

The Effect of FinTech Literacy on Digital Entrepreneurial Intention Using the Theory of Planned Behavior: Evidence from FEP Students at UKM

Nuraleefah Husna Muhamad Ramlee, Mohd Rashan Shah Robuan*

Universiti Kebangsaan Malaysia, Selangor, Malaysia

*Corresponding Author

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ABSTRACT

Financial technology has become an important enabler of digital entrepreneurship because it expands access to digital payments, alternative finance, data-driven decision-making and new business models. This study examines the influence of FinTech literacy on digital entrepreneurial intention among students of the Faculty of Economics and Management, Universiti Kebangsaan Malaysia, using the Theory of Planned Behavior as the main theoretical framework. FinTech literacy is operationalised through three dimensions: blockchain literacy, crowdfunding literacy and artificial intelligence literacy. Attitude toward digital entrepreneurship and perceived behavioral control are examined as key predictors of digital entrepreneurial intention. A quantitative cross-sectional survey was administered to 333 FEP students and the data were analysed using Partial Least Squares Structural Equation Modelling through SmartPLS. The findings show that attitude and perceived behavioral control significantly predict digital entrepreneurial intention. Artificial intelligence literacy significantly predicts attitude, perceived behavioral control and digital entrepreneurial intention. Crowdfunding literacy significantly predicts attitude and perceived behavioral control, while blockchain literacy significantly predicts attitude toward digital entrepreneurship. However, blockchain literacy does not significantly predict perceived behavioral control or digital entrepreneurial intention and crowdfunding literacy does not significantly predict digital entrepreneurial intention. The study contributes to entrepreneurship education by demonstrating that different dimensions of FinTech literacy are associated with digital entrepreneurial intention through attitude and perceived behavioral control. Universities should therefore integrate practical FinTech modules, experiential digital venture projects and AI-supported entrepreneurial learning into entrepreneurship curricula.

Keywords: FinTech literacy, digital entrepreneurial intention, Theory of Planned Behavior, blockchain, crowdfunding, artificial intelligence, university students

INTRODUCTION

The rapid development of financial technology has transformed how individuals and firms' access, manage and mobilise financial resources. FinTech applications such as e-wallets, mobile banking, crowdfunding platforms, blockchain-enabled transactions and artificial intelligence solutions have lowered transaction costs and created new opportunities for entrepreneurial activity.

In Malaysia, the expansion of digital financial services has increased the importance of FinTech literacy among young consumers and students. However, the ability to use digital financial tools does not necessarily indicate deeper understanding of how FinTech can support entrepreneurial financing, digital transactions, or technology-enabled business models (Khan et al., 2023; Adnan et al., 2023).

Digital entrepreneurship has become especially relevant in higher education because students increasingly participate in online commerce, social media marketing, digital payment ecosystems and platform-based work. Entrepreneurship education has been shown to influence entrepreneurial intention, particularly by shaping students' entrepreneurial attitudes, perceived capability and career-related motivation (Bae et al., 2014). The

Theory of Planned Behavior explains this process by arguing that intention is shaped by attitude toward the behavior, subjective norm and perceived behavioral control. This study emphasises attitude and perceived behavioral control because the present research is concerned with the internal cognitive and capability-based mechanisms through which FinTech literacy shapes digital entrepreneurial intention. Although the Theory of Planned Behavior identifies attitude, subjective norm and perceived behavioral control as antecedents of intention, attitude and perceived behavioral control are especially relevant to digital entrepreneurship because students must evaluate digital venture creation positively and believe that they possess the digital, financial and technological capability to initiate such ventures (Ajzen, 1991; Krueger et al., 2000; Liñán & Chen, 2009). Subjective norm is not included as a core construct in the present study because the model focuses specifically on the internal cognitive and capability-based mechanisms through which FinTech literacy influences digital entrepreneurial intention. Attitude captures students' favourable or unfavourable evaluation of digital entrepreneurship, while perceived behavioral control captures their perceived capability to engage in digital venture creation. Since FinTech literacy is conceptualised as a domain-specific knowledge factor, it is expected to influence digital entrepreneurial intention mainly by shaping how attractive and feasible digital entrepreneurship appears to students. Subjective norm, which reflects perceived social pressure from family, peers, lecturers or society, remains theoretically important within the Theory of Planned Behavior; however, it falls outside the central explanatory focus of this study. Therefore, this study extends TPB by positioning FinTech literacy as an external domain-specific antecedent that may influence attitude, perceived behavioral control and digital entrepreneurial intention (Ajzen, 1991; Nguyen et al., 2024).

Although FinTech adoption is growing among Malaysian students, the role of FinTech literacy in shaping digital entrepreneurial intention remains underexamined. A student may use an e-wallet frequently but may still lack deeper knowledge of how blockchain, crowdfunding and AI can be applied to venture creation. This distinction is important because entrepreneurship requires not only access to digital tools but also the ability to evaluate and use those tools strategically.

Although Nguyen et al. (2024) provide important evidence on FinTech literacy and digital entrepreneurial intention among Vietnamese university students, further evidence is needed in different national and educational contexts. The Malaysian university context is important because business students are increasingly exposed to digital payments, AI tools, online platforms, and entrepreneurship education, yet their readiness to translate FinTech knowledge into digital venture intention remains underexplored.

More recent evidence also suggests that FinTech literacy dimensions such as crowdfunding, blockchain and AI are relevant to digital entrepreneurial intention, although further evidence is still needed across different theoretical and national contexts (Pham et al., 2025).

