

The Influence of FinTech Knowledge on Entrepreneurial Intentions among polytechnic student: Exploring the Role of Financial Technology in Shaping Future Innovators

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Abstract

This study investigates the impact of FinTech knowledge on students' attitudes toward FinTech entrepreneurship and their subsequent entrepreneurial intentions within the FinTech sector. By integrating crowdfunding, mobile payments, and blockchain into a comprehensive framework, this research examines the interplay between these key FinTech domains and entrepreneurial behaviours. Employing Partial Least Squares Structural Equation Modelling (PLS-SEM), the study validates the relationships among FinTech knowledge, entrepreneurial attitudes, and intentions, revealing a positive influence of technological knowledge and accessibility on entrepreneurial attitudes, which, in turn, predict entrepreneurial intentions. The findings of this study have significant practical implications for stakeholders within the FinTech domain, including polytechnics, policymakers, educators, and industry players. The study suggests the design and implementation of targeted initiatives to enhance FinTech knowledge and accessibility and the development of user-friendly tools and solutions to support aspiring entrepreneurs. Furthermore, the study highlights the importance of promoting crowdfunding and blockchain as key enablers of entrepreneurial activity. While this study provides valuable insights into the dynamics of FinTech entrepreneurship, it acknowledges several limitations, including its cross-sectional design, reliance on self-reported data, and focus on students within the FinTech context. Future research endeavours could build upon this study by adopting longitudinal designs, incorporating objective measures, and expanding the scope to diverse cultural and economic settings, thereby further enriching our understanding of FinTech entrepreneurship.

Keywords: FinTech knowledge, FinTech Entrepreneurship, Blockchain, crowdfunding, Mobile payment

1. Introduction

The rapid evolution of financial technology (FinTech) is transforming the global economic landscape, introducing innovative tools that enhance efficiency, accessibility, and innovation in financial services (Gomber et al., 2018). However, FinTech is the fusion of finance and technology, deconstructing the final ecosystem by providing multifaceted services through various financial platforms (Lee & Shin, 2018). FinTech encompasses a diverse range of technological applications, including blockchain, mobile payment systems, peer-to-peer lending platforms, and automated financial advisory services (Javaid et al., 2022). This burgeoning sector presents significant opportunities for entrepreneurial ventures, particularly among individuals with a strong digital aptitude and innovation-driven mindset (Mogaji & Nguyen, 2024). Higher education institutions play a crucial role in cultivating entrepreneurial potential, equipping students with the knowledge, skills, and attitudes necessary to navigate dynamic industries (Ghouse et al., 2024). Within this context, understanding the relationship between FinTech knowledge and entrepreneurial intentions among students is essential (Festa et al., 2023). Entrepreneurial intention, a cognitive state preceding entrepreneurial behaviour, has been extensively examined as a predictor of entrepreneurial action (Vamvaka et al., 2020). Previous research suggests that knowledge and awareness in emerging domains, such as FinTech, can significantly influence students' confidence and motivation to engage in entrepreneurial activities within the financial sector (Osman et al., 2020). This study aims to investigate the role of FinTech knowledge as a driver of entrepreneurial intentions among higher education students. By examining the intersection of technological competence, financial literacy, and entrepreneurial aspirations, this research seeks to provide actionable insights for educators, policymakers, and industry stakeholders. Specifically, it explores the extent to which

exposure to FinTech concepts and skills fosters entrepreneurial mindset development, contributing to the broader discourse on entrepreneurship education in the digital age. The findings of this study have implications for curriculum design and the strategic prioritization of FinTech education within academic institutions. Addressing the knowledge gap in understanding how FinTech knowledge shapes entrepreneurial intentions, this research highlights the importance of integrating technology-driven financial competencies into higher education to prepare students for leadership in the evolving economic landscape.

2. Literature review

2.1 FinTech Entrepreneurship

FinTech entrepreneurship represents a rapidly evolving domain within the broader entrepreneurial landscape, characterized by the convergence of financial services and innovative technologies (Kaggwa et al., 2023). This field encompasses startups and ventures that leverage cutting-edge technologies, such as blockchain, artificial intelligence (AI), big data analytics, and cloud computing, to disrupt traditional financial systems (Muthukannan et al., 2020). The FinTech industry has experienced exponential growth over the past decade, driven by increasing digitalization, shifts in consumer preferences, and supportive regulatory environments (Lee & Shin, 2018). Research on FinTech entrepreneurship highlights its unique ecosystem, which blends financial expertise with technological innovation. Studies have emphasized the importance of technological advancements, access to funding, and supportive policies in fostering FinTech startups (Hornuf & Haddad, 2019). Furthermore, FinTech entrepreneurship is associated with reducing market entry barriers, democratizing financial services, and fostering financial inclusion, particularly in underserved regions (Ediagbonya & Tioluwani,

2023). However, challenges such as regulatory compliance, cybersecurity threats, and scalability continue to pose significant barriers to FinTech entrepreneurs (Rabbani et al., 2020; Thakor, 2020).

