



e-ISSN: 2550-1569

Available online at
<https://myjms.mohe.gov.my/index.php/IJSMS>

International Journal of Service Management and Sustainability
10(2) 2025, 1 – 13.

**International
Journal of Service
Management and
Sustainability
(IJSMSust)**

Extending the Theory of Planned Behavior: Entrepreneurial Intention Among Undergraduate Students in Sarawak, Malaysia

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ARTICLE INFO

Article history:

Received : 1 July 2025

Revised : 9 August 2025

Accepted : 15 August 2025

Online first

Published : 30 September 2025

Keywords:

Entrepreneurial Intention
Theory of Planned Behaviour
Entrepreneurial Education
Undergraduate Students

DOI:10.24191/ijms.v10i2.24223

Citation in APA:

Robin, B., Ali, J. K., Abdullah, M. & Wahyuningsih, D. (2025). Extending the Theory of Planned Behavior: Entrepreneurial Intention Among Undergraduate Students in Sarawak, Malaysia. *International Journal of Service Management and Sustainability*, 10(2), 1 – 13.

ABSTRACT

Entrepreneurship is widely recognized as a key driver of socioeconomic development, yet many Malaysian graduates continue to prioritize traditional employment despite limited job opportunities. This situation highlights the urgent need to foster entrepreneurial intentions among university students as a means to promote self-employment and job creation. This conceptual study aims to examine the determinants of entrepreneurial intention among undergraduate students in Sarawak, Malaysia, by extending the Theory of Planned Behavior to include entrepreneurial education. Specifically, it explores the impact of attitude, subjective norms, perceived behavioral control, and entrepreneurial education on students' entrepreneurial intentions. A quantitative, descriptive research design will be employed, using a purposive sampling approach to collect responses from 129 students who have completed or are currently enrolled in entrepreneurship courses. Data will be gathered via an online survey and analyzed using partial least squares structural equation modeling. The study aims to provide a comprehensive understanding of how cognitive and educational factors influence students' entrepreneurial intentions. The findings will contribute to the theoretical enrichment of the Theory of Planned Behavior framework and offer practical insights for policymakers and higher education institutions in promoting graduate entrepreneurship in Malaysia.

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1.0 INTRODUCTION

1.1 Background of The Study

Entrepreneurship has attracted considerable attention from researchers over recent decades due to its vital role in socioeconomic development across both developed and developing countries (Wadhvani et al., 2020; Li et al., 2020; Yi, 2021). In response, governments worldwide have created entrepreneurial ecosystems and introduced various support initiatives. One key focus has been on cultivating entrepreneurial intention (EI) among university students, as they are seen as future contributors to national entrepreneurial activity (Emilisa et al., 2024; Bazkiaei et al., 2020). EI is essential to the entrepreneurial process, as venture creation is unlikely without the presence of intention (Liu et al., 2019; Praswati et al., 2022).

In Malaysia, the shift from traditional employment to entrepreneurship is increasingly important due to limited job opportunities in both the public and private sectors. The Ministry of Higher Education (MOHE) anticipates that fifteen percent of tertiary-level students will engage in entrepreneurship before graduating (Hassan et al., 2020). This goal aligns with the First Thrust of the Malaysian Education Development Plan 2013–2025, which aims to produce graduates capable of generating employment (Jawing, 2023). Understanding the factors that influence students' EI is therefore critical to supporting this national agenda (Maheshwari et al., 2023).

Although many factors influence EI, cognitive components such as attitude (ATT), subjective norms (SN), and perceived behavioral control (PBC) have been widely acknowledged (Maheshwari et al., 2023). Additionally, entrepreneurial education (EE) has emerged as a key element in shaping students' intentions by providing both knowledge and relevant skills (Brüne & Lutz, 2020). In higher education institutions (HEIs), EE fosters an entrepreneurial mindset and competencies through exposure to practical learning experiences.

Among the theoretical frameworks that explain EI, the Theory of Planned Behavior (TPB), developed by Ajzen (1991), remains one of the most widely applied models. TPB posits that ATT, SN, and PBC are the main predictors of intention, with ATT and PBC reflecting internal factors and SN capturing external social influences (Su et al., 2021). However, as these three elements do not solely shape students' EI, many scholars have extended TPB by including additional constructs to improve its explanatory power (Anal & Singh, 2023). In this study, the TPB framework is expanded to include EE as an additional predictor.

