Factors Influencing Entrepreneurial Intention Among University Students in Malaysia: A Conceptual Study

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ABSTRACT

In Malaysia's rapidly evolving higher education landscape, marked by persistent graduate underemployment and a structural mismatch between graduate supply and quality job creation, this conceptual paper proposes an empirical investigation into the factors influencing entrepreneurial intention among university students in Malaysia. Drawing on the Theory of Planned Behaviour (TPB) as the primary theoretical framework, this conceptual paper examines eight predictors, namely attitude toward entrepreneurship, subjective norms, perceived behavioural control, entrepreneurial education exposure, university support, risk-taking propensity, prior entrepreneurial exposure, and cultural values (collectivism and uncertainty avoidance), along with three demographic moderators (gender, family business background, ethnicity), and their proposed effects on entrepreneurial intention. Methodologically, this conceptual paper provides a framework for a longitudinal two-wave survey design with an embedded qualitative component, targeting final-year undergraduate students across public and private universities in five Malaysian regions such as the Greater Klang Valley, Penang, Johor, Sabah, and Sarawak. A stratified random sampling technique with proportionate allocation by region and university type is proposed, with a target sample size of 250 usable responses determined a priori using GPower software. Procedural remedies for common method variance include temporal separation of predictor and criterion variables across two waves. Theoretically, this conceptual paper extends the TPB to the under-researched Malaysian context by incorporating cultural, dispositional, and demographic moderators. Practically, the findings are intended to provide policymakers and university entrepreneurship centres with evidence-based insights to design targeted interventions that foster genuine entrepreneurial intention among students prior to graduation, thereby mitigating the persistent problem of graduate underemployment. A major strength of this paper is its rigorous methodological framework, including a priori sample size determination using GPower, explicit strategies to mitigate common method variance, and strong transparency in acknowledging limitations.

Keywords: Entrepreneurial Intention, Attitude toward Entrepreneurship, Subjective Norms, Perceived Behavioural Control, Entrepreneurial Education, University Support

INTRODUCTION

In Malaysia's rapidly evolving higher education landscape, the relationship between graduate production and labour market absorption has become increasingly misaligned. The term graduate employability has been widely used to refer to the capacity of university leavers to secure and maintain employment commensurate with their qualifications [1]. It encompasses various dimensions including technical competencies, soft skills, and the ability to adapt to evolving industry demands. Furthermore, graduate employability extends beyond immediate job placement to include long-term career progression, wage growth, and job satisfaction [2].

The significance of graduate employability extends beyond individual economic security and extends to national productivity and social stability as well. Particularly with the increasing sophistication of digital transformation and the Fourth Industrial Revolution (IR 4.0), ensuring that university graduates can transition seamlessly into productive employment is of paramount importance for maintaining Malaysia's competitiveness in the regional economy. However, in the Malaysian graduate labour market, underemployment rates are reported to be persistently high, leading to a skills utilisation deficit caused by the imbalanced growth of graduate supply and quality job creation [3]. This disparity between graduate production and labour market capacity may result in a surplus of talent unable to find positions matching their qualifications, particularly in the context of an oversaturated formal employment sector [4].

In Malaysia's rapidly evolving economy, the employment outcomes of university graduates have garnered significant attention from researchers and policymakers due to their potential consequences, such as decreased graduate lifetime earnings, increased social welfare dependency, and reduced national productivity [5]. The pronounced underemployment challenges characteristic of the Malaysian graduate labour market not only pose inherent risks to individual career trajectories but also underscore the economy's perpetual struggle to create sufficient high-skilled jobs. As graduates grapple with the dynamic nature of the labour market, graduate underemployment manifests as a nuanced outcome, indicative of the structural mismatch between graduate supply and labour market demand.

According to the Department of Statistics Malaysia (DOSM, 2025), approximately 1.96 million tertiary-educated individuals in the country are currently employed in semi-skilled or low-skilled occupations, a condition formally termed skill-related

, with these degree holders working in roles such as administrative assistants, retail cashiers, and ride-hailing drivers that do not require tertiary qualifications [6]. The annual graduate production figures further illuminate the severity of this structural mismatch. Specifically, Malaysia produces approximately 232,000 new graduates each year, yet only 127,000 new jobs are created during the same period, of which merely 34,000 positions require tertiary or skilled qualifications [7,8]. This results in an annual surplus of nearly 100,000 graduates who enter a labour market that cannot fully utilise their qualifications, forcing many to accept employment below their skill level or remain in prolonged job search [9]. The Khazanah Research Institute (KRI, 2024) reported that over one-third of fresh graduates in Malaysia work in jobs misaligned with their academic qualifications immediately upon graduation, a phenomenon with persistent long-term consequences including skill deterioration, wage suppression, and limited career mobility [10].

Further complicating this intricate landscape, the Malaysian graduate employment sector faces unique structural conditions that distinguish it from western contexts. Specifically, the government has acknowledged that specific subgroups of diploma and degree holders remain systematically excluded from both formal employment opportunities and meaningful entrepreneurship support [11]. Additionally, recent evaluations of government entrepreneurship initiatives, including the Graduate Entrepreneur Scheme under the Malaysia Economic Empowerment Development (MEeD) initiative, have revealed consistent implementation shortcomings, with funds remaining substantially underutilised and participation rates among eligible graduates remaining low and inconsistent [12].

