FROM INTELLIGENCE TO INNOVATION: HOW INTELLIGENCE QUOTIENT (IQ) AND ENTREPRENEURIAL INTENTIONS (EI) SHAPE SOCIAL INNOVATION READINESS IN MALAYSIAN HIGHER EDUCATION?

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Abstract:

This study investigates the influence of intelligence quotient (IQ) and entrepreneurial intentions (EI) on social innovation readiness among higher education students in Malaysia. In the era of Industry 5.0, innovation and socially driven solutions are crucial, highlighting the importance of understanding the role of cognitive abilities and an entrepreneurial mindset. A quantitative research design was employed

using a structured survey instrument to collect data from INTI International University students using Smart-PLS analysis, and purposive sampling was employed. A structured survey was delivered to a purposively 31 students from Faculty Business and Communications, INTI International University. The results show that entrepreneurial intention (EI) have a significant influence on social innovation readiness, while intelligence quotient (IQ) is not significant to social innovation in Malaysian higher education. This study has practical implications for curriculum development in Malaysian higher education institutions.

Introduction

Social innovation involves introducing new services, products, or approaches to meet social needs become an increasingly important strategy for addressing complex global issues (Mustapha et al., 2021). The OECD (2024) reports that people-focused innovation is gaining traction around the world supported by collaborative service design and adaptable policy frameworks. These developments reflect the rising importance of the social economy in driving sustainable and inclusive development. The World Economic Forum (2025) highlights the economic contribution of social enterprises noting they generate over $2 trillion annually and employ more than 200 million people.

Social innovation is recognised as a critical component of Malaysia's development goals in order to foster growth and sustainability and assist the country in achieving high income levels (Ibrahim & Tajuddin, 2020). The Malaysian government created the Social Innovation Policy (DIS) 2025-2030 to empower local communities and encourage stakeholder participation in tackling socioeconomic challenges (MOSTI, 2024; YIM, 2025). Besides, the Ministry of Science, Technology and Innovation (MOSTI) officially introduced the Social Innovation Policy (DIS) 2025–2030 to support social entrepreneurs and changemakers in delivering creative solutions to regional and national challenges (Ministry of Finance Malaysia, 2024)

In the education sector, Malaysia has undertaken continuous efforts over the past decade to incorporate social innovation into its curriculum including adjustments to pedagogical strategies, extracurricular activities, community service projects, and curriculum design within this context emerges Social Innovation Education (SIE) (Kalemaki et al., 2021). Many universities use project-based learning to help students get practical experience in social innovation (British Council Malaysia et al., 2021; Raja Suzana et al., 2017). A substantial portion of the Malaysian Budget for 2025 is set aside for research and education with an emphasis on encouraging innovation to create a generation equipped to address complex social issues in the future (Ministry of Finance Malaysia, 2024).

Although social innovation education is growing, research shows that improvements in curriculum quality and funding are still required (British Council Malaysia et al., 2021; Nasir & Subari, 2020). The biggest barrier to social innovation education is the lack of a theoretical foundation and a clear framework to guide educators and educational institutions (Schwarz et al., 2021). In contrast to traditional educational advancements, many schools are currently ill-equipped to provide the flexible learning environments and cross-disciplinary collaboration that social innovation demands (Schwarz et al., 2021). This could lead to scattered efforts, which would make it more challenging to maintain social innovation initiatives.

The World Economic Forum (2024) asserts that a large number of educators are deficient in critical abilities that are essential for fostering social innovation, including empathy, systems thinking, and an entrepreneurial mindset. Although social innovation education is gaining attention in Malaysian universities, students still require greater support and more targeted programs to develop the skills needed for addressing local social issues (Raja Suzana et al., 2017; British Council Malaysia et al., 2021). Besides, the field of Social Innovation Education (SIE) is relatively new with limited research exploring its impact.

Recenty Social Innovation Education (SIE) at the university levels has become a topic of recent researcher interests (Kalemaki et al., 2021). Given the growing interest in social innovation at the university level, it is important to explore how students' entrepreneurial intention and cognitive ability (IQ) influence the social innovation readiness. Entrepreneurial intention (EI) represents a key motivational mechanism through which individual capabilities are translated into entrepreneurial and innovation-related action. Grounded in the Theory of Planned Behavior (TPB), intention reflects how attitudes, perceived social expectations, and perceived behavioral control shape an individual's readiness to perform a behavior (Ajzen, 1991).

Prior research consistently shows that EI is one of the strongest predictors of entrepreneurial behavior and innovation engagement acting as a bridge between personal attributes and actual innovative outcomes (Zhao et al., 2010). In the Malaysian higher education context, where entrepreneurship and social innovation are increasingly promoted through university programs and national development agendas, EI becomes relevant as a psychological driver that channels students' capabilities into socially oriented innovative efforts. Empirical evidence from Malaysian youth also shows that intention-based and motivational factors are central in shaping individuals' orientation toward social entrepreneurial activities (Zulkifle & Aziz, 2023). Thus, when examining social innovation readiness in Malaysia, EI can be understood as the motivational pathway through which both cognitive and non-cognitive traits influence whether individuals are prepared to pursue socially oriented innovative activities.