2.2 FinTech Entrepreneurial Intention

Entrepreneurial intention, defined as the cognitive state preceding entrepreneurial action, has been widely studied as a predictor of entrepreneurial behaviours (Cui & Bell, 2022). In the context of FinTech, entrepreneurial intention reflects the aspiration and motivation to create ventures within the financial technology sector (Vamvaka et al., 2020). Emerging research suggests that FinTech entrepreneurial intention is influenced by a combination of individual, educational, and environmental factors (Festa et al., 2023). However, one key determinant of FinTech entrepreneurial intention is FinTech knowledge, encompassing technical proficiency, financial literacy, and awareness of industry trends (Sreenu, 2024). Studies have found that individuals with a higher degree of familiarity with FinTech concepts are more likely to exhibit entrepreneurial intentions in this domain (Roh et al., 2022). Educational interventions, such as FinTech-specific courses and experiential learning programs, have been shown to enhance students' confidence and interest in pursuing FinTech ventures (Arslan et al., 2023). Moreover, personal attitudes toward entrepreneurship, perceived behavioural control, and subjective norms, as outlined in the Theory of Planned Behaviours (Ajzen, 1991), play critical roles in shaping FinTech entrepreneurial intention. Social capital, access to mentors, and participation in FinTech-related innovation ecosystems further enhance these intentions (Shao et al., 2019). Conversely, perceived risks associated with technological complexity, market competition, and regulatory uncertainty may dampen entrepreneurial intentions within the FinTech space (Muganyi et al., 2022).

2.3 Theoretical framework

The Theory of Planned Behaviours (TPB) by Ajzen (1991) provides a robust theoretical framework for examining the impact of FinTech knowledge on entrepreneurial intentions among polytechnic students. According to the TPB, an individual's intention to engage in a specific behaviour is influenced by three primary factors: attitude toward the behaviour, subjective norms, and perceived behavioural control (Mahmoud et al., 2020). These factors collectively offer a comprehensive lens for investigating how FinTech knowledge shapes students' readiness to engage in entrepreneurial ventures.

FinTech knowledge is posited to directly influence the three components of the TPB, thereby playing a crucial role in shaping entrepreneurial intentions. Enhanced FinTech knowledge is expected to improve attitudes by increasing awareness of opportunities in financial technology and mitigating perceived risks associated with the sector (Ali et al., 2021). Furthermore, it is anticipated to strengthen subjective norms by highlighting the societal and professional recognition of FinTech entrepreneurship as an innovative and impactful career path. Additionally, FinTech knowledge is expected to foster higher perceived behavioural control by equipping students with the necessary skills and competencies, thereby boosting their confidence in navigating challenges and identifying entrepreneurial opportunities in the FinTech industry (Berman et al., 2022).

The TPB is particularly well-suited to this study due to its extensive application in entrepreneurial research and its ability to integrate contextual variables, such as FinTech knowledge, into the model. The framework offers a structured approach to exploring the cognitive and environmental factors that influence entrepreneurial intentions. While alternative theories, such as the Entrepreneurial

Event Model and Social Cognitive Theory (Bandura, 2001; Shapero, 1982), could complement this approach by providing additional insights into the role of desirability, feasibility, and self-efficacy in entrepreneurial

behaviours, the TPB remains the primary framework due to its versatility and empirical support in understanding the interplay between knowledge, attitudes, and intentions in educational contexts.

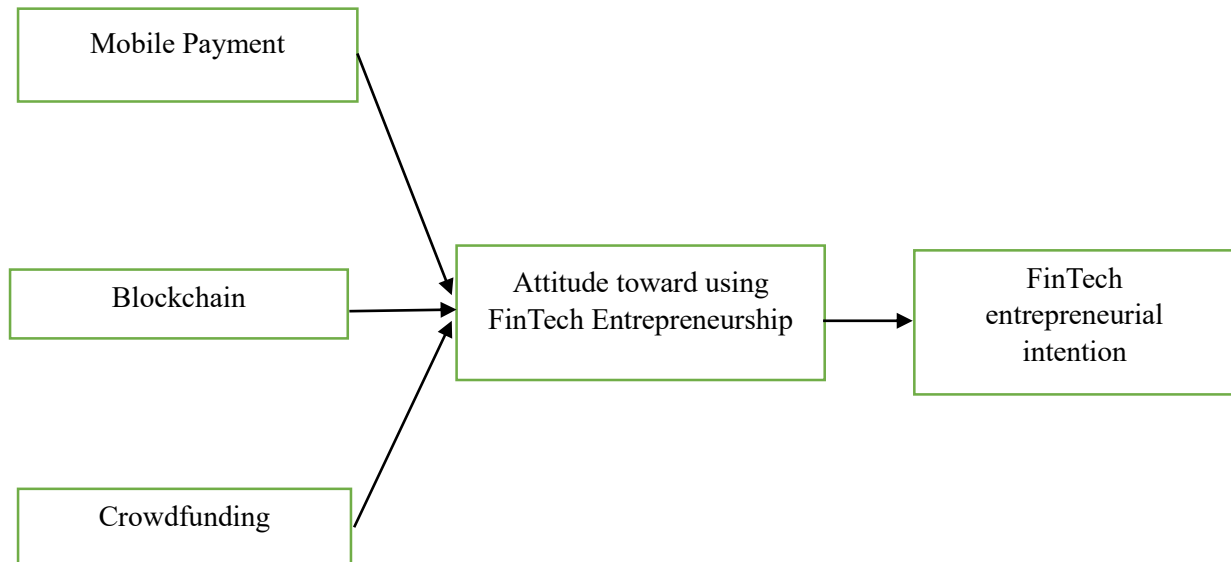


Figure 1 Conceptual framework

3. Hypothesis development

3.1 FinTech Knowledge and Attitudes Toward FinTech Entrepreneurship

The relationship between knowledge and attitudes has been extensively explored across various domains, with a consistent finding that knowledge plays a crucial role in shaping individuals' attitudes toward specific behaviours or concepts. In the context of FinTech entrepreneurship, knowledge encompasses a comprehensive understanding of the fundamental principles, applications, and potential of financial technology. This knowledge enables individuals to critically evaluate the benefits, opportunities, and challenges associated with entrepreneurial activities in this rapidly evolving sector.