This study contributes to the literature in two ways. First, it extends the Theory of Planned Behavior by integrating FinTech literacy as a domain-specific knowledge antecedent of digital entrepreneurial intention. Second, it disaggregates FinTech literacy into blockchain literacy, crowdfunding literacy and artificial intelligence literacy, thereby recognising that different financial technologies may influence entrepreneurial cognition through different mechanisms (Lee & Shin, 2018; Nguyen et al., 2024), while digital technologies more broadly reshape entrepreneurial processes and value creation (Nambisan, 2017).

LITERATURE REVIEW AND HYPOTHESES

FinTech literacy refers to an individual's knowledge, skills, confidence and critical awareness in understanding and using digital financial technologies. This concept is closely related to digital financial literacy, which emphasizes the ability to access, evaluate and use digital financial services safely and effectively in digital environments (Koskelainen et al., 2023; Khan et al., 2023). In this study, FinTech literacy is represented by blockchain literacy, crowdfunding literacy and artificial intelligence (AI) literacy because these dimensions are directly related to digital venture creation, financing and operational innovation.

Digital Entrepreneurial Intention and the Theory of Planned Behavior

Entrepreneurial intention reflects an individual's conscious state of mind or readiness to start a new venture, while digital entrepreneurship emphasizes entrepreneurial activity enabled by digital technologies. Drawing on

the entrepreneurial intention and digital entrepreneurship literature, digital entrepreneurial intention refers to an individual's conscious willingness or plan to establish a venture in which digital technologies are used to support opportunity recognition, value creation, value delivery and value capture (Krueger et al., 2000; Liñán & Chen, 2009; Nambisan, 2017; Zaheer et al., 2019). Digital entrepreneurship differs from traditional entrepreneurship because digital technologies reshape opportunity recognition, resource mobilisation, customer interaction, value creation and venture scaling (Nambisan, 2017; Zaheer et al., 2019). Recent systematic review evidence further shows that digital entrepreneurship has become an important and growing research area due to the increasing role of digital technologies in entrepreneurial processes (Paul et al., 2023). In the university context, digital entrepreneurial intention is increasingly relevant because students are exposed to e-commerce, online platforms, social media marketing, digital payments, artificial intelligence tools and platform-based business models.

The Theory of Planned Behavior provides a suitable theoretical foundation for explaining digital entrepreneurial intention because it conceptualises intention as the immediate antecedent of behavior (Ajzen, 1991). Within TPB, attitude refers to the extent to which an individual evaluates a behavior positively or negatively, while perceived behavioral control refers to the perceived ease or difficulty of performing the behavior (Ajzen, 1991). In entrepreneurship research, these constructs are closely related to perceived desirability and perceived feasibility, both of which are central to the formation of entrepreneurial intention (Krueger et al., 2000; Liñán & Chen, 2009).

Accordingly, this study adopts a focused TPB model by examining attitude and perceived behavioral control as the main psychological mechanisms linking FinTech literacy to digital entrepreneurial intention, while recognising subjective norm as an important construct for future model extension.

In this study, attitude refers to students' positive or negative evaluation of digital entrepreneurship. Students who perceive digital entrepreneurship as attractive, useful, rewarding and compatible with their future career aspirations are more likely to develop stronger digital entrepreneurial intention. Perceived behavioral control refers to students' confidence in their ability to identify digital business opportunities, use digital tools, manage digital transactions and overcome the challenges associated with establishing a digital venture. Students who believe that they have the necessary knowledge, skills and resources to create a digital business are more likely to form entrepreneurial intention. Therefore, the following hypotheses are proposed:

H1a: Perceived behavioral control has a positive effect on digital entrepreneurial intention.

H1b: Attitude toward digital entrepreneurship has a positive effect on digital entrepreneurial intention.

Blockchain Literacy, Attitude, Perceived Behavioral Control and Digital Entrepreneurial Intention

Blockchain literacy refers to students' understanding of blockchain concepts, mechanisms and applications in digital business. Blockchain technology is relevant to digital entrepreneurship because it supports secure digital transactions, decentralised record-keeping, smart contracts, digital assets and trust-building mechanisms in online markets (Gomber et al., 2017; Lee & Shin, 2018). As digital entrepreneurship increasingly relies on secure and transparent digital infrastructure, students who understand blockchain may be more capable of recognising blockchain-based entrepreneurial opportunities.

Blockchain literacy is expected to strengthen perceived behavioral control because students with greater blockchain knowledge may feel more confident in understanding digital transactions, adopting decentralised technologies and applying secure financial technologies in entrepreneurial activities. This is important because perceived behavioral control increases when individuals believe that they possess the knowledge and resources required to perform a behavior (Ajzen, 1991). Blockchain literacy may also improve attitude toward digital entrepreneurship because students who understand blockchain may view digital ventures as more innovative, transparent and commercially viable.

Furthermore, blockchain literacy may have a direct positive effect on digital entrepreneurial intention. Students who understand blockchain applications may be more willing to explore digital ventures involving decentralised finance, secure payment systems, tokenisation, smart contracts or other technology-enabled business models. Since digital entrepreneurship is shaped by the entrepreneur's capacity to use digital technologies for opportunity

development and value creation (Nambisan, 2017), blockchain literacy may become an important knowledge resource for digital entrepreneurial intention. Therefore, the following hypotheses are proposed:

H2a: Blockchain literacy has a positive effect on perceived behavioral control.