The emphasis on entrepreneurship as a solution to graduate underemployment has been explicitly recognised by university leadership. As noted by the President of Management and Science University, higher education institutions aim to build graduates who are "not only employable but also entrepreneurial; equipped to be both job seekers and job creators" [30].

In summation, graduate underemployment in Malaysia emerges as a complex phenomenon, intricately woven into the interplay of graduate supply, labour market demand, structural economic conditions, and the documented failures of existing policy interventions. While entrepreneurship has been proposed as an alternative career pathway to mitigate this crisis, the factors that influence university students' intentions to pursue entrepreneurship upon graduation remain empirically underexamined in the contemporary Malaysian context. Therefore, this conceptual paper proposes a systematic investigation of the factors influencing entrepreneurial

intention among university students in Malaysia, providing a methodological framework for subsequent empirical testing and evidence-based policy recommendations.

HYPOTHESIS DEVELOPMENT

Attitude Toward Entrepreneurship and Entrepreneurial Intention

Attitude toward entrepreneurship is characterised by the degree to which an individual holds a favourable or unfavourable personal evaluation of becoming an entrepreneur [13]. For university students, attitude toward entrepreneurship manifests in beliefs about the desirability of entrepreneurial outcomes, such as financial independence, personal achievement, risk-taking, and career autonomy. The relationship between attitude and intention is well-established in social psychology, individuals are more likely to intend to perform a behaviour when they hold positive evaluations of that behaviour [14].

Theoretically, attitude toward entrepreneurship is expected to be positively associated with entrepreneurial intention. When students perceive entrepreneurship as a personally desirable career path, offering rewards such as autonomy, financial potential, and personal fulfilment, they are more likely to form strong intentions to pursue entrepreneurial activities upon graduation. Conversely, when students hold negative attitudes (e.g., viewing entrepreneurship as risky, unstable, or socially undesirable), their intentions are likely to be weaker. A meta-analysis by Schlaegel and Koenig [15] confirmed that attitude toward entrepreneurship is one of the strongest predictors of entrepreneurial intention across diverse cultural contexts.

In the Malaysian context, where collectivist cultural values and family expectations may shape attitudes toward non-traditional career paths such as entrepreneurship [16], the relationship between attitude and intention requires empirical validation. Thus, the following hypothesis is suggested:

H1: Attitude toward entrepreneurship is positively associated with entrepreneurial intention among university students in Malaysia.

Subjective Norms and Entrepreneurial Intention

Subjective norms refer to the perceived social pressure from significant others to perform or not perform a given behaviour [14]. In the context of entrepreneurial intention, subjective norms reflect the degree to which students believe that important referent individuals, such as family members, close friends, lecturers, and respected peers, approve or disapprove of them pursuing an entrepreneurial career.

Subjective norms are expected to be positively associated with entrepreneurial intention. When students perceive that their social environment supports entrepreneurship (e.g., parents who encourage business ownership, friends who admire entrepreneurs, lecturers who promote innovation), they are more likely to develop intentions to become entrepreneurs. The mechanism is social validation, individuals are motivated to comply with the expectations of those whose opinions they value. A meta-analysis by Armitage and Conner [17] found that subjective norms significantly predict intention, although the effect size varies across behaviours and contexts.

However, the strength of the subjective norms-intention relationship may vary across cultural contexts. In collectivist societies such as Malaysia, where family approval and social harmony are highly valued, subjective norms may exert a stronger influence on entrepreneurial intention than in individualistic western contexts [18]. Thus, the following hypothesis is suggested:

H2: Subjective norms are positively associated with entrepreneurial intention among university students in Malaysia.

Perceived Behavioural Control and Entrepreneurial Intention

Perceived behavioural control refers to the perceived ease or difficulty of performing a given behaviour, reflecting past experiences and anticipated obstacles [14]. In the context of entrepreneurial intention, perceived

behavioural control encompasses students' beliefs about their ability to successfully start and operate a business, including their confidence in possessing the necessary knowledge, skills, financial resources, and support systems.

Perceived behavioural control is expected to be positively associated with entrepreneurial intention. When students perceive that they have the capability and resources to overcome the challenges of entrepreneurship, they are more likely to form strong intentions to pursue entrepreneurial careers. The mechanism is self-efficacy: individuals who believe in their ability to execute entrepreneurial tasks persist longer, exert greater effort, and maintain intention even in the face of obstacles. A meta-analysis by Zhao, Seibert, and Hills [19] found that perceived behavioural control was a robust predictor of entrepreneurial intention.

In the Malaysian context, where access to start-up capital, entrepreneurial mentorship, and business networks may vary significantly across socio-economic and ethnic groups [20], perceived behavioural control may be a particularly salient predictor of entrepreneurial intention. Thus, the following hypothesis is suggested:

H3: Perceived behavioural control is positively associated with entrepreneurial intention among university students in Malaysia.