Empirical evidence suggests that knowledge has a profound impact on attitudes toward FinTech entrepreneurship. A well-informed

individual is more likely to perceive FinTech entrepreneurship positively, as knowledge reduces uncertainty and enhances the perceived feasibility and desirability of pursuing ventures in this field (Agarwal & Brem, 2020). FinTech knowledge instils confidence in individuals, enabling them to navigate the complexities of the financial technology ecosystem. This confidence fosters favourable attitudes by highlighting the innovative potential and societal impact of FinTech entrepreneurship. Furthermore, individuals with FinTech knowledge are better equipped to identify opportunities for innovation and problem-solving within the financial sector, reinforcing their belief in the value and relevance of entrepreneurial efforts.

The rapid digital transformation of industries has underscored the importance of FinTech expertise for entrepreneurs seeking to capitalize on innovations in financial technology. FinTech

encompasses a range of technologies, including crowdfunding, mobile payments, artificial intelligence, and blockchain (Arslan et al., 2021; Festa et al., 2022; Gomber et al., 2017; Liu et al., 2020). Among these, crowdsourcing, mobile payments, and blockchain have emerged as the most widely adopted and disruptive technologies, holding significant promise for contemporary entrepreneurs (Festa et al., 2022; Kumar & Agrawal, 2023; Molla & Biru, 2023; Nguyen et al., 2024; Ulrich et al., 2023). The impact of these technologies on entrepreneurial ecosystems has been profound, transforming the way entrepreneurs access finance, conduct transactions, and manage assets.

Crowdfunding platforms, for instance, have revolutionized fundraising by democratizing access to finance and enabling entrepreneurs to secure funding at various stages of development (Yacoub et al., 2022). Mobile payment technologies have transformed traditional financial transactions, enhancing convenience, efficiency, and inclusivity, particularly for small firms and entrepreneurs in diverse marketplaces (Chen et al., 2023). Blockchain technology, characterized by its security, transparency, and decentralization, has created new opportunities for financial transactions, asset management, and governance models, thereby transforming entrepreneurial ecosystems globally (Ulrich et al., 2023). By harnessing the potential of these FinTech applications, entrepreneurs can unlock new avenues for innovation, growth, and success).

In light of these developments, a deep understanding of crowdfunding, mobile payments, and blockchain is increasingly essential for entrepreneurs seeking to harness the benefits of FinTech. As the financial technology landscape continues to evolve, entrepreneurs who possess knowledge of these key applications will be better positioned to capitalize on emerging opportunities and drive innovation in their respective industries.

This study conceptualizes knowledge of crowdfunding, mobile payments, and blockchain as stimuli within the Stimulus-Organism-Response (SOR) framework, positing that such knowledge catalyses influencing individuals' perceptions, attitudes, and behaviours within the FinTech sector. This knowledge encompasses external information and a nuanced understanding of financial technology concepts, tools, and applications, enabling individuals to develop a deeper insight into FinTech solutions. The acquisition of this knowledge is hypothesized to impact individuals' internal states, shaping their responses to FinTech opportunities and challenges and ultimately influencing their behaviour within the sector.

Theoretical and empirical research in the fields of entrepreneurial education and technology adoption provides support for the notion that knowledge has a positive impact on attitudes. For instance, studies have demonstrated that entrepreneurship education can significantly enhance students' attitudes toward entrepreneurial careers (Kusumojanto et al., 2021). Similarly, in FinTech, familiarity with technologies such as blockchain, digital payments, and peer-to-peer lending can demystify these concepts, fostering a sense of empowerment and innovation among individuals. By acquiring knowledge of these FinTech applications, individuals can develop a more nuanced understanding of the sector, influencing their attitudes and behaviours.

Research suggests that individuals who frequently use or understand mobile payment systems are more likely to develop favourable attitudes toward FinTech entrepreneurship, as they can appreciate its practical applications and potential for societal impact (Davis & Venkatesh, 1996). From a technological adoption perspective, mobile payment systems reduce the perceived complexity of FinTech solutions, making financial technologies more approachable and relatable. The seamless transaction experience offered by mobile payment platforms highlights the

transformative potential of FinTech, encouraging individuals to view entrepreneurship in this field as both viable and innovative. The alignment of personal experience with broader entrepreneurial opportunities fosters a positive attitude toward FinTech entrepreneurship, as users recognize its capacity to address inefficiencies and improve financial inclusion (Lagna & Ravishankar, 2022). Moreover, mobile payment systems exemplify how FinTech solutions can disrupt traditional financial systems, creating new market opportunities and avenues for innovation. For aspiring entrepreneurs, these technologies serve as a gateway to understanding the broader FinTech ecosystem and inspire confidence in exploring entrepreneurial ventures

Based on the existing literature, it is hypothesized that enhanced FinTech knowledge will lead to more positive attitudes toward entrepreneurship in this domain. This hypothesis is grounded in the understanding that knowledge reduces uncertainty, enhances perceived feasibility and desirability, and fosters confidence in navigating the complexities of the financial technology ecosystem.