H2b: Blockchain literacy has a positive effect on attitude toward digital entrepreneurship.

H2c: Blockchain literacy has a positive effect on digital entrepreneurial intention.

Crowdfunding Literacy, Attitude, Perceived Behavioral Control and Digital Entrepreneurial Intention

Crowdfunding literacy refers to students' knowledge of crowdfunding platforms, campaign design, online backer engagement and alternative venture financing. Crowdfunding enables entrepreneurs to raise external finance from a large number of individuals through digital platforms, often in the form of many small contributions (Belleflamme et al., 2014). Beyond financing, crowdfunding can also help entrepreneurs test market demand, communicate value propositions, build early customer communities and gain visibility for new venture ideas.

Crowdfunding literacy is expected to improve attitude toward digital entrepreneurship because students who understand crowdfunding may perceive entrepreneurship as more accessible and less dependent on conventional financing institutions. Financing constraints are often perceived as a major barrier to entrepreneurship, especially among students and young entrepreneurs. Therefore, knowledge of crowdfunding may make digital entrepreneurship appear more attractive by showing that digital platforms can provide alternative access to resources and early market validation (Belleflamme et al., 2014; Lee & Shin, 2018).

Crowdfunding literacy may also strengthen perceived behavioral control. Students who understand how to design a crowdfunding campaign, present a value proposition, engage potential backers and manage platform-based fundraising may feel more capable of starting a digital venture. In TPB terms, this knowledge may increase perceived behavioral control because it reduces perceived difficulty and strengthens students' belief that they can mobilise resources for entrepreneurial activity (Ajzen, 1991). Crowdfunding literacy may also directly influence digital entrepreneurial intention because students who perceive financing as more accessible may be more willing to pursue digital business creation. Therefore, the following hypotheses are proposed:

H3a: Crowdfunding literacy has a positive effect on perceived behavioral control.

H3b: Crowdfunding literacy has a positive effect on attitude toward digital entrepreneurship.

H3c: Crowdfunding literacy has a positive effect on digital entrepreneurial intention.

Artificial Intelligence Literacy, Attitude, Perceived Behavioral Control and Digital Entrepreneurial Intention

Artificial intelligence literacy refers to students' understanding of AI concepts, tools and applications in business decision-making, automation, customer analysis and innovation. AI is increasingly relevant to entrepreneurship because it can support opportunity recognition, idea generation, market analysis, customer segmentation, content creation, operational automation and business model innovation (Chalmers et al., 2021). This is particularly relevant for entrepreneurship education because AI-related learning may help students identify technology-enabled opportunities and evaluate the feasibility of digital venture creation (Dabbous & Boustani, 2023). As digital ventures increasingly rely on data-driven decision-making and scalable digital solutions, AI literacy may become an important capability for prospective digital entrepreneurs.

AI literacy is expected to improve attitude toward digital entrepreneurship because students who understand AI may perceive digital ventures as more innovative, efficient, scalable and competitive. AI tools can reduce the cost and complexity of certain entrepreneurial activities, such as analysing customer needs, generating marketing content, managing customer interactions and supporting business decisions. Therefore, students with stronger AI literacy may evaluate digital entrepreneurship more positively because they recognise AI as a tool for entrepreneurial innovation and competitive advantage (Chalmers et al., 2021; Nambisan, 2017).

AI literacy may also strengthen perceived behavioral control. Students who understand how AI tools can assist with business planning, digital marketing, financial analysis and operational automation may feel more capable of managing a digital venture. Since perceived behavioral control reflects an individual's perceived ability to perform a behavior (Ajzen, 1991), AI literacy may increase students' confidence in their ability to perform digital entrepreneurial tasks. Furthermore, AI literacy may directly influence digital entrepreneurial intention because students who recognise AI-based business opportunities may be more willing to create technology-enabled ventures or integrate AI tools into future businesses. Therefore, the following hypotheses are proposed:

H4a: Artificial intelligence literacy has a positive effect on perceived behavioral control.

H4b: Artificial intelligence literacy has a positive effect on attitude toward digital entrepreneurship.

H4c: Artificial intelligence literacy has a positive effect on digital entrepreneurial intention.

METHODOLOGY

This study employed a quantitative, cross-sectional survey design. The target population consisted of students from the Faculty of Economics and Management, Universiti Kebangsaan Malaysia. Quota convenience sampling was used with attention to gender and academic programme representation. A total of 333 complete responses were collected and analysed. The questionnaire was distributed online through Google Forms using WhatsApp, Telegram and Instagram.

The measurement instrument was adapted from established scales. Blockchain literacy and crowdfunding literacy items were adapted and modified from Festa et al. (2022). AI literacy items were adapted and modified from Dabbous and Boustani (2023). Attitude toward digital entrepreneurship, perceived behavioral control, and digital entrepreneurial intention were measured using scales adapted from Liñán and Chen (2009). All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Data were analysed using Partial Least Squares Structural Equation Modelling through SmartPLS. Descriptive statistics were used to summarise the respondents' demographic characteristics. The measurement model was assessed by examining internal consistency reliability, convergent validity and discriminant validity. Internal consistency reliability was assessed using Cronbach's alpha, composite reliability ρ_A and composite reliability ρ_C . Cronbach's alpha values of 0.70 or above were considered acceptable, following Nunnally and Bernstein (1994), while composite reliability values above 0.70 were considered satisfactory, following Hair et al. (2017). Convergent validity was assessed using the average variance extracted. An AVE value of 0.50 or above was considered acceptable, as it indicates that the construct explains at least half of the variance in its indicators (Fornell & Larcker, 1981; Hair et al., 2017). Discriminant validity was evaluated using the heterotrait-monotrait ratio. HTMT values below 0.85 were considered evidence of adequate discriminant validity, following Henseler et al. (2015).