Hence, this conceptual paper aims to examine the direct effects of ATT, SN, PBC, and EE on EI among undergraduate students in Sarawak, Malaysia, using an extended TPB model. The study aims to offer deeper theoretical insights and practical recommendations to enhance entrepreneurship development efforts among Malaysian graduates.

1.2 Research Questions

1. Does attitude influence entrepreneurial intention among undergraduate students in Sarawak, Malaysia?
2. Do subjective norms influence entrepreneurial intention among undergraduate students in Sarawak, Malaysia?
3. Does perceived behavioral control influence entrepreneurial intention among undergraduate students in Sarawak, Malaysia?
4. Does entrepreneurial education influence entrepreneurial intention among undergraduate students in Sarawak, Malaysia?

1.3 Significance of The Study

This research makes significant contributions both theoretically and practically. From a theoretical standpoint, the topic remains underexplored in the context of Sarawak, Malaysia, despite extensive research in other countries such as Indonesia (Emilisa et al., 2024), China (Su et al., 2021), Oman (Shah et al., 2020), Croatia (Zovko et al., 2020), and Bangladesh (Hossain et al., 2023). Due to differences in research settings and populations, findings from these countries are not directly applicable to Malaysian students, particularly those in Sarawak. Therefore, this study fills a contextual research gap. Secondly, while previous studies have extensively examined EI, the literature reveals inconsistent findings regarding the effects of the TPB components (Rustiana et al., 2022) and EE (Zovko et al., 2020) on EI. By addressing these inconsistencies, this study adds clarity to the relationship between these variables and contributes to the existing body of knowledge. Thirdly, in line with Ajzen's (1991) suggestion that the TPB can accommodate additional predictors, this study extends the TPB model by incorporating EE. This extension aligns with recent efforts by researchers to build more comprehensive models for understanding behavioral intention (Anal & Singh, 2023).

From a practical standpoint, the findings of this study can inform policymakers and government agencies in designing targeted policies and strategies to strengthen EI among Malaysian university students. This effort supports the MOHE's goal of encouraging at least fifteen percent of tertiary students to become entrepreneurs before graduation (Hassan et al., 2020). Furthermore, since EE is now a compulsory subject at public universities in Malaysia (Rahim et al., 2015), understanding the impact of EE on students' EI is vital. The insights gained from this study could help the MOHE improve the entrepreneurship curriculum to better align with current entrepreneurial needs and trends. This, in turn, is expected to support national efforts in promoting graduate entrepreneurship and advancing socioeconomic development.

2.0 LITERATURE REVIEW

2.1 Theory of Planned Behaviour

TPB, developed by Ajzen (1991), is a psychological framework that elucidates the relationship between beliefs and behavior (Nasreen et al., 2024). Specifically, it posits that an individual's intention to engage in a particular behavior can be predicted by a set of personal beliefs, which are shaped by the perceived value of the behavior along with an assessment of its risks and benefits (Kowang et al., 2021). These beliefs encompass the individual's ATT, SN, and PBC.

Entrepreneurship is viewed as a deliberate action that requires careful planning (Jena, 2020). Consequently, the TPB has been extensively employed in both previous and current studies to explain EI within the field of entrepreneurship (Poanto & Sembel, 2023). This theory has consistently demonstrated its reliability and relevance in predicting EI and venture creation. Given that the three antecedents of the TPB have been examined concerning firm creation behaviors (Rustiana et al., 2022), this study incorporates ATT, SN, and PBC to investigate the EI of undergraduate students in Sarawak, Malaysia.

Furthermore, the TPB model remains open to the integration of additional predictors (Ajzen, 1991), since it is an extension of the TRA (Anal & Singh, 2023). As a result, many previous studies utilizing the TPB framework have introduced supplementary variables to address its original limitations and to develop a more integrated model for studying behavioral intention (Anal & Singh, 2023). In Malaysia, TPB has been widely adopted in entrepreneurship research to explain students' EI (Kowang et al., 2021; Ashari et al., 2021; Song et al., 2021; Nasreen et al., 2024), further supporting its suitability for this study. Considering this, the present study expands the TPB model by incorporating EE as an additional variable influencing the EI of undergraduate students in Sarawak, Malaysia.