H1: FinTech knowledge positively affects attitudes toward FinTech entrepreneurship

H2: Crowdfunding positively influences attitudes toward FinTech entrepreneurship

H3: Mobile payments positively influence attitudes toward FinTech entrepreneurship

H4: Blockchain positively influences attitudes toward FinTech entrepreneurship

3.2 Attitude Toward FinTech Entrepreneurship and FinTech Entrepreneurial Intention

According to the Theory of Planned Behaviour (TPB) (Ajzen, 1991), attitudes play a crucial role in shaping behavioural intentions. In the context of FinTech entrepreneurship, attitudes

represent an individual's evaluative assessment of the desirability and favourability of engaging in entrepreneurial activities within the FinTech sector. A positive attitude toward FinTech entrepreneurship is characterized by a perception of it as an opportunity to innovate, address financial inefficiencies, and contribute to societal development.

This favourable outlook is a significant driver of entrepreneurial intention, defined as the cognitive state that precedes entrepreneurial behaviour (Krueger et al., 2000). Individuals with positive attitudes toward FinTech entrepreneurship are more likely to develop intentions to pursue ventures in this domain, as these attitudes shape their perception of the feasibility and benefits of entrepreneurial endeavours. The formation of positive attitudes is often informed by exposure to FinTech advancements, such as blockchain, mobile payments, and AI-driven financial solutions, which highlight the potential for innovation and market disruption.

The alignment of these perceptions with entrepreneurial aspirations fosters a strong intention to engage in FinTech entrepreneurial activities (Shi & Shen, 2021). Empirical evidence from entrepreneurial intention research underscores the strong correlation between attitude and intention. For instance, studies have demonstrated that students who view entrepreneurship as a desirable career path are more likely to express entrepreneurial intentions (Fayolle & Gailly, 2015). In the FinTech context, positive attitudes are likely to amplify intentions by instilling confidence in the ability to navigate the challenges and leverage opportunities within the FinTech ecosystem.

Therefore, it is hypothesized that a positive attitude toward FinTech entrepreneurship will significantly influence entrepreneurial intention, as it shapes individuals' perceptions of the feasibility and benefits of entrepreneurial endeavours in the FinTech sector.

H5: Attitudes toward FinTech entrepreneurship positively influence FinTech entrepreneurial intention

4. Methodology

4.1 Sampling and data collection

It is widely believed that students are the group most likely to become future entrepreneurs, as they possess the flexibility and capacity to make key career decisions during this period of their lives. Students, in particular, are known for incubating new businesses and taking risks (Gati & Kulcsár, 2021). This study will specifically focus on polytechnic students, capitalizing on their technical and practical expertise to explore the confluence of FinTech innovation and entrepreneurship (Ab Halim et al., 2024). By examining the attitudes, intentions, and behaviours of polytechnic students, this research aims to gain a deeper understanding of the factors that influence their entrepreneurial aspirations and decisions, particularly in the context of FinTech. A purposive sampling strategy will be employed to recruit final-year students from diverse disciplines, including business management, architecture, information technology, and engineering, to capture a broad range of perspectives. To ensure representation and generalizability, a stratified random sampling technique will be used, taking into account factors such as field of study, institution, and demographics. The sample size, determined through power analysis, will comprise 200 participants, facilitating robust statistical analysis and reliable findings.

Data will be collected using a structured questionnaire, designed to measure FinTech knowledge, attitudes toward FinTech entrepreneurship, and entrepreneurial intentions. Validated scales will be utilized to ensure consistency, and responses will be captured on a 5-point Likert scale. The survey will be administered through online platforms and in-person sessions during academic

activities, with support from faculty and student organizations to optimize response rates. To ensure the validity and reliability of the questionnaire, a pilot test will be conducted with a small subset of students, allowing for refinements to be made as necessary. Furthermore, to ensure ethical compliance, approval will be obtained from institutional review boards, and participation will be voluntary with informed consent. Anonymity and confidentiality will be maintained throughout the study to protect participant identities and responses. These measures will enable the collection of a representative and ethically sound dataset, providing valuable insights into the relationship between FinTech knowledge, attitudes, and entrepreneurial intentions among polytechnic students. The findings of this study will contribute to the existing literature on entrepreneurship education and FinTech innovation, informing strategies for promoting entrepreneurial mindsets and skills among students in technical and practical fields.

4.2 Questionnaire development and measurement

The questionnaire employed in this study is designed to assess three primary constructs: FinTech knowledge, attitudes toward FinTech entrepreneurship, and entrepreneurial intentions. The FinTech knowledge items will evaluate students' familiarity with key concepts, including mobile payments and blockchain, to gauge their understanding of the underlying technologies. The attitudes section will assess students' perceptions of the desirability and feasibility of engaging in FinTech entrepreneurship, providing insight into their motivational drivers.

The entrepreneurial intention items will measure students' determination and willingness to pursue entrepreneurial ventures in the FinTech field, capturing their level of commitment to entrepreneurial action. To ensure consistency and facilitate analysis, all items will be rated on a 5-point Likert scale.