After confirming the adequacy of the measurement model, the structural model was assessed. Collinearity among the predictor constructs was examined using the variance inflation factor. VIF values below 5.0 indicate that multicollinearity is not a serious concern in PLS-SEM analysis (Hair et al., 2017). The hypothesised relationships among blockchain literacy, crowdfunding literacy, artificial intelligence literacy, attitude, perceived behavioral control and digital entrepreneurial intention were tested using path coefficients, t-statistics and p-values generated through the bootstrapping procedure. The explanatory power of the model was assessed using the coefficient of determination, represented by R^2 and adjusted R^2 values. The effect size of each predictor was evaluated using f^2 . Following Cohen (1988), f^2 values of 0.02, 0.15 and 0.35 were interpreted as small, medium and large effects, respectively.

RESULTS

Table 1 presents the demographic profile of the respondents. A total of 333 valid responses were collected from students of the Faculty of Economics and Management, Universiti Kebangsaan Malaysia. As shown in Table 1, 160 respondents were male, representing 48.0% of the sample, while 173 respondents were female, representing

52.0%. In terms of age, the majority of respondents were between 21 and 23 years old, representing 55.3% of the total sample. This was followed by respondents aged 24 to 26 years old, representing 23.7%, respondents aged 18 to 20 years old, representing 16.2%, and respondents aged above 26 years, representing 4.8%.

With regard to ethnicity, Table 1 shows that most respondents were Malay students, representing 67% of the sample. Indian students accounted for 15.0%, Chinese students accounted for 14.7%, and respondents from other ethnic backgrounds represented 3.3%. In terms of year of study, the largest group consisted of Year 3 students, representing 42.6% of the sample. This was followed by Year 2 students at 23.4%, Year 1 students at 14.1%, Year 4 students at 13.5%, and postgraduate students at 6.3%. Table 1 also indicates that the largest programme group was Bachelor of Business Administration students, representing 47.7% of the sample. This was followed by Bachelor of Accounting students at 21.3%, Bachelor of Entrepreneurship and Innovation students at 16.5%, and Bachelor of Economics students at 14.4%.

In addition, Table 1 shows that almost all respondents had experience using FinTech services. Specifically, 330 respondents, or 99.1%, reported having prior FinTech experience, while only 3 respondents, or 0.9%, reported having no FinTech experience. In terms of family business background, 49.2% of the respondents indicated that they had a family business background, 37.2% reported that they did not have a family business background, and 13.5% were unsure. Overall, the demographic profile suggests that the respondents were suitable for this study because most had prior exposure to FinTech services, which is relevant to the examination of FinTech literacy and digital entrepreneurial intention.

Table 1. Demographic profile of respondents

Category	Group	Frequency	Percentage (%)
Gender	Male	160	48.0
	Female	173	52.0
Age	18-20	54	16.2
	21-23	184	55.3
	24-26	79	23.7
	Above 26	16	4.8
Ethnicity	Malay	223	67
	Indian	50	15.0
	Chinese	49	14.7
	Others	11	3.3
Year of study	Year 1	47	14.1
	Year 2	78	23.4
	Year 3	142	42.6
	Year 4	45	13.5
	Postgraduate	21	6.3
Programme	BBA	159	47.7
	BEI	55	16.5
	BAC	71	21.3
	BE	48	14.4
FinTech experience	Yes	330	99.1
	No	3	0.9
Family business background	Yes	164	49.2
	No	124	37.2
	Not sure	45	13.5

Measurement Model Assessment

Table 2 presents the reliability and convergent validity results for the measurement model. Internal consistency reliability was assessed using Cronbach's alpha, composite reliability ρ_A and composite reliability ρ_C . According to Nunnally and Bernstein (1994), Cronbach's alpha values of 0.70 or above are considered acceptable

for establishing internal consistency reliability. Hair et al. (2017) also suggested that composite reliability values above 0.70 indicate satisfactory reliability in PLS-SEM analysis. As shown in Table 2, all constructs recorded Cronbach's alpha values above the recommended threshold of 0.70. The Cronbach's alpha values ranged from 0.953 to 0.979, indicating excellent internal consistency reliability. The composite reliability values also exceeded the recommended threshold, ranging from 0.964 to 0.982. These results confirm that the measurement items for artificial intelligence literacy, attitude, blockchain literacy, crowdfunding literacy, digital entrepreneurial intention and perceived behavioral control were reliable.

Convergent validity was assessed using the average variance extracted. Fornell and Larcker (1981) suggested that an AVE value of 0.50 or above indicates acceptable convergent validity because the construct explains at least 50% of the variance in its indicators. Hair et al. (2017) also recommended the same threshold for assessing convergent validity in PLS-SEM. As shown in Table 2, the AVE values for all constructs ranged from 0.841 to 0.870, which are above the recommended threshold of 0.50. Therefore, the results confirm that all constructs achieved satisfactory convergent validity. However, the very high Cronbach's alpha and composite reliability values should be interpreted with some caution, as extremely high reliability values may indicate potential item redundancy.