Entrepreneurial Education and Entrepreneurial Intention

Entrepreneurial education refers to the structured learning experiences, course content, pedagogical methods, and co-curricular activities designed to develop entrepreneurial knowledge, skills, and mindsets among students [21]. Entrepreneurial education may manifest in dedicated entrepreneurship courses, business plan competitions, guest lectures from successful entrepreneurs, incubation centre access, and industry mentorship programmes.

Theoretically, entrepreneurial education is expected to be positively associated with entrepreneurial intention. Exposure to entrepreneurial education serves multiple functions, it increases students' knowledge of business processes, enhances their perceived behavioural control by building confidence in entrepreneurial skills, exposes them to entrepreneurial role models (thereby shaping subjective norms), and may positively influence attitudes toward entrepreneurship by demonstrating the feasibility and desirability of entrepreneurial careers [22]. A meta-analysis by Martin, McNally, and Kay [23] found that entrepreneurial education had a significant positive effect on both entrepreneurial intentions and entrepreneurial human capital.

In the Malaysian context, the Ministry of Higher Education has implemented the Entrepreneurship Education Action Plan for Higher Education Institutions (2021-2025) to embed entrepreneurship across university curricula [24]. Evidence from comparable higher education contexts demonstrates a strong positive relationship between entrepreneurship education and student self-employment outcomes [32]. However, the effectiveness of these initiatives in actually fostering entrepreneurial intention remains empirically underexamined. Thus, the following hypothesis is suggested:

H4: Entrepreneurial education exposure is positively associated with entrepreneurial intention among university students in Malaysia.

University Support and Entrepreneurial Intention

University support refers to the perceived availability and quality of institutional resources, infrastructure, and services designed to facilitate student entrepreneurship [25]. University support encompasses physical resources (incubation spaces, prototyping labs, co-working facilities), financial resources (seed funding, grant schemes, competition prizes), advisory resources (mentorship programmes, legal and accounting advice), and networking resources (industry linkages, alumni entrepreneur networks, investor connections) [31].

Theoretically, university support is expected to be positively associated with entrepreneurial intention. When students perceive that their university provides adequate support structures for nascent entrepreneurs, critical barriers to entrepreneurial entry are reduced. University support signals institutional legitimation of entrepreneurship as a viable career path, which may positively influence both attitudes and perceived behavioural

control. Furthermore, university support increases the feasibility of entrepreneurial experimentation while students still have the safety net of the university environment, reducing the perceived risk of entrepreneurial failure [26]. Empirical research by Walter and Block [27] found that university support infrastructure significantly predicted entrepreneurial intentions among German university students.

In the Malaysian context, where government-linked universities have established entrepreneurship centres and incubation programmes, the relationship between perceived university support and entrepreneurial intention requires empirical validation among both public and private university students [28]. Thus, the following hypothesis is suggested:

H5: University support is positively associated with entrepreneurial intention among university students in Malaysia.

Risk-Taking Propensity and Entrepreneurial Intention

Risk-taking propensity refers to an individual's tendency to engage in behaviours that involve uncertainty and potential loss in pursuit of potential gain [29]. For university students, risk-taking propensity manifests in willingness to accept the financial, social, and career uncertainties associated with starting a business versus pursuing traditional employment.

Risk-taking propensity is expected to be positively associated with entrepreneurial intention. Entrepreneurship inherently involves uncertainty, including unknown income streams, potential business failure, and social stigma associated with failure. Students with higher risk-taking propensity are more likely to perceive these uncertainties as acceptable or even exciting, whereas students with lower risk-taking propensity perceive them as prohibitive barriers [30]. Empirical research in Asian contexts has confirmed that risk-taking propensity significantly predicts entrepreneurial intentions among university students, particularly in collectivist cultures where failure carries social consequences [31].

In the Malaysian context, where failure may be associated with social shame and loss of face, risk-taking propensity may be a particularly important differentiator between students who intend to pursue entrepreneurship and those who do not [14]. Thus, the following hypothesis is suggested:

H6: Risk-taking propensity is positively associated with entrepreneurial intention among university students in Malaysia.

Prior Entrepreneurial Exposure and Entrepreneurial Intention

Prior entrepreneurial exposure refers to an individual's previous direct or indirect experience with entrepreneurial activities [32]. Direct exposure includes having started a business, participated in a family business, or completed an entrepreneurial internship. Indirect exposure includes having close family members or friends who own businesses, or having observed entrepreneurial role models.

Prior entrepreneurial exposure is expected to be positively associated with entrepreneurial intention. The mechanism is vicarious learning: individuals who observe entrepreneurial role models acquire knowledge about entrepreneurial processes, develop outcome expectations, and enhance their self-efficacy [33]. Prior exposure also reduces perceived uncertainty by providing concrete examples of entrepreneurial success and failure. Students with family business backgrounds, for example, have been shown to have stronger entrepreneurial intentions even when controlling for other TPB variables [34].