On the other hand, Intelligence Quotient (IQ), as a measure of general cognitive ability may contribute to social innovation readiness in a different but complementary manner. Cognitive ability supports analytical reasoning, problem solving, and information processing which are important for identifying opportunities and evaluating socially innovative solutions. Within a developing and diverse socio-economic landscape such as Malaysia, these cognitive skills can help individuals understand complex community problems and assess feasible intervention strategies. However, entrepreneurship research suggests that cognitive ability alone does not automatically lead to entrepreneurial or innovative action unless accompanied by strong motivational drivers such as intention and self-efficacy (Zhao et al., 2010). This implies that IQ may enhance an individual's capacity to process complex social problems, but its influence on social innovation readiness is likely to be more indirect, operating through the extent to which individuals are also motivated and psychologically prepared to translate their cognitive capacity into socially innovative initiatives.

The type of intelligence is especially relevant for social innovation, where success depends not only on cognitive ability but also on societal-oriented, empathy, and the capacity to mobilize resources for societal impact. Research in entrepreneurship and social innovation in Malaysia emphasizes that effective innovation often draws on multiple forms of intelligence, including creative intelligence, which enables the generation of novel ideas such as emotional intelligence which supports the management of uncertainty, collaboration, social influence, and social intelligence which facilitates understanding of societal needs and stakeholder engagement (Zulkifle et al., 2023). While IQ may contribute to analytical aspects of innovation, entrepreneurial intention (EI) and other non-cognitive traits likely play a more direct role in preparing individuals to engage in socially innovative actions.

Therefore, social innovation requires students to think critically, be creative, and understand societal challenges. IQ, which measures analytical and problem-solving abilities, while EI reflects students' drive and determination to implement entrepreneurial innovative ideas. Hence, this study proposes to examine how IQ and EI influence students' readiness for social innovation with the following research objectives.

RO1: Does intelligence quotients (IQ) influence students' readiness for social innovation activities?

RO2: Does entrepreneurial intention (EI) influence students' readiness for social innovation activities?

Literature Review

Social Innovation Readiness

Social innovation is increasingly recognized as the development and application of innovative solutions to address social, cultural, and environmental challenges. It plays a vital role in promoting inclusive economic growth and advancing sustainable development (Mustapha et al., 2022). According to Foroudi et al. (2020) and Nawi et al. (2018), social innovation is a transformative process that employs existing resources in novel ways to achieve socially acknowledged goals highlighting its crucial role in the advancement of society. In order to effectively solve societal issues, this innovation goes beyond conventional profit-driven

business models by integrating stakeholder expectations and social obligations (Tietz et al., 2018; Foroudi et al., 2020).

In education, social innovation shows a growing understanding of its value in tackling difficult societal issues via experiential and collaborative learning. By fostering environments that encourage critical thinking, entrepreneurial thinking, and a feeling of social responsibility, higher education institutions can especially prepare students for social innovation (Balladares et al., 2024). Education system's increased focus on social innovation suggests a deeper awareness of the importance of equipping students with the skills and mindset necessary to address complex societal issues (Jidon et al., 2023; Carayannis et al., 2021).

Project-based and contextual learning approaches are being used more often in higher education institutions to foster social responsibility, creativity, empathy, and critical thinking (British Council Malaysia et al., 2021). These initiatives provide students with the tools, direction and immersive learning experiences they require to develop and execute creative answers to significant societal issues (British Council Malaysia et al., 2021; Naseri et al., 2021). To address these issues and advance Malaysia's social innovation landscape, government initiatives such as the Ministry of Higher Education's Social Innovation and Social Research Fund and institutional partnerships with NGOs and communities are essential (MOHE, 2025; British Council Malaysia et al., 2021).

To better grasp the key ideas and learning circumstances, a three-layer conceptual model was designed in Social Innovation Education (SIE) (Kalemaki et al., 2021). This model clarifies the educational philosophy that underpins SIE's interventions and intended learning results. The model is divided into three layers: the foundational layer, which outlines the core educational philosophy; the middle layer, which describes the design principles that shape its structure; and the top layer, which contains context-specific program components that can be tailored to local settings and different interpretations of outcomes.

Intelligence Quotients and Social Innovation Readiness

The intelligence quotient (IQ) traditionally associated with cognitive abilities such as logical reasoning, problem solving, and abstract thinking may influence an individual's ability to identify opportunities for innovation and develop creative solutions to complex social problems (Kalemaki et al., 2021). According to Zehir and Karaca (2021), there is a conceptual link between social intelligence and social innovation, demonstrating that those with higher intelligence quotients are more suited to driving social change. Irfan & Malik (2023) also argued that positive intelligence quotient leads to an enhanced capacity for innovation. Furthermore, Hendrik et al., (2019) hypothesise that intelligence quotient favourably promotes social innovation readiness among university students, greatly contributing to innovation performance across national contexts.

H1: Intelligence Quotients have significant influence on social innovation readiness

Entrepreneurial Intentions and Social Innovation Readiness

Entrepreneurial intention (EI) refers to the conscious desire and commitment to start a new venture and serves as a key motivational driver that propels individuals to take initiative, overcome obstacles, and mobilize resources to achieve their social innovation goals (Vijeyan. S. et all., 2025). Research shows that factors such as innovation, risk-taking propensity, and

entrepreneurial attitude significantly influence social entrepreneurial intentions (Kurjono, Lubis, & Katiah, 2024). Additionally, social networking and access to technological resources play a vital role in shaping entrepreneurial intentions by providing support and knowledge essential for venture innovation (Sarhan et al., 2024). Besides, Ye & Kang (2025) found that higher entrepreneurial self-efficacy strongly predicts entrepreneurial intentions among business students across different cultural contexts for innovation. It was suggested that there was a significant and positive correlation between entrepreneurial intentions and innovation (Irfan & Malik, 2023).