Table 2. Reliability and convergent validity results

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_C)	Average variance extracted (AVE)
AIL	0.953	0.953	0.964	0.841
ATT	0.956	0.956	0.966	0.849
BLC	0.961	0.961	0.969	0.864
CRF	0.979	0.979	0.982	0.870
DEI	0.967	0.967	0.973	0.858
PBC	0.965	0.966	0.972	0.853

Table 3 presents the heterotrait-monotrait ratio results for discriminant validity. Discriminant validity refers to the extent to which a construct is empirically distinct from other constructs in the model. Henseler et al. (2015) recommended HTMT as a reliable criterion for assessing discriminant validity in variance-based structural equation modelling. They suggested that HTMT values below 0.85 indicate adequate discriminant validity, although some studies also use a more liberal threshold of 0.90. As shown in Table 3, all HTMT values were below the conservative threshold of 0.85. The highest HTMT value was 0.808, which was recorded between perceived behavioral control and digital entrepreneurial intention. Since all HTMT values were below the recommended threshold, discriminant validity was established. This indicates that the constructs used in the study were empirically distinct from one another.

Table 3. HTMT Discriminant Validity

	AIL	ATT	BLC	CRF	DEI
AIL					
ATT	0.758				
BLC	0.721	0.68			
CRF	0.76	0.719	0.717		
DEI	0.752	0.73	0.655	0.666	
PBC	0.798	0.734	0.677	0.742	0.808

Structural Model Assessment

Before examining the hypothesized relationships, collinearity among the predictor constructs was assessed using the variance inflation factor. Table 4 presents the VIF values for the structural model. According to Hair et al. (2017), VIF values below 5.0 indicate that multicollinearity is not a serious concern in PLS-SEM. As shown in

Table 4, all VIF values ranged from 2.240 to 3.315, which are below the recommended threshold of 5.0. Therefore, the structural model was not affected by serious collinearity problems, and the predictor constructs were suitable for hypothesis testing.

Table 4. VIF values

	AIL	ATT	BLC	CRF	DEI	PBC
AIL		2.506			3.315	2.506
ATT					2.618	
BLC		2.24			2.355	2.24
CRF		2.539			2.895	2.539
DEI						
PBC					3.001	

Table 5 presents the R-square and adjusted R-square values for the endogenous constructs. In PLS-SEM, R-square indicates the explanatory power of the model by showing the proportion of variance explained in the endogenous constructs (Hair et al., 2017). As shown in Table 5, the R-square value for attitude was 0.598, while the adjusted R-square value was 0.595. This indicates that blockchain literacy, crowdfunding literacy and artificial intelligence literacy explained 59.8% of the variance in attitude toward digital entrepreneurship. The R-square value for perceived behavioral control was 0.650, while the adjusted R-square value was 0.646. This means that the three FinTech literacy dimensions explained 65.0% of the variance in perceived behavioral control. For digital entrepreneurial intention, the R-square value was 0.673, while the adjusted R-square value was 0.668. This indicates that attitude, perceived behavioral control, blockchain literacy, crowdfunding literacy and artificial intelligence literacy explained 67.3% of the variance in digital entrepreneurial intention. Overall, the results in Table 5 suggest that the model has satisfactory explanatory power in explaining the endogenous constructs.

Table 5. R² and adjusted R²

	R-square	R-square adjusted
ATT	0.598	0.595
DEI	0.673	0.668
PBC	0.65	0.646

Hypothesis testing

Table 6 presents the hypothesis testing results based on the bootstrapping procedure. In PLS-SEM, path coefficients indicate the strength and direction of relationships among constructs, while t-statistics and p-values are used to determine whether the hypothesised relationships are statistically significant (Hair et al., 2017). The results show that perceived behavioral control had a significant positive effect on digital entrepreneurial intention ($\beta = 0.454$, $t = 6.093$, $p < 0.001$). Therefore, H1a was supported. This finding indicates that students who perceive themselves as capable of engaging in digital entrepreneurship are more likely to develop stronger digital entrepreneurial intention. Attitude also had a significant positive effect on digital entrepreneurial intention ($\beta = 0.208$, $t = 3.314$, $p = 0.001$), supporting H1b. This result suggests that students who have a favourable attitude toward digital entrepreneurship are more likely to intend to pursue digital entrepreneurial activities.

For blockchain literacy, Table 6 shows that blockchain literacy had a significant positive effect on attitude toward digital entrepreneurship ($\beta = 0.190$, $t = 2.701$, $p = 0.007$). Therefore, H2b was supported. However, blockchain literacy did not significantly influence perceived behavioral control ($\beta = 0.132$, $t = 1.620$, $p = 0.105$), and it also did not significantly influence digital entrepreneurial intention ($\beta = 0.090$, $t = 1.316$, $p = 0.188$). Therefore, H2a and H2c were not supported. These findings indicate that blockchain literacy may improve students' positive evaluation of digital entrepreneurship, but it does not directly increase their perceived capability or intention to become digital entrepreneurs.

For crowdfunding literacy, Table 6 indicates that crowdfunding literacy had a significant positive effect on attitude toward digital entrepreneurship ($\beta = 0.279$, $t = 4.341$, $p < 0.001$). Therefore, H3b was supported. Crowdfunding literacy also had a significant positive effect on perceived behavioral control ($\beta = 0.291$, $t = 4.829$, $p < 0.001$), supporting H3a. However, crowdfunding literacy did not have a significant direct effect on digital entrepreneurial intention ($\beta = -0.012$, $t = 0.169$, $p = 0.865$). Therefore, H3c was not supported. These findings suggest that crowdfunding literacy strengthens students' favourable attitude and perceived capability, but it does not directly translate into digital entrepreneurial intention.