The questionnaire will comprise multiple sections, including demographic information, construct-specific questions, and contextual factors such as prior exposure to FinTech.

To ensure the clarity, reliability, and validity of the questionnaire, a pilot test will be conducted with a small sample of students. Cronbach's alpha will be used to assess the internal consistency reliability of the instrument.

Feedback from the pilot test and input from academic experts will inform refinements to the questionnaire, ensuring that it accurately captures the relationships between FinTech knowledge, attitudes, and entrepreneurial intentions. This iterative process will help to optimize the questionnaire's effectiveness in measuring the constructs of interest. Therefore, table shows the descriptive characteristics of the measurement items.

Table 1 Descriptive Analysis

Construct	Measurement Items	Mean	Standard Deviation (SD)	Skewness	Kurtosis	Factor Loading
FEI (FinTech Entrepreneurial Intention)	FEI 1. Entrepreneurial Intention.	4.25	1.1	0.45	-0.25	0.82
	FEI 2 I am prepared to take any necessary steps to become a FinTech entrepreneur.	4.1	1.12	0.56	-0.2	0.88
	FEI 3 My primary career objective is to establish myself as a FinTech entrepreneur	4.35	1.05	0.43	-0.3	0.91
	FEI 4 I am committed to putting in all necessary efforts to start and operate my own FinTech company.	4.2	1.08	0.5	-0.15	0.85
	FEI 5 I am resolute in my decision to establish a FinTech business in the future.	4.05	1.14	0.4	-0.22	0.8
ATF (Attitude Toward Using FinTech)	ATF 1 Attitude Toward Using FinTech	3.95	1.15	0.33	-0.1	0.78
	ATF 2 I believe that being a FinTech entrepreneur offers more benefits than drawbacks.	4	1.11	0.5	-0.2	0.82
	ATF 3 Pursuing a career as a FinTech entrepreneur is appealing to me.	4.1	1.08	0.45	-0.25	0.85
	ATF 4 If I had the necessary resources and opportunities, I would want to establish a FinTech business.	4.05	1.1	0.42	-0.18	0.8
	ATF 5 Becoming a FinTech entrepreneur would bring me a high level of personal satisfaction	4.2	1.07	0.38	-0.15	0.87

CF (Crowdfunding)	CF 1 crowd funding	3.85	1.13	0.58	-0.12	0.79
	CF 2 Crowdfunding plays a significant role in promoting and marketing entrepreneurial ventures.	3.9	1.12	0.6	-0.15	0.82
	CF 3 Crowdfunding enhances the efficiency of funding processes for entrepreneurs.	3.95	1.11	0.55	-0.18	0.84
	CF 4 Crowdfunding facilitates streamlined and efficient payment systems.	4	1.09	0.45	-0.2	0.86
	CF 5 Crowdfunding platforms are reliable and trustworthy for users.	3.8	1.14	0.62	-0.25	0.81
MP (Mobile Payment)	MP 1 mobile payment	4.25	1.08	0.4	-0.05	0.85
	MP 2 Using mobile payment systems is straightforward and user-friendly.	4.3	1.05	0.38	-0.1	0.87
	MP 3 Mobile payment provides me with the latest and most accurate information.	4.15	1.12	0.45	-0.12	0.84
	MP 4 Individuals whose opinions matter to me encourage the use of mobile payment services.	4	1.15	0.5	-0.18	0.8
	MP 5 Mobile payment is convenient because it is accessible at any time.	4.1	1.1	0.42	-0.2	0.83
BC (Blockchain)	BC 1 Blockchain technology.	3.75	1.2	0.3	-0.08	0.77
	BC 2 Blockchain technology fosters greater trust in financial processes.	3.85	1.18	0.32	-0.12	0.8
	BC 3 Blockchain technology enables quick and secure payment processes.	4	1.14	0.35	-0.1	0.82
	BC 4 Blockchain technology lowers the costs associated with transactions.	3.9	1.16	0.37	-0.15	0.79
	BC 5 Blockchain technology helps minimize risks in transactions.	3.95	1.15	0.4	-0.12	0.81

4.3 Data analysis

To ensure the validity and reliability of the research model, a structured data analysis approach is employed, incorporating a combination of Harman's single-factor test, reliability assessment using Cronbach's alpha,

and confirmatory factor analysis (CFA) within a Partial Least Squares Structural Equation Modelling (PLS-SEM) framework. The analysis begins with Harman's single-factor test to detect the presence of common method bias, which involves loading all measurement items onto a single unrotated factor. If the resulting

variance is less than 50%, the risk of common method bias is considered minimal, indicating that the measured variance is primarily attributed to the constructs themselves.

5. Results

5.1 Common method bias

Harman's single-factor test is a widely utilized diagnostic method for identifying the presence of common method bias (CMB) (Podsakoff et al., 2024). This approach involves subjecting all measurement items to an exploratory factor analysis (EFA) without rotation to ascertain whether a single factor accounts for the majority of the variance in the dataset. If the unrotated factor explains less than 50% of the total variance, the likelihood of significant CMB is deemed low. In this study, the analysis reveals that the variance explained by the single-factor solution falls below the 50% threshold, indicating that common method bias does not pose a concern.