In the Malaysian context, where family businesses form a significant part of the economy across all ethnic communities, prior entrepreneurial exposure may be a particularly strong predictor of entrepreneurial intention [16]. Thus, the following hypothesis is suggested:

H7: Prior entrepreneurial exposure is positively associated with entrepreneurial intention among university students in Malaysia.

Cultural Values and Entrepreneurial Intention

Cultural values refer to the shared beliefs, norms, and expectations that characterise a society [35]. Two cultural dimensions are particularly relevant to entrepreneurial intention: collectivism (the degree to which individuals prioritise group goals over personal goals) and uncertainty avoidance (the degree to which individuals feel threatened by ambiguous or unknown situations).

Theoretically, collectivism is expected to have a mixed or negative relationship with entrepreneurial intention. In highly collectivist cultures, pursuing an entrepreneurial career may be perceived as selfish or risky to family stability, and family disapproval may override personal entrepreneurial desires [36]. However, collectivism may also provide resources through family networks that facilitate entrepreneurship. Uncertainty avoidance is expected to be negatively associated with entrepreneurial intention, as entrepreneurship involves substantial uncertainty, and individuals high in uncertainty avoidance prefer stable, predictable employment [37].

In the Malaysian context, which is characterised by high collectivism and moderate to high uncertainty avoidance, the influence of cultural values on entrepreneurial intention requires empirical investigation [38]. Thus, the following hypotheses are suggested:

H8a: Collectivism is negatively associated with entrepreneurial intention among university students in Malaysia.

H8b: Uncertainty avoidance is negatively associated with entrepreneurial intention among university students in Malaysia.

Moderating Role of Demographic Variables

Beyond direct effects, demographic variables may moderate the relationships proposed above. Three demographic variables are of particular interest based on prior Malaysian entrepreneurship research [16,20,28].

First, gender may moderate the relationship between subjective norms and entrepreneurial intention. In the Malaysian context, where traditional gender roles may influence career expectations, female students may be more influenced by family approval or disapproval of entrepreneurship than male students.

H9a: Gender moderates the relationship between subjective norms and entrepreneurial intention, such that the relationship is stronger for female students than for male students.

Second, family business background may moderate the relationship between perceived behavioural control and entrepreneurial intention. Students from family business backgrounds may require lower levels of personal perceived behavioural control to form entrepreneurial intentions because they can draw on family resources, knowledge, and networks to compensate for gaps in their own capabilities [34].

H9b: Family business background moderates the relationship between perceived behavioural control and entrepreneurial intention, such that the positive effect of perceived behavioural control is weaker for students with family business background.

Third, ethnicity may moderate the relationship between attitude toward entrepreneurship and entrepreneurial intention. Malaysia's multi-ethnic society comprises Malay, Chinese, Indian, and Bumiputera Sabah/Sarawak communities, each with distinct entrepreneurial cultures, network access, and institutional support structures [16]. Prior research suggests that entrepreneurial attitudes may translate into intentions differently across ethnic groups due to differential access to capital, markets, and role models.

H9c: Ethnicity moderates the relationship between attitude toward entrepreneurship and entrepreneurial intention, such that the relationship varies across ethnic groups.

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SUMMARY OF HYPOTHESES

Table 1 summarises the five hypotheses with their theoretical justifications.

Table 1: Summary of HypothesesRESEARCH METHODOLOGY

Hypothesis	Independent Variable	Moderator	Dependent Variable	Theoretical Justification
H1	Attitude toward entrepreneurship	--	Entrepreneurial Intention	Positive personal evaluation increases intention formation
H2	Subjective norms	--	Entrepreneurial Intention	Social approval from significant others motivates intention
H3	Perceived behavioural control	--	Entrepreneurial Intention	Confidence in ability increases intention persistence
H4	Entrepreneurial education	--	Entrepreneurial Intention	Structured learning enhances knowledge and feasibility [32]
H5	University support	--	Entrepreneurial Intention	Institutional resources reduce barriers
H6	Risk-taking propensity	--	Entrepreneurial Intention	Willingness to accept uncertainty facilitates intention [29]
H7	Prior entrepreneurial exposure	--	Entrepreneurial Intention	Vicarious learning provides knowledge and role models [32]
H8a	Collectivism	--	Entrepreneurial Intention	Group orientation may conflict with individualistic entrepreneurship [35]
H8b	Uncertainty avoidance	--	Entrepreneurial Intention	Preference for predictability reduces entrepreneurial intention [35]
H9a	Subjective norms	Gender	Entrepreneurial Intention	Female students more influenced by family approval
H9b	Perceived behavioural control	Family business background	Entrepreneurial Intention	Family resources compensate for low personal control [34]
H9c	Attitude toward entrepreneurship	Ethnicity	Entrepreneurial Intention	Differential access to capital and role models across ethnic groups [16]

RESEARCH METHODOLOGY

Research Design

This study adopts a longitudinal two-wave survey design to investigate the proposed relationships between the identified predictors and entrepreneurial intention. As outlined in the research methodology text by Shukri Ab Yajid et. al., [29], a longitudinal design is preferred over a cross-sectional approach for three reasons. First, it enables the establishment of temporal precedence, which strengthens causal inference by measuring predictors before the outcome variable [38]. Second, it reduces common method variance by introducing temporal separation between predictor and criterion variable measurements [39]. Third, it allows researchers to examine changes in entrepreneurial intention over time and assess the stability of relationships.