2.2 Attitude

ATT is defined as an individual's positive or negative evaluation of a specific behavior (Ajzen, 1991). In the entrepreneurial context, ATT refers to the degree to which a person holds a favorable or unfavorable view about being an entrepreneur (Otache et al., 2021). According to Hassan et al. (2020), the willingness to pursue entrepreneurship largely depends on an individual's ATT. Specifically, suppose a person believes that the outcomes of becoming an entrepreneur are positive. In that case, he or she will likely develop a favorable ATT toward entrepreneurship, which in turn increases their EI (Pham et al., 2023).

The relationship between ATT and EI has been widely examined. For example, studies by Song et al. (2021), Mohd & Rosli (2023), and Santhanamery et al. (2023) reported a significant positive relationship between ATT and EI in the Malaysian context. Kowang et al. (2021) also found that ATT was the most influential construct of the TPB in predicting students' EI across three faculties in a Malaysian public university. Extending beyond the Malaysian context, empirical evidence from other parts of the world, including Indonesia (Yohana, 2021), Saudi Arabia (Alshebami et al., 2020), and China (Su et al., 2021), has consistently shown a similar positive influence.

However, not all studies support this positive link. Praswati et al. (2022), for instance, found that ATT did not significantly affect EI among Indonesian students. These mixed results, coupled with the limited evidence in Malaysia, particularly in Sarawak, highlight the need for further investigation to better understand the influence of ATT on EI among undergraduate students in Sarawak, Malaysia.

2.3 Subjective Norms

SN refers to an individual's perceived social pressure to perform or refrain from performing a specific behavior (Ajzen, 1991). In the entrepreneurial context, SN reflects the perceived influence or pressure from significant others, such as family, friends, and peers, on the decision to engage or not engage in entrepreneurial behavior (Otache et al., 2021). According to Su et al. (2021), choosing to become an entrepreneur is a significant life decision; therefore, individuals often seek advice and support from close contacts before making such a commitment. This indicates that the opinions of those within one's social circle can have a significant impact on the decision to pursue entrepreneurship.

Recent studies have produced mixed results regarding the relationship between SN and EI. For instance, Abdullah and Yaacob (2018) found that SN significantly affected students' EI in Malaysia, concluding that an individual's decision to venture into entrepreneurship is shaped by how people around them perceive entrepreneurial activities. A similar result was also found in the Malaysian context by Ashari et al. (2021), who studied engineering students at Universiti Teknologi Petronas. Extending to Indonesia, Maydiantoro et al. (2021) reported that SN positively affects students' EI, emphasizing the family's role in shaping entrepreneurship as a viable career path.

Despite these positive findings, other studies have reported no significant influence of SN on EI. Lestari et al. (2023) found no significant relationship between SN and EI among Indonesian students, suggesting that parents may encourage stable employment over entrepreneurship due to its inherent risks. Likewise, Otache et al. (2021) reported that family and friends' opinions did not substantially impact students' EI in Nigeria. These conflicting findings, combined with the limited evidence in the Sarawakian context, highlight the need for further investigation into the influence of SN on EI among undergraduate students in Sarawak, Malaysia.

2.4 Perceived Behavioural Control

PBC refers to an individual's perception of the ease or difficulty in performing a particular behavior (Ajzen, 1991). In the entrepreneurial context, PBC is defined as an individual's belief or perception of how easy or difficult it is to engage in entrepreneurial activities (Otache et al., 2021). According to Krueger et al. (2000), individuals who perceive themselves as capable of engaging in entrepreneurial tasks are more likely to view the entrepreneurial process as feasible. This suggests that the more favorable an individual's

perceived control over entrepreneurial behavior, the more likely they are to pursue venture creation in the future (Otache et al., 2021).