H2: Entrepreneurial Intentions have significant influence on social innovation readiness

Conceptual Framework

The conceptual framework in this study examines the relationship between Intelligence Quotient (IQ), Entrepreneurial Intention (EI), and students' readiness for social innovation as shows in Figure 1. IQ is anticipated to enhance students' capacity to generate and evaluate creative solutions, while EI represents their intention and willingness to translate ideas into entrepreneurial actions. Together, IQ and EI are proposed to influence students' readiness to participate effectively in social innovation activities. This study adapted from (Irfan & Malik, 2023).
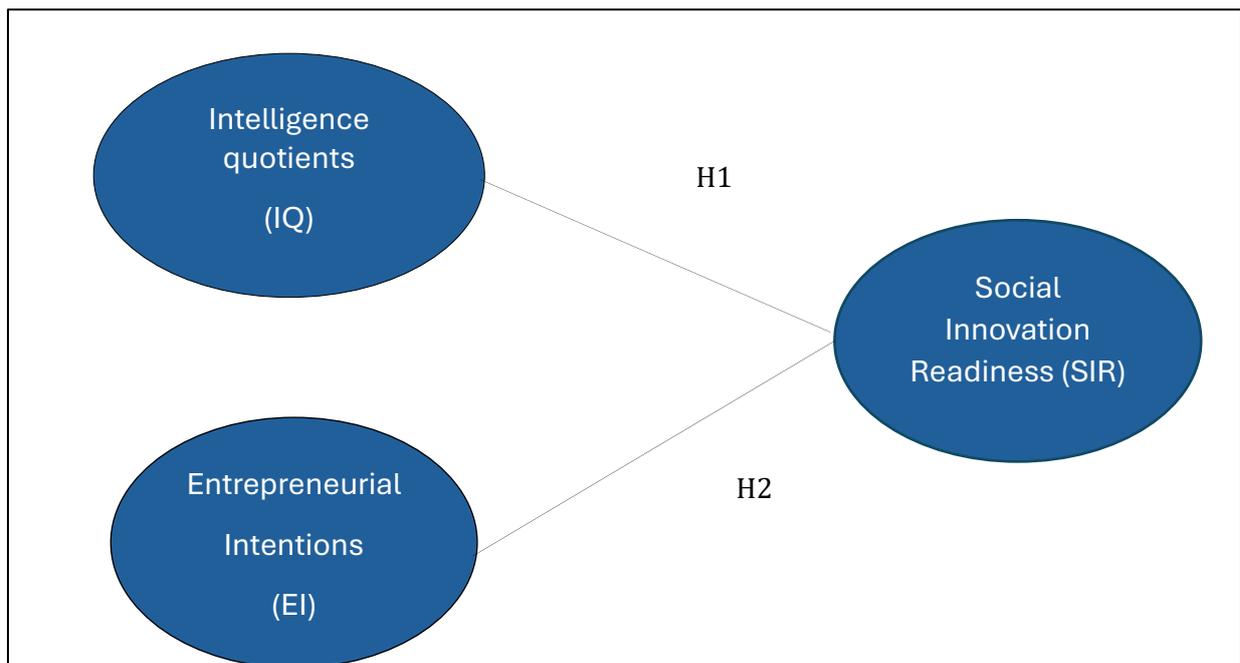

Figure 1: Conceptual Framework

Theory

Empirical evidence significantly supports the use of the Theory of Planned Behaviour (TPB) in business settings. For example, Yazeed et al. (2021) and Bayona-Oré (2023) broaden the TPB framework to include situational factors and implementation intentions, demonstrating that attitudes, subjective norms, and perceived behavioural control all have a significant impact on entrepreneurial intentions among college students. Similarly, a study conducted in Shandong Province, China, discovered that positive attitudes and perceived behavioural control greatly influence entrepreneurial ambitions, while subjective norms have a smaller but still significant

role (Dong & Chang, 2024). These findings emphasise the necessity of instilling positive attitudes in students, increasing their self-efficacy, and providing appropriate resources to support entrepreneurial behaviour. Entrepreneurial behaviour is intimately related to innovation, since students with better entrepreneurial attitudes are more likely to spot possibilities, take risks, and develop unique solutions. Thus, encouraging entrepreneurial attitudes and confidence not only helps to create new businesses, but also promotes innovation methods to addressing larger social and economic concerns.

Methodology

Research Design

This study adopted a quantitative research design to investigate the relationships between Intelligence Quotient (IQ), entrepreneurial intentions (EI), and social innovation readiness. A cross-sectional survey method was employed, as it is appropriate for examining hypothesized associations between constructs within a specific population at a single point in time.

Population and Sample

The target population consisted of undergraduate students enrolled at INTI International University, Malaysia specifically in Faculty Business and Communications. A purposive sampling technique was applied to ensure that the respondents possessed relevant academic exposure. Specifically, only students from business and accounting programs were selected, given their direct engagement with entrepreneurial and innovation-related content. A total of 31 students from Faculty of Business and Communications participated in the study, which meets the minimum sample size requirements for exploratory Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. 40 questionnaires to respondents in physical and electronic form via email or WhatsApp link. In return, 31 completed surveys, making a response rate of 77.5 percent.