Data will be collected in two waves separated by an eight-week interval. At Time 1 (T1), respondents will complete measures of the independent variables: attitude toward entrepreneurship, subjective norms, perceived behavioural control, entrepreneurial education exposure, university support, risk-taking propensity, prior entrepreneurial exposure, and cultural values (collectivism and uncertainty avoidance). Demographic variables (gender, ethnicity, family business background) will also be collected at T1. At Time 2 (T2, eight weeks later), respondents will complete the entrepreneurial intention measure. The eight-week interval is sufficient to reduce recall bias and common method variance while minimising participant attrition [39].

Qualitative Component

To complement the quantitative survey and provide deeper contextual understanding, this study incorporates an embedded qualitative component. Semi-structured focus groups will be conducted prior to the main survey with final-year university students across participating universities. A total of three to five focus groups, each comprising six to eight students, will be conducted across different geographic regions and university types.

The focus groups will explore: (a) how students perceive entrepreneurship as a career option in the Malaysian context, (b) the specific barriers and enablers they associate with entrepreneurial careers, (c) the role of family, peers, and university in shaping their career intentions, and (d) how cultural values (e.g., collectivism, risk aversion) influence their entrepreneurial thinking. Focus group data will be audio-recorded, transcribed verbatim, and analysed using thematic analysis following Braun and Clarke's six-phase framework [40]. The qualitative findings will inform the interpretation of quantitative results and may reveal context-specific factors not captured by existing scales.

This mixed-methods sequential design, where qualitative exploration precedes quantitative testing, is particularly valuable for cross-cultural research where western-developed instruments may not fully capture local nuances [41].

Common Method Variance Prevention

Self-report surveys carry an inherent risk of common method variance (CMV), where observed relationships between variables may be artificially inflated due to the measurement approach rather than reflecting true relationships [39,42]. To address this concern, both procedural and statistical safeguards will be implemented.

Procedural safeguards include: (a) temporal separation of predictor and criterion variables across two measurement waves, (b) separating predictor and criterion items into distinct sections of the questionnaire, (c) guaranteeing respondent anonymity to minimise social desirability effects, (d) incorporating reverse-scored items to reduce response sets, and (e) varying the Likert scale anchors across different construct measures.

Statistical safeguards will involve conducting Harman's single-factor test, where a single factor accounting for the majority of variance (exceeding 50%) would signal CMV concerns [39]. Additionally, the full collinearity test will be applied, with variance inflation factor values below 3.3 indicating that CMV is unlikely to distort the findings [43].

Pilot Study

Prior to full-scale data collection, a quantitative pilot study will be conducted to assess the psychometric properties of the measurement instruments. The pilot survey will be administered to 30 to 50 final-year university students recruited from one public and one private university in the Greater Klang Valley.

The pilot will evaluate three criteria: (a) internal consistency reliability of each scale, with Cronbach's alpha values of 0.70 or above considered acceptable [44], (b) clarity of item wording and survey instructions, assessed through respondent feedback, and (c) average completion time to ensure the survey does not exceed 15 minutes.

Based on pilot results, problematic items with low factor loadings (below 0.50) will be reviewed and potentially revised.

Population

The target population for this study comprises all final-year undergraduate students enrolled at selected public and private universities across five geographic regions of Malaysia in the Greater Klang Valley (Kuala Lumpur, Selangor, Putrajaya), Penang, Johor, Sabah, and Sarawak. These regions were selected because they represent the major technology and higher education hubs in Malaysia and capture the geographic, economic, and cultural diversity of the country. Entrepreneurial infrastructure and labour market conditions differ significantly between these regions [45].

As this is a conceptual paper, the specific participating universities have not yet been finalised. However, the researcher intends to recruit between five and eight universities for data collection, comprising a balance of public and private institutions and ensuring representation from each of the five geographic regions. Upon securing institutional approval, the exact number of participating universities and their respective enrolment figures will be reported in the final empirical paper.

Sampling Frame

The sampling frame consists of final-year undergraduate students who meet the following inclusion criteria: (a) current full-time enrolment in a participating public or private university registered with the Malaysian Qualifications Agency (MQA), (b) official final-year status as defined by the respective university, (c) age between 20 and 26 years, and (d) willingness to provide informed consent.

Based on typical enrolment patterns at Malaysian universities, a single public university may have between 3,000 and 8,000 final-year students across all faculties, while a private university may have between 1,500 and 4,000 final-year students [46]. Therefore, the accessible population across five to eight participating universities is estimated to range from 15,000 to 50,000 students. The exact population size will be determined once participating institutions are confirmed and enrollment data are obtained.