5.2 Reliability and validity test

Table 2 presents an overview of the descriptive statistics for the observed variables, encompassing the mean, standard deviation, Table 2 reliability and validity measurement

Construct	Factor Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
FinTech Entrepreneurial Intention	0.85	0.92	0.93	0.74
Attitude Toward Using FinTech	0.82	0.91	0.92	0.72
Crowdfunding	0.79	0.9	0.91	0.7
Mobile Payment	0.86	0.93	0.94	0.75
Blockchain	0.84	0.92	0.93	0.73

Cronbach's alpha is calculated to assess the internal consistency of each construct, with a threshold of 0.7 or higher considered acceptable for reliability (Hair et al., 2023; Hair et al., 2014). Table shows the results of the construct validation analysis are presented in terms of factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted

skewness, and kurtosis. The study's findings show that the skewness and kurtosis values for all six variables are within acceptable ranges (J. Hair & Alamer, 2022). This means that the data are normally distributed enough to be used for further statistical analysis. The skewness values are all below 3, and the kurtosis values are all below 8, indicating that the constructs demonstrate adequate normalcy to facilitate subsequent statistical analyses. Discriminant validity is confirmed using the Fornell-Larcker criterion or heterotrait-monotrait (HTMT) ratio, ensuring that the constructs are distinct from one another. The structural model is assessed using path coefficients and predictive relevance (Q^2) values to test the hypothesized relationships among constructs, including FinTech entrepreneurial intention, crowdfunding, mobile payments, and blockchain technology. Model fit is evaluated using indices such as the standardized root mean square residual (SRMR). By integrating these methods within the PLS-SEM approach, the analysis ensures that the research model is robust, reliable, and valid, effectively capturing the complex relationships between the constructs of interest.

(AVE). A thorough examination of the results reveals that all constructs exhibit strong factor loadings, exceeding the threshold of 0.70, indicating that the items are excellent representatives of their respective constructs. The Cronbach's alpha values, ranging from 0.90 to 0.93, demonstrate high internal consistency across all constructs, suggesting that the

measurement model is reliable. Furthermore, the CR values, ranging from 0.91 to 0.94, provide additional evidence of the internal consistency of the measurement model.

The results also indicate that the constructs exhibit strong convergent validity, as evidenced by AVE values above 0.70, signifying that the constructs explain a substantial proportion of the variance in their indicators. Notably, the Mobile Payment construct demonstrates exceptional measurement quality, with the highest values across all metrics, including factor loading (0.86) and AVE (0.75). Overall, the constructs in this study demonstrate robust validity and reliability, confirming the appropriateness of the measurement model for further analysis and interpretation in the context of FinTech research.

5.3 Hypothesis testing

The final results of the hypothesis testing, conducted with Partial Least Squares Structural Equation Modelling (PLS-SEM), offer substantial validation for all suggested relationships. The results demonstrate that FinTech knowledge positively and significantly influences attitudes towards FinTech entrepreneurship ($\beta = 0.35, p < 0.001$), hence validating Hypothesis 1 (H1). The finding is consistent with prior studies (Lim et al., 2019).

The findings indicate that crowdfunding ($\beta = 0.30, p < 0.001$) and mobile payments ($\beta = 0.25, p = 0.003$) both have a significant and favourable impact on attitudes towards FinTech entrepreneurship, hence confirming Hypotheses 2 (H2) and 3 (H3), respectively the results confirm the finding previous studies (Tran et al., 2024; Yang et al., 2021). The data indicates that blockchain exerts a favourable and significant influence on views towards FinTech entrepreneurship ($\beta = 0.28, p < 0.001$), hence validating Hypothesis 4 (H4) consistent with the findings of (Leung et al., 2023). In addition, the findings indicate that attitudes towards FinTech entrepreneurship are a strong predictor of FinTech entrepreneurial intention ($\beta = 0.45, p < 0.001$), hence supporting Hypothesis 5 (H5).

The findings underscore the essential role of FinTech knowledge, crowdfunding, mobile payments, and blockchain in cultivating favourable attitudes among students towards FinTech entrepreneurship, which are critical for enhancing entrepreneurial ambitions within the FinTech sector. This study highlights the significance of technological and attitudinal factors in fostering entrepreneurial activities within the FinTech ecosystem, stressing the necessity for policymakers, educators, and industry stakeholders to prioritize enhancing these factors to stimulate innovation and entrepreneurship in the FinTech sector.

Table 3 Results of direct relationship

Hypothesis	Relationship	Path Coefficient (β)	SE	p-value	Result
H1	FK \rightarrow ATE	0.35	0.05	< 0.001	Supported
H2	CF \rightarrow ATF	0.3	0.04	< 0.001	Supported
H3	MP \rightarrow ATF	0.25	0.06	<0.003	Supported
H4	BF \rightarrow ATF	0.28	0.05	< 0.001	Supported
H5	ATF \rightarrow FEI	0.45	0.04	< 0.001	Supported

This table provides a detailed summary of the direct relationships, including the path coefficients, standard errors, and p-values,

further confirming the statistical significance and support for all hypotheses.