Data Collection

Data were collected using a structured self-administered questionnaire. The instrument was designed to capture responses related to IQ, EI, and social innovation readiness, with items adapted from prior validated scales in the literature. The survey was distributed to the selected participants, and responses were collected within a defined time frame to ensure consistency.

Data Analysis

The collected data were analyzed using SmartPLS, a variance-based structural equation modeling software suitable for small sample sizes and complex models. The analysis was conducted in two stages. First, the measurement model was assessed to establish the reliability and validity of the constructs. Second, the structural model was evaluated to test the hypothesized relationships between IQ, EI, and social innovation readiness. Path coefficients, coefficient of determination (R^2), effect sizes (f^2), and bootstrapping results were examined to determine the strength and significance of the relationships.

Results and Findings

This section presents the empirical results of the study based on data analysis using SmartPLS. The analysis was carried out in two major stages, consistent with the Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure. First, the measurement model was assessed to evaluate the reliability and validity of the constructs, ensuring that the indicators adequately represent their respective latent variables. This was followed by the evaluation of the structural model, which tested the hypothesized relationships between Intelligence Quotient (IQ), entrepreneurial intentions, and social innovation readiness. The results are reported through path coefficients, effect sizes, explained variance (R^2), and significance levels obtained via bootstrapping. Together, these analyses provide insights into the predictive power of the model and the relative influence of the independent variables on social innovation readiness. Figure 2 presents the structural model, where Entrepreneurial Intentions (EI) and Intelligence Quotient (IQ) are exogenous constructs predicting Social Innovation Readiness (SI) which aligned with conceptual framework in Figure 1. The SmartPLS results are analyzed in the measurement and structural model according to standard PLS-SEM procedures.
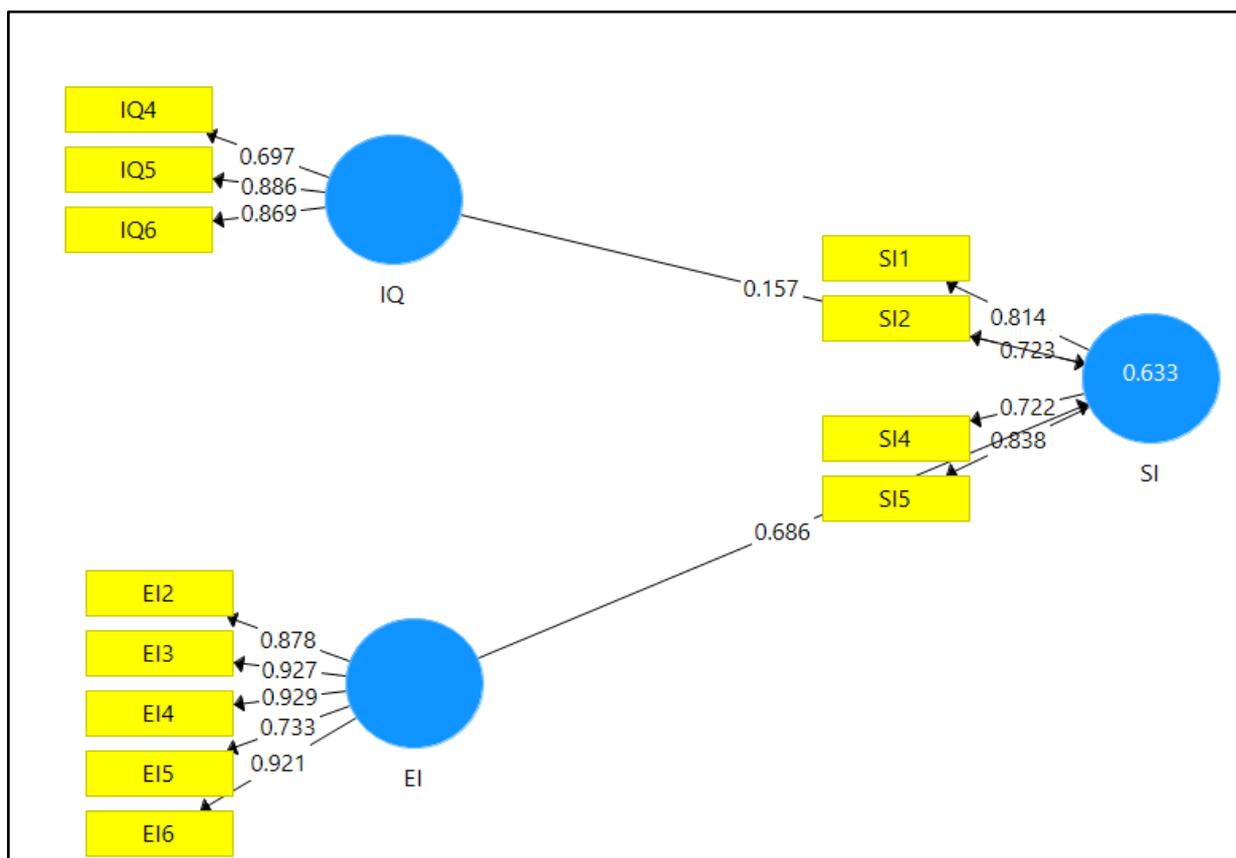

Figure 2: Structural Model

Construct Reliability and Convergent Validity

The reliability and convergent validity of the constructs were examined through Cronbach's alpha (α), rho_A (ρ_A), Composite Reliability (CR), and Average Variance Extracted (AVE). According to Hair et al. (2019), internal consistency reliability is supported when both Cronbach's α and CR exceed the threshold of 0.70, while convergent validity is established when AVE values are greater than 0.50.

