  ( $p > 0.05$ ). This indicates that there is no significant difference between male and female students in determining their intention in Business subject. The results of the test show that the study is not significant ( $t = -1.219$ ,  $df = 248$ ,  $p > 0.05$ ). This proves that there is no difference between male and female students in determining their intention in Business subject. The mean difference score for both groups is -0.1073, which does not show an effect on students' intention in Business subject. Therefore, the hypothesis in this study is rejected. Consequently, we fail to reject the null hypothesis that there is no difference between the sample means.

*H2: There are differences students' intention in the Business subject based on parental income levels.*

Table 3

*Mean Scores of students' intention in Business subject based on parental income levels.*

	N	Mean	Standard Deviation
Below RM1000	81	3.3000	.56147
RM1001 – RM3000	120	3.4525	.76290
RM3001 above	49	3.3618	.67567
Total	250	3.4480	.69665

Table 4

*ANOVA test of students' intention in Business subject based on parental income levels.*

RFP	Sum of Squares	df	Mean Square	F	Sig.
Between group	4.451	2	2.226	4.723	.010
Within group	116.393	247	.471		
Total	120.844	249			

Table 5

*Post-hoc test of students' intention in Business subject based on parental income levels.*

(I) Parental Income Levels	(J) Parental Income Levels	Mean Difference (I-J)	Std. Error	Sig.
RM1001 – RM3000	Below RM1000	.15250	.09871	.271
RM3001 above	Below RM1000	.38163*	.12424	.007

ANOVA was used to determine the differences in the mean of the variable based on family income level. Referring to Table 3, the mean score for the income group of RM1,001 – RM3,000 ( $M = 3.4525$ ,  $SD = .76290$ ) is higher than the group with income below RM1,000 ( $M = 3.3000$ ,  $SD = .56147$ ) and the group with income above RM3,001 ( $M = 3.3618$ ,  $SD = .67567$ ). Table 4 shows that the p-value for the variable of students' intention in Business subject is less than 0.05, that is,  $p = 0.010$  ( $p < 0.05$ ). This indicates that there is a significant difference between family income level and students' intention in Business subject. The results of the one-way test show that the F-value ( $df = 2, 247$ ),  $p < 0.05$ ) = 4.723 is significant. Therefore, this second hypothesis is accepted in this study. The results of the ANOVA test show that there is a significant difference in family income level that affects students' intention in Business subject.

However, Table 5 shows that the mean scores for students' intention in Business subject on parental income level RM1001 – RM3000 and parental income level below RM1000 do not differ significantly. Although the results of the one-way ANOVA test were statistically significant, the actual difference in mean scores between the groups was relatively small. The effect of the size calculated using Eta squared was 0.037.

## Discussion

The findings of this study indicate that gender does not play a significant role in determining students' intention in Business subject. This suggests that both male and female students have similar levels of intention in the subject. The initial hypothesis, which assumed a

difference in intention between male and female students, is rejected. This implies that teaching and learning approaches in Business subject have likely been effective in engaging both genders equally, without favouring one group over the other. The small mean difference (-0.1073) suggests that, although there is slight variation between genders, it is not significant enough to have a meaningful impact on students' intention in Business subject. This emphasises that gender is not a critical factor when evaluating students' intention in the subject.

However, these findings contrast with those of Lokman et al. (2022), who found a significant difference between male and female students' interest in entrepreneurship, with male students generally showing a higher level of interest. Similarly, the study by Yusoh et al. (2020) revealed a significant difference in interest between male and female students, with male students showing more interest in entrepreneurship. Therefore, in this study, the researchers suggest that educators focus on inclusive teaching strategies suitable for all students, without prioritising gender differences. Educational policymakers can also use these findings to ensure that teaching and learning materials are structured fairly, and that curriculum development programmes do not introduce gender biases.

The second hypothesis in this study, which suggested that there would be a difference in intention based on family income level, was accepted. The findings show that family income level has a significant relationship with students' intention in Business subject. This is in line with previous studies that have shown that socioeconomic factors, such as family income, can influence students' intention and academic achievement in various subjects (Sayed Muhammad Aiman et al., 2018). The significant F-value ( $F = 4.723$ ,  $p < 0.05$ ) supports the finding that family income level has a statistical impact on students' intention in Business subject. These results indicate clear differences between groups with varying income levels. Family income can affect students' access to learning resources, family support, and relevant extracurricular experiences. For example, students from higher-income families may have access to additional materials or experiences that enhance their intention in business, while students from lower-income families may face constraints that hinder their ability to focus on the subject. Therefore, teachers and schools could provide additional support such as teaching aids, mentorship programmes, or practical training for students from lower-income families to help boost their intention in Business subject. The curriculum could be designed to offer equal learning opportunities regardless of students' economic backgrounds. Programs involving parents in learning activities could be planned to help students understand the importance of Business subject, particularly in lower-income families.

### **Conclusion**

Based on the discussion above, this study has achieved its objectives, which were to investigate the differences in students' intention in Business subject based on demographic factors such as gender and family income level. Inferential analysis has answered the research questions. The study focused only on Form 3 students in selected schools in Perak, with a sample size of 250 students. The findings statistically show that there is no significant difference in intention based on gender in Business subject. However, respondents with varying family income levels provided different perspectives on their intention in the subject. The findings indicate that family income level has a significant relationship with students' intention in Business subject.



Future research could explore in more depth why and how family income level influences intention in Business subject. For example, does this factor relate to educational resources, student motivation, or family influence? Research could also examine the interaction between family income and other factors, such as teaching styles or the school environment. Additionally, the study population was limited to just three schools. Future studies could select a broader sample of respondents and collect more comprehensive data to better reflect the diversity of students in terms of demographics, culture, and socioeconomic background.

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