For artificial intelligence literacy, the results in Table 6 show that artificial intelligence literacy had a significant positive effect on attitude toward digital entrepreneurship ($\beta = 0.387$, $t = 5.209$, $p < 0.001$). Therefore, H4b was supported. Artificial intelligence literacy also had a significant positive effect on perceived behavioral control ($\beta = 0.462$, $t = 6.737$, $p < 0.001$), supporting H4a. In addition, artificial intelligence literacy had a significant positive effect on digital entrepreneurial intention ($\beta = 0.171$, $t = 2.547$, $p = 0.011$), supporting H4c. These findings indicate that AI literacy is an important predictor of students' attitude, perceived capability and intention to engage in digital entrepreneurship.

Overall, the hypothesis testing results in Table 6 show that perceived behavioral control was the strongest direct predictor of digital entrepreneurial intention, followed by attitude and artificial intelligence literacy. Among the three FinTech literacy dimensions, artificial intelligence literacy had the most consistent influence because it significantly predicted attitude, perceived behavioral control and digital entrepreneurial intention. Crowdfunding literacy significantly predicted attitude and perceived behavioral control, while blockchain literacy significantly predicted only attitude. These results demonstrate that different dimensions of FinTech literacy influence digital entrepreneurial intention through different mechanisms.

Table 6. Hypothesis testing results

	Original sample (O)	Standard deviation (STDEV)	T statistics	P values	Result
AIL -> ATT	0.387	0.074	5.209	$p < 0.001$	Significant
AIL -> DEI	0.171	0.067	2.547	$p = 0.011$	Significant
AIL -> PBC	0.462	0.069	6.737	$p < 0.001$	Significant
ATT -> DEI	0.208	0.063	3.314	$p = 0.001$	Significant
BLC -> ATT	0.190	0.070	2.701	$p = 0.007$	Significant
BLC -> DEI	0.090	0.068	1.316	$p = 0.188$	Not significant
BLC -> PBC	0.132	0.082	1.620	$p = 0.105$	Not significant
CRF -> ATT	0.279	0.064	4.341	$p < 0.001$	Significant
CRF -> DEI	-0.012	0.073	0.169	$p = 0.865$	Not significant
CRF -> PBC	0.291	0.060	4.829	$p < 0.001$	Significant
PBC -> DEI	0.454	0.074	6.093	$p < 0.001$	Significant

Table 7 presents the f^2 effect size results. The f^2 statistic was used to assess the relative effect of each exogenous construct on the endogenous constructs. Following Cohen's (1988) guidelines, f^2 values of 0.02, 0.15 and 0.35 represent small, medium and large effects, respectively. Hair et al. (2017) also recommended the use of these thresholds in PLS-SEM assessment. As shown in Table 7, artificial intelligence literacy had a medium effect on perceived behavioral control ($f^2 = 0.243$) and a small-to-medium effect on attitude ($f^2 = 0.149$). Perceived behavioral control also had a medium effect on digital entrepreneurial intention ($f^2 = 0.210$). Crowdfunding literacy had small effects on perceived behavioral control ($f^2 = 0.095$) and attitude ($f^2 = 0.076$), while attitude had a small effect on digital entrepreneurial intention ($f^2 = 0.051$). Blockchain literacy had a small effect on attitude ($f^2 = 0.040$) and perceived behavioral control ($f^2 = 0.022$), but no meaningful effect on digital entrepreneurial intention ($f^2 = 0.011$). Crowdfunding literacy had no effect on digital entrepreneurial intention ($f^2 = 0.000$). Overall, the f^2 results indicate that artificial intelligence literacy and perceived behavioral control contributed the strongest practical effects in the model.

Table 7. Effect size results

Path	f ²	Effect size
AIL -> ATT	0.149	Small to medium
AIL -> DEI	0.027	Small
AIL -> PBC	0.243	Medium
ATT -> DEI	0.051	Small
BLC -> ATT	0.040	Small
BLC -> DEI	0.011	No meaningful effect
BLC -> PBC	0.022	Small
CRF -> ATT	0.076	Small
CRF -> DEI	0.000	No effect
CRF -> PBC	0.095	Small
PBC -> DEI	0.210	Medium

Note. AIL = artificial intelligence literacy; ATT = attitude; BLC = blockchain literacy; CRF = crowdfunding literacy; DEI = digital entrepreneurial intention; PBC = perceived behavioral control.

DISCUSSION

This study examined the influence of FinTech literacy on digital entrepreneurial intention among FEP students at UKM using the Theory of Planned Behaviour as the main theoretical framework. The findings provide empirical evidence that attitude and perceived behavioral control are important predictors of digital entrepreneurial intention. In addition, the results show that the three dimensions of FinTech literacy, namely blockchain literacy, crowdfunding literacy and artificial intelligence literacy, influence digital entrepreneurial intention in different ways.

The demographic results in Table 1 show that the respondents were appropriate for this study because almost all of them had prior experience using FinTech services. This indicates that the respondents were familiar with digital financial technologies, which is important in a study examining FinTech literacy. The presence of respondents with different academic programmes, years of study and family business backgrounds also provides a useful context for understanding digital entrepreneurial intention among university students.