As shown in Table 1, all constructs in this study met these recommended thresholds. For Entrepreneurial Intentions (EI), Cronbach's α = 0.926, ρ_A = 0.939, CR = 0.945, and AVE = 0.776, indicating excellent internal consistency and convergent validity. Similarly, Intelligence Quotient (IQ) recorded α = 0.765, ρ_A = 0.848, CR = 0.860, and AVE = 0.675, which all exceeded the minimum cut-off values, confirming satisfactory reliability and convergence. For Social Innovation (SI), Cronbach's α = 0.780, ρ_A = 0.791, CR = 0.858, and AVE = 0.602, again surpassing the required benchmarks.

Taken together, these results demonstrate that the constructs exhibit robust internal consistency and adequate convergent validity, confirming that the observed indicators are reliable measures of their respective latent constructs.

Table 1: Outer Loadings

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
EI	0.926	0.939	0.945	0.776
IQ	0.765	0.848	0.860	0.675
SI	0.780	0.791	0.858	0.602

All constructs thus exhibit satisfactory internal consistency and convergent validity. In sum, the measurement model is reliable, and convergent validity is established for each latent variable.

Discriminant Validity: Fornell–Larcker Criterion

Discriminant validity was assessed using the Fornell–Larcker criterion, which compares the square root of the Average Variance Extracted (AVE) for each construct to its correlations with other constructs (Fornell & Larcker, 1981). The criterion is satisfied when the square root of a construct's AVE (diagonal value) is greater than its correlations with other constructs (off-diagonal values).

As presented in Table 2, the square roots of the AVE values were 0.881 for Entrepreneurial Intentions (EI), 0.822 for Intelligence Quotient (IQ), and 0.776 for Social Innovation (SI). The results indicate that:

- EI ($\sqrt{AVE}$ = 0.881) exceeded its correlations with IQ (0.640) and SI (0.786), thus satisfying the criterion.

- IQ ($\sqrt{AVE}$ = 0.822) was greater than its correlations with EI (0.640) and SI (0.596), indicating adequate discriminant validity.

- SI ($\sqrt{AVE}$ = 0.776), however, showed a correlation of 0.786 with EI, which slightly exceeded the threshold, suggesting that SI and EI may share more variance with each other than the variance extracted by SI alone.

Overall, while the constructs generally demonstrated adequate discriminant validity, the results raise a minor concern regarding the distinctiveness of SI and EI. This finding suggests a strong conceptual and empirical overlap between these two constructs, which should be considered when interpreting the structural model results.

Table 2: Fornell-Larcker Criterion

	EI	IQ	SI
EI	0.881		
IQ	0.640	0.822	
SI	0.786	0.596	0.776

Cross-Loadings (Indicator-Level Discriminant Validity)

Discriminant validity was further examined at the indicator level through the cross-loadings matrix. Each indicator is expected to exhibit the highest loading on its respective construct compared to its loadings on other constructs (Chin, 1998). This criterion ensures that items are more strongly associated with their intended latent variable than with any other construct in the model.

The results (as Table 3) confirmed that all measurement items loaded most strongly on their hypothesized constructs. For example, item EI3 demonstrated a loading of 0.927 on Entrepreneurial Intentions (EI), which was considerably higher than its loading on Social Innovation (0.780). Similarly, item IQ5 loaded 0.886 on Intelligence Quotient (IQ), which exceeded its loading on Social Innovation (0.631). A consistent pattern was observed across all items (EI2–EI6, IQ4–IQ6, SI1–SI5), where the primary loadings were substantially greater than the cross-loadings.

These findings provide additional support for discriminant validity, confirming that the indicators distinctly represent their designated constructs and do not overlap substantially with alternative constructs in the measurement model.

Table 3: Cross Loadings

	EI	IQ	SI
EI2	0.878	0.646	0.549
EI3	0.927	0.588	0.78
EI4	0.929	0.628	0.773
EI5	0.733	0.245	0.618
EI6	0.921	0.692	0.695
IQ4	0.469	0.697	0.343

IQ5	0.565	0.886	0.631
IQ6	0.540	0.869	0.423
SI1	0.696	0.576	0.814
SI2	0.613	0.28	0.723
SI4	0.526	0.304	0.722
SI5	0.588	0.638	0.838

Discriminant Validity: HTMT Ratio

To further assess discriminant validity, the Heterotrait–Monotrait (HTMT) ratio of correlations was examined, as recommended by Henseler, Ringle, and Sarstedt (2015). The HTMT criterion provides a more stringent evaluation of construct distinctiveness compared to the Fornell–Larcker approach. Discriminant validity is established when HTMT values fall below the conservative threshold of 0.90.

As shown in Table 4, the HTMT ratios for the construct pairs were as follows: EI–IQ = 0.753, IQ–SI = 0.708, and EI–SI = 0.910. Both EI–IQ and IQ–SI demonstrated acceptable discriminant validity, as their values were well below the 0.90 cut-off. However, the HTMT value between EI and SI (0.910) slightly exceeded the threshold, indicating a potential lack of discriminant validity between these two constructs.