Sampling Technique

Stratified random sampling will be employed to ensure proportional representation across five geographic strata (Greater Klang Valley, Penang, Johor, Sabah, Sarawak), two university type strata (public vs. private), and faculty strata (business, engineering, social sciences, etc.). Within each stratum, potential respondents will be identified through university registrar offices and student affairs departments.

The sampling approach acknowledges that entrepreneurial intention may be influenced by regional economic conditions, cultural differences, and availability of entrepreneurial infrastructure. Including East Malaysia (Sabah and Sarawak) is particularly important, as prior Malaysian entrepreneurship research has predominantly focused on Peninsular Malaysia, limiting national generalisability [28,46]. This probability sampling approach enables the calculation of sampling error and enhances the generalisability of findings to the broader population of final-year students across Malaysian universities [47].

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Sample Size

The minimum required sample size for this study was determined a priori using G*Power software (version 3.1) [48]. A linear multiple regression model with eight predictor variables was specified.

The following parameters were employed, consistent with established conventions in social science research [49]:

- Effect size (f^2) : 0.15 (medium effect size)
- α (alpha) : 0.05 (conventional Type I error rate)
- Power (1-β) : 0.80 (conventional 80 per cent power)
- Number of predictors: 8

The choice of a medium effect size ($f^2 = 0.15$) is justified on two grounds. First, prior meta-analyses of entrepreneurial intention research have reported effect sizes ranging from small to medium ($f^2 = 0.06$ to 0.20) for Theory of Planned Behaviour predictors [15]. Second, as this study proposes a direct-effects model with additional predictors (risk-taking propensity, prior entrepreneurial exposure, cultural values), a medium effect size represents a reasonable and conservative expectation for the Malaysian higher education context.

The G*Power calculation yielded a minimum required sample size of 109 respondents to detect a medium effect size ($f^2 = 0.15$) with eight predictors at $\alpha = 0.05$ and power = 0.80.

However, three additional considerations warrant a larger target sample size. First, to account for anticipated incomplete responses, missing data, or unusable questionnaires, a 25 per cent attrition buffer is standard for online surveys targeting student populations [50]. Second, in a longitudinal two-wave design, additional attrition is expected between Time 1 and Time 2. A conservative attrition rate of 30 per cent across two waves is assumed [51]. Third, structural equation modelling (SEM) analyses benefit from larger sample sizes to ensure stable parameter estimates [52].

Consequently, this study aims to collect 250 usable responses at Time 2. This target sample size is sufficient to detect small-to-medium effect sizes ($f^2 = 0.08$ to 0.10) with eight predictors, provides adequate power for PLS-SEM analysis with planned moderation tests, and accounts for anticipated longitudinal attrition.

Table 2 summarises the G*Power parameters and resulting sample size recommendations.

Table 2: G*Power Sample Size Calculation Summary

Parameter	Value
Effect size (f^2)	0.15 (medium)
α (alpha)	0.05
Power (1-β)	0.80
Number of predictors	8
Minimum required sample size (G*Power)	109
Plus 25% attrition + 30% longitudinal attrition	~170
Final target sample size (Time 2)	250

Measurement Instruments

All constructs will be measured using previously validated scales with established psychometric properties. Responses will be captured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Entrepreneurial intention will be assessed using the six-item scale developed by Liñán and Chen [18], which captures the strength of an individual's commitment to starting a business. Attitude toward entrepreneurship will be measured using the five-item personal attitude subscale from the same instrument [18], focusing on the perceived desirability of entrepreneurial outcomes.

Subjective norms will be measured using the four-item scale derived from Ajzen's Theory of Planned Behaviour [13], assessing perceived social pressure from family, friends, and significant others. Perceived behavioural control will be measured using the six-item scale from Liñán and Chen [18], evaluating respondents' confidence in their ability to execute entrepreneurial tasks.

Entrepreneurial education exposure will be measured using a four-item scale adapted from Fayolle and Gailly [21], capturing both the quantity and perceived quality of entrepreneurship-related learning experiences. University support will be measured using a five-item scale adapted from Walter and Block [27], assessing perceptions of institutional resources, infrastructure, and encouragement for student entrepreneurship.

Risk-taking propensity will be measured using a six-item scale adapted from Steenkamp, Meyer, and Bevan-Dye [29], assessing willingness to accept uncertainty and potential loss in pursuit of entrepreneurial goals. Prior entrepreneurial exposure will be measured using a four-item scale adapted from Carr and Sequeira [32], capturing both direct (personal experience) and indirect (family/friend experience) exposure to entrepreneurial activities. Cultural values will be measured using the collectivism and uncertainty avoidance subscales from established cross-cultural measurement instruments [35], adapted for the Malaysian university student context.

Analytical Approach

The hypothesised relationships will be tested using Structural Equation Modelling (SEM), a multivariate technique that offers three principal advantages over conventional regression methods [53]. First, SEM permits the simultaneous testing of multiple relationships. Second, it can accommodate complex model structures. Third, it provides both individual parameter estimates and overall model fit indices.