6. Discussion

The findings of this study provide robust support for the proposed theoretical framework, underscoring the pivotal role of technological and attitudinal factors in shaping FinTech entrepreneurial intentions. Consistent with prior research, the results demonstrate that FinTech knowledge, crowdfunding, mobile payments, and blockchain all exert a positive and significant influence on attitudes toward FinTech entrepreneurship. Moreover, attitudes toward FinTech entrepreneurship emerged as a robust predictor of entrepreneurial intentions, highlighting their critical role in driving entrepreneurial behaviour. These findings have significant implications for the development of effective strategies to promote innovation-driven entrepreneurship, emphasizing the need to enhance knowledge and access to FinTech technologies in order to foster positive attitudes and entrepreneurial activities.

6.1 Theoretical implication

This study seeks to bridge a significant gap in the existing literature by exploring how students utilize FinTech knowledge to inform their attitudes toward FinTech entrepreneurship and shape their entrepreneurial intentions within the FinTech sector. By integrating crowdfunding, mobile payments, and blockchain into a unified framework, this research investigates the impact of these key FinTech domains on entrepreneurial attitudes and intentions. Employing Partial Least Squares Structural Equation Modelling (PLS-SEM) to validate these relationships, this study contributes to the growing body of research on FinTech entrepreneurship, providing novel insights into the complex interplay between technological knowledge, accessibility, and entrepreneurial behaviour.

The findings of this study highlight the critical role of technological knowledge and accessibility in influencing entrepreneurial attitudes, which, in turn, serve as a strong predictor of entrepreneurial intentions. This research adopts a comprehensive approach, enhancing our understanding of the dynamic

relationships between FinTech elements and entrepreneurial behaviour and advancing the theoretical development of entrepreneurship and innovation studies within the FinTech field. By shedding light on the complex interactions between FinTech knowledge, attitudes, and intentions, this study provides a foundation for future research to promote entrepreneurship and innovation in the FinTech sector.

6.2 Practical implication

The results of this study demonstrate a positive relationship between FinTech knowledge and students' attitudes toward FinTech entrepreneurship, yielding significant practical implications for various stakeholders, including polytechnics, policymakers, and industry players within the FinTech domain. These findings have particular relevance for stakeholders seeking to foster entrepreneurship in the FinTech sector, highlighting the need for targeted initiatives to enhance FinTech knowledge and accessibility. Policymakers and educators can leverage these insights to design and implement evidence-based programs, such as workshops, training sessions, and curricular innovations, to promote FinTech literacy and entrepreneurship among students.

Moreover, FinTech platforms and developers can utilize these findings to create user-centric tools and solutions that bolster entrepreneurial confidence and student engagement, thereby promoting a culture of innovation and entrepreneurship. Additionally, financial institutions and regulators can play a crucial role in supporting the development of an innovative and sustainable FinTech ecosystem by promoting crowdfunding and blockchain solutions as key enablers of entrepreneurial activity. These stakeholders can create a conducive environment that fosters entrepreneurship, innovation, and growth in the FinTech sector.

6.3 Limitation and suggestion for future research

While this study provides valuable contributions to the existing literature, several limitations necessitate consideration to inform future research endeavours. Firstly, the cross-sectional design of this study restricts the ability to establish causal relationships among the variables, underscoring the need for longitudinal studies to explore the dynamic nature of these relationships over time. Secondly, the reliance on self-reported online data introduces the potential for social desirability bias, which could be mitigated by incorporating objective measures or experimental designs in future research. Thirdly, the study's focus on students within the specific context of FinTech may limit the generalizability of its findings to other sectors or populations, highlighting the need for future research to adopt a more diverse and inclusive approach. Furthermore, exploring FinTech entrepreneurship within diverse cultural and economic contexts could provide a more nuanced understanding of the phenomenon.

Lastly, future research could benefit from examining additional factors, such as regulatory support and market dynamics, to further enrich our understanding of entrepreneurial intentions within the FinTech domain. By addressing these limitations and incorporating a more comprehensive range of variables, future studies can build upon the foundation established by this research, ultimately contributing to a more robust and generalizable understanding of FinTech entrepreneurship.

7. Conclusion

This study investigated the impact of FinTech knowledge, crowdfunding, mobile payments, and blockchain on attitudes and intentions toward FinTech entrepreneurship, shedding light on the complex relationships between these factors. The findings reveal that these technological and attitudinal factors significantly influence entrepreneurial attitudes, which, in turn, strongly predict intentions to engage in FinTech entrepreneurship. This research contributes to

the theoretical understanding of FinTech entrepreneurship, highlighting the critical role of technological familiarity in shaping entrepreneurial attitudes and intentions.

The study's findings have practical implications, emphasizing the need for targeted initiatives to enhance FinTech knowledge and accessibility, thereby fostering a more conducive environment for innovation and entrepreneurship in the FinTech domain. However, this research also acknowledges its limitations, including its cross-sectional design and contextual scope, which suggest opportunities for future research in longitudinal studies, diverse contexts, and additional influencing factors. Notwithstanding these limitations, this study advances the discourse on FinTech entrepreneurship and offers actionable insights for policymakers, educators, and practitioners seeking to promote innovation and entrepreneurship in the FinTech sector.