This result, consistent with the Fornell–Larcker test, suggests a strong association between Entrepreneurial Intentions and Social Innovation. While not uncommon in behavioral research where conceptually related constructs may overlap, this finding warrants cautious interpretation when assessing the unique contribution of each variable in the structural model.

Table 4: Heterotrait-Monotrait Ratio (HTMT)

	EI	IQ	SI
EI			
IQ	0.753		
SI	0.91	0.708	

Collinearity Diagnostics (VIF)

Multicollinearity among predictor constructs was assessed using Variance Inflation Factors (VIF). High multicollinearity inflates standard errors and undermines the stability of regression estimates, making it difficult to isolate the unique contribution of each predictor (Hair et al., 2019). A commonly accepted guideline is that VIF values should remain below 5.0, with more conservative thresholds set at 3.0 for stricter evaluations.

In this study, the relevant predictors of Social Innovation (SI) were Entrepreneurial Intentions (EI) and Intelligence Quotient (IQ) as present in Table 5. Both constructs yielded VIF values of 1.693, which are well below the recommended thresholds. These results confirm the absence of multicollinearity concerns and indicate that EI and IQ make independent contributions to the model. Consequently, the regression coefficients can be interpreted with confidence, as the estimates are not distorted by redundancy among predictor variables.

Table 5: Collinearity Diagnostics (VIF)

	EI	IQ	SI
EI			1.693
IQ			1.693
SI			

Explained Variance (R² and Adjusted R²)

The explanatory power of the structural model was evaluated using the coefficient of determination (R^2). For the endogenous construct Social Innovation (SI), the model produced an R^2 value of 0.633 and an adjusted R^2 of 0.606. This indicates that 63.3% of the variance in Social Innovation readiness is explained by Entrepreneurial Intentions (EI) and Intelligence Quotient (IQ).

According to Hair et al. (2011), R^2 values of 0.25, 0.50, and 0.75 can be interpreted as weak, moderate, and substantial, respectively. On this basis, the R^2 of 0.633 falls within the moderate-to-substantial range, suggesting that the model accounts for a considerable proportion of variance in SI. The adjusted R^2, which compensates for model complexity and sample size, was similarly high (0.606), reinforcing the robustness of the explanatory power as shows in Table 6.

Overall, these findings indicate that the structural model demonstrates good predictive capability for the endogenous construct, supporting the theoretical premise that EI and IQ contribute meaningfully to the readiness for social innovation.

Table 6: Coefficient of Determination R^2

	R Square	R Square Adjusted
SI	0.633	0.606

Effect Sizes (f²)

To further assess the contribution of each exogenous construct, Cohen's f^2 effect size was calculated. This statistic indicates the change in R^2 when a specific predictor is included in or excluded from the model, thereby reflecting its relative impact on the endogenous construct. According to Cohen (1988), f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

As shown in Table 7, the effect of Entrepreneurial Intentions (EI) on Social Innovation (SI) was substantial, with $f^2 = 0.757$, which is well above the 0.35 threshold. In contrast, Intelligence Quotient (IQ) demonstrated only a small effect, with $f^2 = 0.040$, slightly above the minimum threshold of 0.02.

These findings highlight the dominant role of Entrepreneurial Intentions in shaping Social Innovation readiness, while Intelligence Quotient contributes only marginally. This reinforces the earlier R^2 results, emphasizing that EI is the primary driver of SI in the current model.

Table 7: Coefficient of Determination f^2

f^2	EI	IQ	SI
EI			0.757
IQ			0.04
SI			

Path Coefficients (Hypothesis Testing)

The hypothesized relationships were tested using bootstrapping procedures in SmartPLS to obtain path coefficients (β), t-values, and significance levels (p-values). A path is considered significant when its t-value exceeds 1.96 at the 5% significance level ($p < 0.05$) for a two-tailed test (Hair et al., 2019).

The results are summarized in Table 8. The path from Entrepreneurial Intentions (EI) to Social Innovation (SI) was positive and statistically significant (β = 0.686, t = 4.610, $p < 0.001$), thereby supporting H1. This finding indicates that higher levels of entrepreneurial intentions are strongly associated with increased readiness for social innovation.

In contrast, the path from Intelligence Quotient (IQ) to Social Innovation (SI) was positive but not statistically significant (β = 0.157, t = 0.865, p = 0.387). As the t-value did not exceed the critical threshold, H2 was not supported. This suggests that IQ, although conceptually relevant, does not exert a meaningful predictive influence on social innovation readiness within this sample.

Overall, the hypothesis testing results demonstrate that Entrepreneurial Intentions play a critical role in enhancing social innovation readiness, while Intelligence Quotient appears to have little direct effect.

Table 8: Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
EI -> SI	0.686	0.676	0.149	4.61	0.000

IQ -> SI	0.157	0.202	0.181	0.865	0.387

Summary of Findings

The results of the measurement model confirmed that all constructs exhibited adequate reliability and convergent validity, with Cronbach's alpha, composite reliability, and AVE values exceeding recommended thresholds. Discriminant validity was largely supported through cross-loadings, though minor concerns were noted between Entrepreneurial Intentions (EI) and Social Innovation (SI) based on the Fornell–Larcker criterion and HTMT ratio. Multicollinearity was not an issue, as VIF values were well below critical cut-off points.