Recent studies have shown inconsistent findings regarding the relationship between PBC and EI. To cite an example, Mahmood et al. (2024) reported that PBC significantly influenced the EI of students in Malaysian public universities, concluding that students who can navigate challenges and maintain confidence in their abilities tend to exhibit higher EI. Comparable results were also observed in the Malaysian context by Ashari et al. (2021) and Song et al. (2021), who announced a significant positive relationship between PBC and EI. Extending to the Indonesian context, Poanto and Sembel (2023) similarly found that PBC positively and significantly influences EI, concluding that students' confidence in their start-up skills, access to relevant knowledge, and the availability of opportunities in their environment contribute to their entrepreneurial engagement.

In contrast, Mahmoud et al. (2020), in a study involving third-year bachelor's students in Nigeria, found that PBC did not significantly affect EI. They argued that students perceived ease of performing entrepreneurial actions did not necessarily translate into stronger EI. Similar insignificant findings were also reported in Indonesia (Rustiana et al., 2022) and Nigeria (Otache et al., 2021), highlighting that PBC's effect on EI may vary across contexts. These conflicting findings, combined with the limited evidence in the Sarawakian context, underscore the need for further research to better understand the influence of PBC on EI among undergraduate students in Sarawak, Malaysia.

2.5 Entrepreneurial Education

EE refers to the process of equipping students with the competencies, skills, and insights necessary to start their own business (Otache et al., 2021). It plays a vital role in fostering students' EI through several key functions. Nasreen et al. (2024) highlighted that EE delivers foundational entrepreneurial knowledge and skills through formal education. In addition, Emilisa et al. (2024) emphasized that EE enables students to identify and capitalize on entrepreneurial opportunities in their surrounding environment. Alshebami et al. (2020) further noted that EE equips students with the ability to assess and manage potential business risks. Bazkiaei et al. (2020) also argued that EE provides a well-rounded understanding of business objectives, organizational structures, and their broader socioeconomic impact. These aspects of EE expose students to various entrepreneurial dimensions, potentially encouraging them to engage in entrepreneurial activities (Aboobaker & Renjini, 2020).

Recent studies have reported conflicting findings regarding the relationship between EE and EI. For instance, Nasreen et al. (2024), Kowang et al. (2021), and Hassan et al. (2020) reported a significant positive influence of EE on EI among Malaysian students. Similarly, Setiawan and Lestari (2021) found that EE significantly influenced EI among Indonesian students, emphasizing that entrepreneurship course content helps students generate innovative business ideas and perceive entrepreneurship as a promising career option.

On the contrary, Mukthar et al. (2021) found that EE did not significantly influence the EI of Indonesian students, attributing this to EE programs that failed to effectively inspire and motivate students toward entrepreneurship. Likewise, Kusumojanto et al. (2021) reported that EE had no significant impact on EI, citing factors such as the overly theoretical nature of EE, limited practical training, and insufficient emphasis on developing an entrepreneurial mindset and character through classroom activities. Given that EE is mandatory across Malaysian public universities (Rahim et al., 2015) and considering the inconsistent findings in the literature alongside the limited evidence from the Sarawakian context, further research is warranted to better understand the influence of EE on EI among undergraduate students in Sarawak, Malaysia.

2.6 Entrepreneurial Intention

Intention is defined as the extent to which an individual is motivated to perform a particular behavior (Ajzen, 1991). An entrepreneur, on the other hand, is someone who utilizes raw materials, creates new products or services, and establishes a new form of organization that generates personal benefit and profit. Ergo, EI refers to an individual's inclination or willingness to become an entrepreneur in the future (Otache et al., 2021). To deepen the understanding of EI, Thompson (2009) proposed that it exists on a continuum from very low to very high, rather than being a binary decision. This implies that, in the early stages of becoming an entrepreneur, an individual must display a certain degree of EI (Bird, 1988), and they will only pursue entrepreneurship when their intention reaches a sufficiently strong level (Al-Suraihi et al., 2020). According to Al-Suraihi et al. (2020), EI is a dependable predictor of entrepreneurial behavior and acts as a precursor to eventual entrepreneurial action.

2.7 Conceptual Framework

The conceptual framework of this research is grounded in the TPB model, which has been widely applied to predict EI (Poanto & Sembel, 2023). According to Ajzen (1991), the three cognitive determinants, namely ATT, SN, and PBC, collectively shape an individual's intention to perform a particular behavior. In the entrepreneurial context, these three factors serve as the core predictors of students' EI (Rustiana et al., 2022).