The measurement model results in Table 2 confirm that all constructs demonstrated strong internal consistency reliability and convergent validity. The Cronbach's alpha and composite reliability values exceeded the recommended threshold of 0.70, indicating that the items used to measure the constructs were reliable. The AVE values also exceeded the recommended threshold of 0.50, confirming that the constructs achieved convergent validity. Furthermore, the HTMT results in Table 3 confirm that discriminant validity was established. This indicates that blockchain literacy, crowdfunding literacy, artificial intelligence literacy, attitude, perceived behavioral control and digital entrepreneurial intention were empirically distinct constructs. These results strengthen the credibility of the measurement model and support the suitability of the constructs for structural model analysis.

The VIF results in Table 4 show that multicollinearity was not a serious issue in the model. This is important because high multicollinearity can distort the estimation of path coefficients and reduce the reliability of hypothesis testing. Since all VIF values were below the recommended threshold, the structural model was suitable for further analysis. In addition, the R-square values in Table 5 show that the model has satisfactory explanatory power. The model explained 59.8% of the variance in attitude, 65.0% of the variance in perceived behavioral control and 67.3% of the variance in digital entrepreneurial intention. These results indicate that the integration of FinTech literacy into the Theory of Planned Behaviour provides a meaningful framework for explaining students' digital entrepreneurial intention.

The hypothesis testing results in Table 6 show that perceived behavioral control had the strongest direct effect

on digital entrepreneurial intention. This finding is consistent with the Theory of Planned Behaviour, which argues that individuals are more likely to form behavioural intention when they believe that they have the ability, resources and control required to perform the behaviour (Ajzen, 1991). In the context of this study, students who believe that they are capable of using digital technologies, managing online business activities and overcoming the challenges of digital entrepreneurship are more likely to develop the intention to start a digital venture. This finding highlights the importance of strengthening students' confidence and perceived capability in digital venture creation.

The results in Table 6 also show that attitude had a significant positive effect on digital entrepreneurial intention. This suggests that students who evaluate digital entrepreneurship positively are more likely to intend to engage in digital entrepreneurial activities. A favourable attitude may develop when students perceive digital entrepreneurship as attractive, useful, flexible and relevant to future career opportunities. This finding supports the Theory of Planned Behaviour, which identifies attitude as an important antecedent of behavioural intention (Ajzen, 1991). It also suggests that entrepreneurship education should not only provide technical knowledge but also shape students' positive perceptions of digital entrepreneurship as a viable and rewarding career path.

With regard to blockchain literacy, Table 6 shows that blockchain literacy had a significant positive effect on attitude toward digital entrepreneurship. This indicates that students who understand blockchain may view digital entrepreneurship more positively because blockchain is associated with innovation, secure digital transactions, transparency and new digital business models. However, blockchain literacy did not significantly influence perceived behavioral control or digital entrepreneurial intention. One possible explanation is that blockchain remains a relatively complex and technical technology. Although students may understand the potential value of blockchain, they may not yet feel sufficiently capable of applying blockchain knowledge in actual digital venture creation. Therefore, blockchain literacy may improve students' perception of digital entrepreneurship but may require more practical exposure before it can influence perceived capability or entrepreneurial intention.

For crowdfunding literacy, Table 6 shows that crowdfunding literacy significantly influenced both attitude and perceived behavioral control. This finding suggests that students who understand crowdfunding are more likely to view digital entrepreneurship positively and feel more capable of mobilising resources for venture creation. Crowdfunding knowledge may reduce students' perception that lack of capital is a major barrier to entrepreneurship because it introduces alternative financing mechanisms through digital platforms. However, crowdfunding literacy did not have a significant direct effect on digital entrepreneurial intention. This suggests that crowdfunding literacy may influence intention indirectly through attitude and perceived behavioral control rather than directly. In other words, students may need to first develop a favourable attitude and stronger perceived capability before crowdfunding knowledge can contribute to stronger digital entrepreneurial intention.

Artificial intelligence literacy emerged as the most consistent predictor in the model. As shown in Table 6, AI literacy significantly influenced attitude, perceived behavioral control and digital entrepreneurial intention. This finding indicates that AI literacy is highly relevant to digital entrepreneurship among university students. Students who understand AI may perceive digital entrepreneurship as more attractive and feasible because AI tools can support market analysis, customer segmentation, digital marketing, content creation, decision-making and business process automation. The significant direct effect of AI literacy on digital entrepreneurial intention suggests that students may view AI as a practical and accessible technology that can support the creation and management of digital ventures. Compared with blockchain and crowdfunding, AI tools may be easier for students to apply directly in entrepreneurial tasks, which may explain why AI literacy had the strongest and most consistent effect in this study.

Overall, the findings demonstrate that FinTech literacy should not be treated as a single general form of knowledge. Instead, different types of FinTech literacy play different roles in shaping students' entrepreneurial cognition. Blockchain literacy mainly strengthens students' attitude toward digital entrepreneurship. Crowdfunding literacy strengthens both attitude and perceived behavioral control. Artificial intelligence literacy influences attitude, perceived behavioral control and digital entrepreneurial intention. These findings contribute to the entrepreneurship literature by extending the Theory of Planned Behaviour through the inclusion of specific FinTech literacy dimensions as external antecedents of entrepreneurial intention.

From a practical perspective, the findings suggest that universities should integrate applied FinTech learning into entrepreneurship education. Since perceived behavioral control was the strongest predictor of digital entrepreneurial intention, entrepreneurship programmes should focus on strengthening students' practical digital business capabilities. Students should be given opportunities to apply FinTech knowledge through simulations, digital venture projects, business model development exercises and platform-based entrepreneurial activities. In particular, AI literacy should be emphasised because it had the most consistent influence on digital entrepreneurial intention. Crowdfunding and blockchain education should also be delivered in a more applied manner so that students can translate conceptual knowledge into entrepreneurial confidence and practical capability.