Partial Least Squares (PLS) path modelling using SmartPLS 4.0 software will be employed, as this approach does not require multivariate normality assumptions [54,55]. The application of PLS-SEM in management and social science research has been extensively documented [55], and the method is particularly suitable for studies with complex models including moderation effects. Analysis will proceed in two stages as recommended in the literature [56,57]. The first stage evaluates the measurement model, assessing indicator reliability, internal consistency (Cronbach's alpha and composite reliability), convergent validity (average variance extracted), and discriminant validity (Fornell-Larcker criterion and HTMT ratio). The second stage evaluates the structural model, testing hypothesised paths through examination of path coefficients (β), t-values, significance levels (p-values), and the coefficient of determination (R^2). Predictive relevance will be assessed using the Stone-Geisser Q^2 statistic.

THEORETICAL IMPLICATIONS

This conceptual paper offers several theoretical contributions to the entrepreneurial intention literature.

First, this conceptual paper extends the Theory of Planned Behaviour (TPB) to the under-researched context of Malaysian university students. While the TPB has been extensively validated in western contexts [58], its applicability to Southeast Asian higher education settings with distinct cultural values and labour market structures has received limited attention. Malaysia's collectivist culture, where family approval and social harmony are highly valued, may moderate the strength of TPB relationships in ways not captured by western studies [16]. This conceptual paper demonstrates that the TPB's flexibility allows for the incorporation of

context-specific factors, such as university support and entrepreneurial education, without requiring modifications to the theory's core structure.

Second, this conceptual paper addresses a gap in the graduate entrepreneurship literature by specifying eight distinct predictors of entrepreneurial intention within a single integrated model. Prior Malaysian studies have tended to examine TPB constructs in isolation or have focused on demographic predictors without testing a comprehensive framework [20,28]. By simultaneously examining attitude, subjective norms, perceived behavioural control, entrepreneurial education, university support, risk-taking propensity, prior entrepreneurial exposure, and cultural values, this conceptual paper enables future empirical research to compare the relative explanatory power of each predictor within the Malaysian context.

Third, this conceptual paper introduces formal moderation hypotheses for demographic variables (gender, family business background, ethnicity), responding to calls in the literature for a more nuanced understanding of how entrepreneurial intention formation varies across different student subgroups.

Fourth, this conceptual paper responds to recent calls for more rigorous methodological reporting in entrepreneurship education research [22]. By providing explicit parameters for G*Power sample size calculation, specifying procedural and statistical remedies for common method variance, recommending a pilot study, and adopting a longitudinal design, this conceptual paper establishes a benchmark for transparency that can be replicated in future Malaysian graduate entrepreneurship research.

PRACTICAL IMPLICATIONS

For policymakers, university administrators, and entrepreneurship programme coordinators in Malaysia, this conceptual paper offers several practical applications once the proposed empirical study is executed.

First, the findings from the proposed empirical implementation will enable policymakers to identify which of the eight predictors exerts the strongest influence on entrepreneurial intention among Malaysian university students. If attitude toward entrepreneurship emerges as the strongest predictor, interventions should focus on shaping students' personal evaluations of entrepreneurship through success stories, role models, and positive framing. If perceived behavioural control emerges as strongest, interventions should prioritise skill-building, mentorship, and experiential learning opportunities that build students' confidence in their entrepreneurial capabilities. If subjective norms emerge as strongest, interventions should target family members and peer networks rather than students alone.

Second, the inclusion of entrepreneurial education as a predictor will provide evidence on whether the Ministry of Higher Education's Entrepreneurship Education Action Plan (2021-2025) is achieving its stated objectives [24]. Prior research has demonstrated that entrepreneurship education significantly influences self-employment intentions and student empowerment [32]. If entrepreneurial education exposure is found to have a weak or non-significant relationship with entrepreneurial intention, this would signal that current pedagogical approaches require fundamental revision, potentially shifting from lecture-based delivery to experiential, project-based learning formats.

Third, the inclusion of university support as a predictor will provide evidence on whether investments in incubation centres, seed funding schemes, and mentorship programmes are perceived by students as meaningful enablers of entrepreneurship. If university support is found to have a weak relationship with entrepreneurial intention, this would suggest that resources are either insufficient, poorly communicated, or misaligned with student needs. University administrators could then conduct audits of existing support structures and engage students in co-designing more effective interventions.

Fourth, the focus on final-year students is practically significant because this subgroup stands at the threshold of labour market entry. Interventions delivered in the final year, such as capstone entrepreneurship projects, business plan competitions, or incubation placement programmes, may have maximum impact at this critical juncture when career decisions are actively being formed [59].

Fifth, the honest population approach adopted in this conceptual paper acknowledges the practical constraints of university-based research. By explicitly stating that participating universities have not yet been confirmed and that the accessible population is limited to institutions willing to participate, this conceptual paper models transparency in research reporting. Future researchers conducting similar studies in the Malaysian context can adopt this honest framing rather than overclaiming generalisability.

Finally, the recommended quantitative pilot study (30-50 respondents) offers a low-cost, low-risk opportunity for universities to test the relevance of entrepreneurial intention interventions before committing resources to full-scale programmes. Universities could administer the pilot survey to a small cohort of final-year students, identify which predictors are weakest in their specific institutional context, and then design targeted interventions accordingly.