The TPB framework remains open to the inclusion of new variables (Ajzen, 1991), and recent research has extended this theory to overcome its original limitations, making it a comprehensive model for examining intention (Anal & Singh, 2023). Considering this, the present study incorporates EE as an additional predictor of EI. Lestari et al. (2023) and Mujanah et al. (2023) also recommended that future research examine the influence of EE on the formation of students' EI. Ultimately, the proposed framework consists of four independent variables, namely ATT, SN, PBC, and EE, and one dependent variable, that is EI, as illustrated in the following figure.

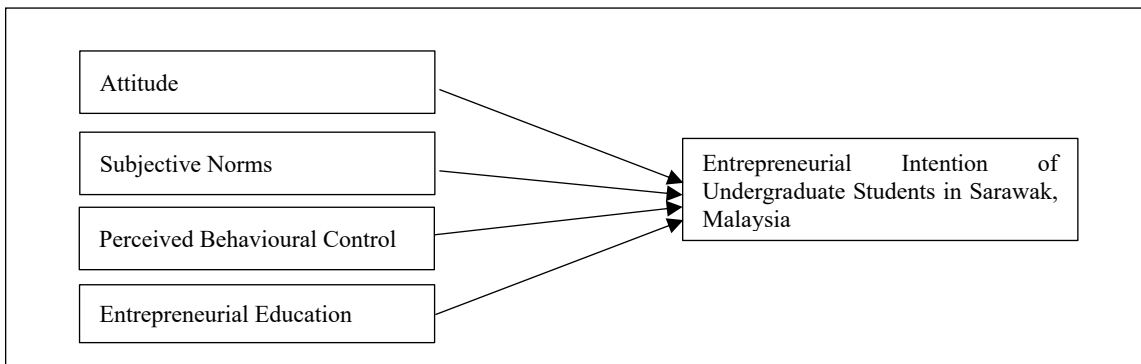


Fig 1. Proposed Conceptual Framework

2.8 Exploratory Propositions

Since this study is a conceptual paper, it does not involve empirical testing and thus does not formulate formal hypotheses. Instead, exploratory propositions are developed to reflect the theoretical relationships proposed in the extended TPB model. These propositions serve as guidelines for future empirical research and highlight the expected relationships among the study variables. Based on the literature and the proposed conceptual framework, the following propositions are suggested:

1. Students with a more positive ATT toward entrepreneurship are likely to exhibit higher EI.
2. Students who experience stronger SN from family and peers are likely to demonstrate greater EI.

3. Students with higher PBC in their ability to perform entrepreneurial tasks are likely to have stronger EI.
4. Exposure to EE is likely to enhance students' EI.

These propositions illustrate the expected relationships between the independent variables (ATT, SN, PBC, and EE) and the dependent variable (EI). They provide a theoretical basis for future empirical studies to validate and extend the proposed model in the context of undergraduate students in Sarawak, Malaysia.

3.0 METHODOLOGY

3.1 Research Design and Sampling

A quantitative, descriptive research design is adopted. The study targets undergraduate students in public and private HEIs in Sarawak who have either completed or are currently enrolled in entrepreneurship courses. A non-probability purposive sampling technique is employed to select participants, as this approach ensures that only students exposed to entrepreneurial education are included. Based on the G*Power software, a minimum sample size of 129 respondents is required to achieve a statistical power of 0.95.

3.2 Data Collection Procedure

Primary data will be collected through an online survey distributed via Google Forms. The questionnaire comprises two sections. The first section captures demographic information, including gender, ethnicity, age, and institution. The second section measures the study variables. Measurement items for ATT, SN, PBC, and EI are adapted from Linan & Chen (2009), while EE items are adapted from Hassan et al. (2020). All items use a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3 Data Analysis

The collected data will be analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS, which is suitable for predictive modelling in studies with multiple latent variables and smaller sample sizes.

3.4 Ethical Considerations

Participation in this study is voluntary. Respondents are provided with an informed consent statement explaining the study objectives, their right to withdraw at any time, and assurances that all responses will remain confidential and anonymous. No personal identifiers are collected, and the data will be used solely for academic purposes.