In the structural model, the predictors explained a substantial proportion of variance in Social Innovation readiness ($R^2 = 0.633$, adjusted $R^2 = 0.606$). Effect size analysis revealed that EI had a large impact on SI ($f^2 = 0.757$), whereas IQ showed only a small effect ($f^2 = 0.040$). Hypothesis testing further confirmed these findings, with EI exerting a significant positive effect on SI ($\beta = 0.686$, $p < 0.001$), while IQ did not demonstrate a statistically significant influence ($\beta = 0.157$, $p = 0.387$).

Taken together, these results highlight Entrepreneurial Intentions as the dominant predictor of Social Innovation readiness, underscoring its critical role in shaping students' preparedness for innovation. Conversely, Intelligence Quotient, despite being conceptually relevant, appears to have limited explanatory power within the context of this study.

Discussion

Interpretation of Findings

The findings of this study provide meaningful insights into the determinants of social innovation readiness among Malaysian university students. The results confirmed that entrepreneurial intentions (EI) significantly and positively influence social innovation readiness, whereas intelligence quotient (IQ) did not show a significant effect. This highlights that students' willingness and motivation to engage in entrepreneurial activities are more critical than cognitive ability in driving readiness for innovation.

The substantial effect size ($f^2 = 0.757$) of EI reinforces the importance of cultivating entrepreneurial mindsets, as students with stronger entrepreneurial goals are more likely to perceive, initiate, and implement socially innovative solutions. The results indicate that higher education institutions in Malaysia should prioritize entrepreneurial mindset development through experiential learning, social entrepreneurship projects, and community engagement. Incorporating hands-on innovation labs, real-world problem-solving assignments, and service-learning initiatives allows students to apply theoretical knowledge, develop creative and social intelligence, and gain confidence in their ability to enact social change. Additionally, mentoring, coaching, and peer collaboration programs can strengthen students' self-efficacy, motivation, and entrepreneurial intention (EI), which are key drivers of social innovation readiness. Policymakers should further support educational and training programs that enhance EI and social innovation competencies, ensuring alignment with Malaysia's national sustainability and innovation agendas.

In contrast, IQ contributed only minimally ($f^2 = 0.040$), suggesting that while cognitive ability may support problem-solving, it does not independently predict readiness for social innovation without the presence of entrepreneurial drive. While the results in study show that IQ does not significantly predict social innovation readiness, as this outcome highlights the limitations of relying on traditional measures of intelligence to explain innovation-related behaviors. Traditional IQ tests primarily assess analytical reasoning, memory, and problem-solving skills, but they may not capture the broader range of cognitive and affective capabilities required for social innovation.

Comparison with Previous Studies

The significant relationship between entrepreneurship quotient and social innovation readiness is consistent with recent research emphasizing that entrepreneurial education and ecosystem support strengthen students' entrepreneurial orientation and innovative capacity (Oleksandrt et al., 2025). These results are consistent with prior research emphasizing the central role of entrepreneurial orientation and intentions in fostering innovation-related behaviors (Liñán & Fayolle, 2015; Nabi et al., 2017). Similar studies have shown that entrepreneurial attitudes and goals often outweigh cognitive factors in predicting entrepreneurial and innovative outcomes in higher education contexts. In the Malaysian context, national initiatives such as the National Social Enterprise Blueprint and SEMy2030 highlight the importance of cultivating entrepreneurial intent among youth to drive social and economic transformation (Raja Suzana et al., 2017). These findings suggest that developing entrepreneurial intent can enhance students' readiness to engage in social innovation when higher education institutions integrate entrepreneurial learning with real-world applications.

Conversely, the non-significant effect of IQ diverges from some traditional perspectives that emphasize cognitive intelligence as a determinant of problem-solving capacity and innovation (Sternberg, 2006). In contrast, intelligence quotient was not found to be a significant predictor of social innovation readiness. This aligns with research showing that while IQ may contribute to academic success, it does not directly translate into creativity, entrepreneurial behavior, or innovation capacity (Neisser et al., 2020). Instead, traits such as perseverance, motivation, and emotional intelligence are more influential in enabling innovative practices. Thus, in preparing youth for social innovation, reliance on cognitive intelligence alone may be insufficient. However, recent literature supports the idea that entrepreneurial competencies, creativity, and motivation may outweigh raw cognitive ability in predicting innovation readiness (Basheer et al., 2025). The overlap between EI and SI noted in the discriminant validity results also suggests that the constructs are conceptually intertwined, reflecting the strong theoretical linkage between entrepreneurial orientation and innovation capacity.

The results of this study indicate that higher education institutions in Malaysia should place greater emphasis on enhancing entrepreneurial intention (EI) and associated competencies through curriculum design, rather than relying mainly on cognitive measures such as IQ. Empirical research in Malaysia has consistently found that entrepreneurial education especially when it includes experiential components, real-world engagement, and practical activities have significantly influences students' intentions to pursue entrepreneurial activities by building confidence, self-efficacy, and motivation (Ibrahim et al., 2025). For example, students in programs where hands-on activities, industry-related tasks, and reflective experiences are integrated report higher levels of motivation and belief in their entrepreneurial capabilities, suggesting that practical learning experiences help translate theoretical knowledge into action.

Similarly, studies within Malaysian higher education show that self-efficacy, moral obligation, empathy, and social support are important predictors of social entrepreneurial intention, reinforcing the idea that non-cognitive and affective factors are crucial for social innovation readiness (Yellangan Koval et al., 2025). These psychosocial drivers are cultivated through mentoring, peer collaboration, internships, and community engagement, which universities can actively incorporate into their programs.