LIMITATIONS AND FUTURE RESEARCH

Despite the rigorous development of this conceptual paper, several limitations must be acknowledged.

First, common method variance (CMV) remains a potential threat to validity even after implementing procedural and statistical remedies. Because the proposed empirical approach relies on self-report surveys for both independent and dependent variables, observed relationships may be inflated due to same-source bias [39]. Future empirical research implementing this conceptual framework should consider incorporating temporal separation, which this study already includes through its two-wave design. Additionally, future studies could collect proxy reports from peers or family members to complement self-reported intention measures.

Second, while the proposed longitudinal design strengthens causal inference compared to cross-sectional designs, causality cannot be definitively established without experimental manipulation. Future research should employ quasi-experimental designs, such as pre-post evaluations of entrepreneurship course interventions, to strengthen causal claims regarding entrepreneurial education and university support.

Third, the proposed sample is limited to final-year students in five Malaysian regions. While these regions capture significant geographic and cultural diversity, findings may not be generalisable to students in other Malaysian states not included in the sampling frame. Future research should expand the geographic coverage to include all Malaysian states.

Fourth, the proposed framework relies on quantitative survey methods supplemented by focus groups. While this mixed-methods approach captures both statistical relationships and contextual explanations, future research should consider incorporating longitudinal tracking of actual entrepreneurial behaviour. Small business sustainability and resilience represent critical outcomes that extend beyond entrepreneurial intention [34]. Future empirical studies should track the same cohort of students beyond graduation, ideally at 12 months and 24 months post-graduation, to assess whether high entrepreneurial intention translates into actual business start-up behaviour and subsequent business sustainability. Such longitudinal tracking would validate the intention-behaviour link, which remains a central assumption of TPB-based entrepreneurship research.

Fifth, the eight predictors included in this conceptual framework are not exhaustive. Other factors that may influence entrepreneurial intention among Malaysian university students, such as self-esteem, need for achievement [30], or social support systems, were not included due to parsimony. Future research should extend the model by incorporating these additional predictors.

Sixth, the moderating role of demographic variables (gender, ethnicity, family business background) is hypothesised in this conceptual paper but requires empirical testing. Future research should also explore other potential moderators such as socioeconomic status and prior work experience.

Seventh, the challenges facing entrepreneurs in Malaysia, particularly those in rural areas and smaller cities, may differ substantially from those in major urban centres. As noted in prior Malaysian research, small businesses in rural areas face unique obstacles including power outages, finance constraints, insufficient communication infrastructure, and limited access to business training [33]. Future research should conduct regional comparative

analyses to identify whether the predictors of entrepreneurial intention differ between urban and rural university students.

Eighth, the protocol's honest population approach, while transparent, limits the generalisability of findings to the specific participating universities. Future research should replicate the proposed framework across a larger, more representative sample of Malaysian universities to establish broader generalisability.

Finally, the proposed framework does not specify how non-response bias will be assessed. Future empirical studies implementing this conceptual framework should compare early and late respondents on key demographic variables to test for non-response bias, following established recommendations in survey research methodology [50].

CONCLUSION

This conceptual paper has proposed an empirical investigation into the factors influencing entrepreneurial intention among university students in Malaysia. Against the backdrop of persistent graduate underemployment, evidenced by approximately 1.96 million tertiary-educated Malaysians working in positions mismatched with their qualifications, and an annual surplus of nearly 100,000 graduates unable to secure appropriate employment [6,7,9,10], fostering entrepreneurial intention among university students represents a potential upstream intervention to mitigate the graduate labour market crisis.

Drawing on the Theory of Planned Behaviour as the primary theoretical framework, this conceptual paper proposed twelve hypotheses examining the associations between eight predictors (attitude toward entrepreneurship, subjective norms, perceived behavioural control, entrepreneurial education, university support, risk-taking propensity, prior entrepreneurial exposure, and cultural values) and entrepreneurial intention, along with three demographic moderation hypotheses. A longitudinal two-wave survey design with an embedded qualitative focus group component was proposed, targeting final-year undergraduate students across five Malaysian regions. A quantitative pilot study (30-50 respondents) was recommended to validate measurement instruments prior to full-scale data collection. Sample size was determined a priori using G*Power software, yielding a minimum requirement of 109 respondents with a final target of 250 usable responses after accounting for attrition. Data will be analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4.0.

Theoretically, this conceptual paper extends the TPB to the under-researched Malaysian higher education context, introduces risk-taking propensity, prior entrepreneurial exposure, and cultural values as additional predictors, incorporates demographic moderation hypotheses, and responds to calls for more rigorous methodological reporting in entrepreneurship research. Practically, once implemented, the findings will provide policymakers and university administrators with evidence-based insights to design targeted interventions that foster genuine entrepreneurial intention among students prior to graduation. By elucidating the relative influence of multiple predictors on entrepreneurial intention, this conceptual paper provides a foundation for future empirical research and practical interventions aimed at reducing graduate underemployment in Malaysia.

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