3.5 Limitations of The Study

This study is conceptual and recommends an extended TPB model without empirical validation at this stage. Moreover, the planned data collection relies on purposive non-probability sampling of undergraduates in Sarawak, which may limit the generalizability of findings to other states in Malaysia or international contexts.

4.0 EXPECTED OUTCOME

This study seeks to identify the key determinants of EI among undergraduate students in Sarawak by examining the effects of ATT, SN, PBC, and EE through the extended TPB framework.

In line with the exploratory propositions presented in Subsection 2.8, it is expected that: (1) a more positive ATT toward entrepreneurship will lead to stronger EI, (2) stronger SN from family and peers will enhance EI, (3) higher PBC, reflecting self-confidence in one's entrepreneurial capability, will increase EI, and (4) greater exposure to EE will strengthen students' EI. By articulating these expected outcomes, this study provides theoretical insights that bridge literature and practice.

The future phase of this research will involve the collection and analysis of empirical data to validate these relationships and determine the extent to which the proposed model accurately predicts EI among undergraduate students in Sarawak, Malaysia.

5.0 DISCUSSION OF THEORETICAL RELEVANCE AND CONTEXT

The theoretical relevance of the present study lies in its dual contribution. First, it reinforces TPB's robustness in predicting EI while demonstrating its flexibility to incorporate new predictors (Ajzen, 1991; Anal & Singh, 2023). By introducing EE as an additional antecedent, the study aligns with recent calls in entrepreneurship research to explore educational drivers of EI (Lestari et al., 2023; Mujanah et al., 2023). Second, the exploratory propositions developed in this paper provide a foundation for future empirical research, allowing subsequent studies to validate and refine the model across diverse contexts.

Contextually, the focus on the state of Sarawak, Malaysia, offers a meaningful contribution to the entrepreneurial literature. Sarawak presents a unique landscape characterized by limited employment opportunities, an ethnically diverse student population, and increasing state government efforts to encourage self-employment through initiatives such as the Graduate Towards Entrepreneurship Programme (GERAK). Understanding how cognitive (ATT, SN, PBC) and educational factors (EE) shape Sarawakian students' EI is critical for local policymakers and HEIs to design more effective entrepreneurship curricula and interventions aimed at nurturing graduate entrepreneurs.

6.0 CONCLUSION

In conclusion, this conceptual paper proposes an extended TPB framework to examine the determinants of EI among undergraduate students in Sarawak, Malaysia. By integrating EE into the TPB model, which comprises ATT, SN, and PBC, this study addresses the need for a more comprehensive theoretical model to explain EI. In addition, the study presents exploratory propositions that outline the expected relationships between ATT, SN, PBC, EE, and EI. These propositions bridge the literature review and conceptual framework, providing a clear theoretical pathway for future empirical research to test and expand the model.

The framework and propositions offer theoretical and practical implications. Theoretically, this study contributes to the entrepreneurship literature by highlighting the importance of integrating EE into the TPB framework in the context of Sarawak in Malaysia. Practically, present research informs HEIs and policymakers on how educational strategies and cognitive factors can foster EI among students.

7.0 RECOMMENDATIONS

Based on the proposed conceptual framework and exploratory propositions, some recommendations are offered for both future research and practical application. First and foremost, future research should gather and examine primary data to validate the proposed extended TPB framework and analyse the significance of ATT, SN, PBC, and EE on students' EI. Secondly, HEIs should collaborate with government agencies to provide funding opportunities, workshops, and networking events to encourage entrepreneurial engagement among students.

8.0 CONTRIBUTION OF AUTHORS

Introduction, significance of study, research questions, literature review, conceptual framework, research methodology, expected outcome, and conclusion have been written by Brooklyn Robin. Reviewing, editing, proofreading, format checking, and technical support were carried out by Jati Kasuma Ali, Malvern Abdullah and Dian Wahyuningsih.

9.0 FUNDING

This research received no external funding.

10.0 CONFLICT OF INTEREST STATEMENT

The authors declared no conflicts of interest regarding this work.

11.0 ACKNOWLEDGEMENT

No acknowledgement is declared.

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