Beyond curriculum design, institutions could foster a culture of innovation by recognizing and rewarding student-led social initiatives, facilitating partnerships with local communities and industry, and providing access to incubation resources and networks. Such an integrated approach not only equips students with the cognitive and practical skills needed for innovation but also cultivates the attitudinal, motivational, and social competencies necessary to translate entrepreneurial intention into meaningful societal impact.

The results of this study also highlight the importance of aligning educational strategies with national development blueprints that emphasise entrepreneurship, innovation, and practical skills development. For example, Malaysia's National Entrepreneurship Policy 2030 (DKN 2030) explicitly aims to cultivate an entrepreneurial culture across society by enhancing entrepreneurship education, skills development, and mindset building reflecting the government's commitment to embedding innovation and entrepreneurial thinking at all levels of education and economic activity. Similarly, the Malaysia Education Blueprint 2015–2025 and associated Entrepreneurship Action Plans guide universities to integrate entrepreneurship content and experiential learning opportunities across disciplines, encouraging students not only to acquire knowledge but to apply it in ways that create social and economic value. More recently, the National Education Development Plan 2026–2035 and the Higher Education Plan (RPTM 2026–2035) underscores the need for higher education to produce graduates who are resilient, creative, and aligned with national innovation goals, placing further emphasis on practical and context-responsive competencies.

Theoretical Implications

From a theoretical perspective, these findings contribute to the growing body of literature on social innovation by confirming that entrepreneurial intention (EI) is a primary driver of innovation readiness among students. This relationship can be meaningfully interpreted through the Theory of Planned Behavior (TPB) which posits that intention is the most proximal predictor of behavior and is shaped by attitudes, subjective norms, and perceived behavioral control. This study is a framework that continues to be validated in contemporary empirical research on entrepreneurial intention among university students (Huang & Kee, 2024; Rustiana, 2025). Specifically, recent studies show that TPB constructs such as attitudes toward entrepreneurship, perceived control, and social support significantly influence students' entrepreneurial intentions, underscoring TPB's continued relevance in explaining motivational mechanisms behind entrepreneurial and innovative actions. These results suggest that students who hold positive attitudes, perceive supportive norms, and believe in their capability to enact entrepreneurial behaviors are more prepared to engage in innovative activities, reinforcing the view that innovation is not solely a cognitive process but also an intentional and motivational one grounded in individuals' beliefs and perceptions.

In contrast, the findings of this study indicate that IQ does not significantly influence social innovation readiness. While traditional IQ tests measure analytical reasoning, memory, and problem-solving skills, they fail to capture the broader cognitive, emotional, and social capabilities that are critical for engaging in social innovation. This aligns with recent scholarship suggesting that motivation, perceived feasibility, and behavioral drivers often have a stronger impact on entrepreneurial intention and innovation-related behaviors than general measures of cognitive ability. Research grounded in the Theory of Planned Behavior (TPB) consistently demonstrates that perceived desirability and perceived feasibility which is psychological and motivational constructs are significant predictors of entrepreneurial intention among students, whereas general cognitive traits have less direct influence (Romero-Galisteo et al., 2022; Anjum et al., 2024). While IQ may support analytical reasoning, innovation and entrepreneurship typically require experiential learning, creativity, risk-taking propensity, and intrinsic motivation which are not fully captured by IQ scores. These behavioral and motivational traits enable individuals to recognize opportunities, navigate uncertainty, and persist through challenges capabilities that are central to innovative entrepreneurial activity. Therefore, these findings reinforce the importance of intention-based frameworks in TPB, and motivational constructs in explaining entrepreneurial and innovative outcomes further suggesting that cognitive traits like IQ may play a secondary role in determining innovation readiness.

Practical Implications

The findings of this study have important implications for higher education institutions in Malaysia in fostering social innovation readiness among students. While national initiatives increasingly promote entrepreneurship and innovation, universities can play a critical role by redesigning curricula to include experiential learning and community-based innovation labs, where students can engage directly with real-world societal challenges (Zulkifle et al., 2023). Such programs not only develop problem-solving and analytical skills but also cultivate entrepreneurial intention (EI) by providing opportunities for students to experience the process of ideation, project implementation, and social impact. Mentoring, coaching, and entrepreneurship education programs are also crucial, as they strengthen students' self-efficacy, motivation, and understanding of entrepreneurial pathways, which research shows are more strongly associated with innovation readiness than cognitive ability alone. Focusing solely on Intelligence Quotient (IQ) is insufficient as social innovation requires a combination of motivational, emotional, and social competencies, including empathy, risk-taking propensity, and the ability to mobilize resources effectively. By integrating intention-based frameworks with practical learning opportunities, universities can better prepare students to translate both their cognitive and non-cognitive capabilities into socially impactful innovative outcomes.

Limitations and Future Research

This study is not without limitations. The sample size was relatively small (n = 31) and restricted to students from a single private university with a business and accounting background. As such, the findings may not be generalizable to other disciplines or institutions. Future research should employ larger and more diverse samples to validate the robustness of these results. Additionally, integrating other non-cognitive variables, such as emotional intelligence, creativity, or resilience, may provide a more holistic understanding of the factors influencing social innovation readiness. Longitudinal studies could also offer insights into how

entrepreneurial intentions and cognitive abilities interact over time to influence innovation outcomes.

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