CONCLUSION AND RECOMMENDATIONS

This study investigated the influence of FinTech literacy on digital entrepreneurial intention among students of the Faculty of Economics and Management, Universiti Kebangsaan Malaysia. Drawing on the Theory of Planned Behaviour, the study examined the effects of attitude and perceived behavioral control on digital entrepreneurial intention, as well as the effects of three FinTech literacy dimensions: blockchain literacy, crowdfunding literacy and artificial intelligence literacy.

The findings show that attitude and perceived behavioral control are significant predictors of digital entrepreneurial intention. Among these two predictors, perceived behavioral control had the stronger effect. This indicates that students' confidence in their ability to engage in digital entrepreneurship plays a major role in shaping their intention to start a digital venture. Therefore, digital entrepreneurial intention is not only influenced by whether students view digital entrepreneurship positively but also by whether they believe they have the ability, knowledge and resources to perform entrepreneurial activities in a digital environment.

The findings also show that the three dimensions of FinTech literacy influence digital entrepreneurial intention differently. Blockchain literacy significantly influenced attitude toward digital entrepreneurship but did not significantly influence perceived behavioral control or digital entrepreneurial intention. Crowdfunding literacy significantly influenced attitude and perceived behavioral control but did not directly influence digital entrepreneurial intention. Artificial intelligence literacy significantly influenced attitude, perceived behavioral control and digital entrepreneurial intention. Therefore, AI literacy emerged as the most influential FinTech literacy dimension in this study.

This study contributes to the literature by extending the Theory of Planned Behaviour through the inclusion of FinTech literacy as a domain-specific antecedent of digital entrepreneurial intention. The findings indicate that students' knowledge of digital financial technologies is positively associated with their attitude, perceived capability and digital entrepreneurial intention. However, the findings also show that FinTech literacy should not be treated as a uniform construct because blockchain literacy, crowdfunding literacy and AI literacy have different effects on entrepreneurial cognition and intention.

Several recommendations can be made based on the findings. First, universities should integrate practical FinTech learning into entrepreneurship education. FinTech should not be taught only as a technical or theoretical subject. Instead, students should be exposed to how FinTech tools can be applied in digital venture creation, financing, marketing, customer analysis and business model innovation. Second, greater emphasis should be placed on artificial intelligence literacy because AI literacy had the most consistent influence on digital entrepreneurial intention. Students should be trained to use AI tools for market research, customer segmentation, content creation, financial analysis, digital marketing and business planning.

Third, crowdfunding education should be strengthened through applied learning activities such as crowdfunding campaign design, pitch presentations, platform analysis and backer engagement simulations. Since crowdfunding literacy significantly influenced both attitude and perceived behavioral control, practical exposure to crowdfunding may help students perceive digital entrepreneurship as more attractive and feasible. Fourth, blockchain education should focus more on business applications rather than only technical concepts. Students should be introduced to practical blockchain use cases such as secure digital payments, smart contracts, digital identity, supply chain transparency and decentralised finance. This may help students translate blockchain

knowledge into stronger entrepreneurial confidence and intention.

This study has several limitations. First, the sample was limited to FEP students at one Malaysian public university. Therefore, the findings may not be generalisable to students from other faculties, universities or national contexts. Another limitation is that the study relied on self-reported measures collected through a single questionnaire. Consequently, common method bias may have influenced the observed relationships among the constructs (Podsakoff et al., 2003). Future research could minimise this potential bias by collecting data from multiple sources or incorporating objective measures alongside self-reported responses. Future studies should include students from different academic disciplines, institutions and countries to enhance the generalisability of the findings. Second, this study used a cross-sectional research design, which limits the ability to make strong causal claims. Future research could adopt longitudinal designs to examine how FinTech literacy, attitude, perceived behavioral control and digital entrepreneurial intention develop over time. Third, the study relied on self-reported survey data, which may be affected by common method bias or social desirability bias (Podsakoff et al., 2003). Future studies may combine survey data with interviews, experiments or behavioral measures to strengthen the validity of the findings. Future research should also examine mediating and moderating mechanisms. For example, entrepreneurial self-efficacy may mediate the relationship between FinTech literacy and digital entrepreneurial intention. Institutional support, digital readiness, entrepreneurship education and family business background may also moderate the relationship between FinTech literacy and digital entrepreneurial intention. Including these variables would provide a more comprehensive understanding of how students translate FinTech knowledge into digital entrepreneurial intention and actual entrepreneurial behaviour.

In conclusion, this study demonstrates that FinTech literacy plays an important role in shaping digital entrepreneurial intention among university students. However, its influence depends on the specific type of FinTech literacy. Artificial intelligence literacy has the strongest and most consistent role, while crowdfunding literacy and blockchain literacy influence digital entrepreneurial intention mainly through attitude and perceived behavioral control. Therefore, universities should strengthen applied FinTech-based entrepreneurship education to develop students' knowledge, confidence and readiness to participate in digital entrepreneurship.

ETHICAL CONSIDERATION

Participation was voluntary and respondents were informed that their responses would be used only for academic research. Individual responses were treated confidentially.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY

The dataset is not publicly available because it contains student survey responses collected for academic research purposes.

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