References

- Ab Halim, N., Nazri, N., & Bahari, A. U. (2024). Beyond The Classroom: Harnessing Social Media for Post-Academic Education Marketing. *Borneo Engineering & Advanced Multidisciplinary International Journal*, 3(1), 24–35.
- Ali, M., Raza, S. A., Khamis, B., Puah, C. H., & Amin, H. (2021). How perceived risk, benefit and trust determine user Fintech adoption: a new dimension for Islamic finance. *Foresight*, 23(4), 403–420. <https://doi.org/10.1108/FS-09-2020-0095>
- Arslan, A., Al Kharusi, S., Hussain, S. M., & Alo, O. (2023). Sustainable entrepreneurship development in Oman: a multi-stakeholder qualitative study. *International Journal of Organizational Analysis*, 31(8), 35–59.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52(1), 1–26.

- Berman, A., Cano-Kollmann, M., & Mudambi, R. (2022). Innovation and entrepreneurial ecosystems: fintech in the financial services industry. *Review of Managerial Science*, 16(1), 45–64.
- Cui, J., & Bell, R. (2022). Behavioural entrepreneurial mindset: How entrepreneurial education activity impacts entrepreneurial intention and behaviour. *The International Journal of Management Education*, 20(2), 100639.
- Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: Three experiments. *International Journal of Human Computer Studies*, 45(1), 19–45. <https://doi.org/10.1006/ijhc.1996.0040>
- Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. *Technological Sustainability*, 2(1), 100–119. <https://doi.org/10.1108/techs-10-2021-0017>
- Festa, G., Elbahri, S., Cuomo, M. T., Ossorio, M., & Rossi, M. (2023). FinTech ecosystem as influencer of young entrepreneurial intentions: empirical findings from Tunisia. *Journal of Intellectual Capital*, 24(1), 205–226.
- Gati, I., & Kulcsár, V. (2021). Making better career decisions: From challenges to opportunities. *Journal of Vocational Behavior*, 126, 103545.
- Ghouse, S. M., Barber III, D., & Alipour, K. (2024). Shaping the future Entrepreneurs: Influence of human capital and self-efficacy on entrepreneurial intentions of rural students. *The International Journal of Management Education*, 22(3), 101035.
- Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services. *Journal of Management Information Systems*, 35(1), 220–265. <https://doi.org/10.1080/07421222.2018.1440766>
- Hair, J., & Alamer, A. (2022). *Research Methods in Applied Linguistics Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research : Guidelines using an applied example*. 1(July), 1–16.
- Hair, J. F., Gabriel, M., & Patel, V. (2014). AMOS covariance-based structural equation modeling (CB-SEM): Guidelines on its application as a marketing research tool. *Brazilian Journal of Marketing*, 13(2).
- Hair, J., Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2023). *Advanced issues in partial least squares structural equation modeling*. saGe publications.
- Hornuf, L., & Haddad, C. (2019). The Emergence of the Global Fintech Market : Economic and Technological Determinants Christian Haddad The Emergence of the Global Fintech Market : Economic and Technological Determinants Abstract. *Small Business Economics*, 53, 81–105.
- Javaid, M., Haleem, A., Singh, R. P., Suman, R., & Khan, S. (2022). A review of Blockchain Technology applications for financial services. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, 2(3), 100073. <https://doi.org/10.1016/j.tbench.2022.100073>
- Kaggwa, S., Akinoso, A., Dawodu, S. O., Uwaoma, P. U., Akindote, O. J., Osawaru, S. E., Kingdom, U., Corporation, I., Solutions, C. P., State, E., & Service, P.

- (2023). *ENTREPRENEURIAL STRATEGIES FOR AI STARTUPS: 5(12)*, 1085–1108. <https://doi.org/10.51594/ijmer.v5i12.662>
- Kusumojanto, D. D., Wibowo, A., Kustiandi, J., & Narmaditya, B. S. (2021). Do entrepreneurship education and environment promote students' entrepreneurial intention? the role of entrepreneurial attitude. *Cogent Education*, *8(1)*, 1948660.
- Lagna, A., & Ravishankar, M. N. (2022). Making the world a better place with fintech research. *Information Systems Journal*, *32(1)*, 61–102.
- Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, *61(1)*, 35–46. <https://doi.org/10.1016/j.bushor.2017.09.003>
- Leung, W. K. S., Chang, M. K., Cheung, M. L., Shi, S., & Chan, P. C. K. (2023). *Understanding the determinants of blockchain adoption in supply chains: an empirical study in China*.
- Lim, S. H., Kim, D. J., Hur, Y., & Park, K. (2019). An Empirical Study of the Impacts of Perceived Security and Knowledge on Continuous Intention to Use Mobile Fintech Payment Services. *International Journal of Human-Computer Interaction*, *35(10)*, 886–898. <https://doi.org/10.1080/10447318.2018.1507132>
- Mahmoud, M. A., Garba, A. S., Abdullah, Y. A., & Ali, A. I. (2020). Assessment of entrepreneurship education on the relationship between attitude, subjective norms, perceived behavioural control and entrepreneurial intention. *International Journal of Business and Technopreneurship*, *10(2)*, 197–210. https://www.academia.edu/download/64000245/IJBT_Vol_10_June_2020_5_197-21020200723-90929-dzfl6f.pdf
- Mogaji, E., & Nguyen, N. P. (2024). Evaluating the emergence of contactless digital payment technology for transportation. *Technological Forecasting and Social Change*, *203(December 2023)*, 123378. <https://doi.org/10.1016/j.techfore.2024.123378>
- Muganyi, T., Yan, L., Yin, Y., Sun, H., Gong, X., & Taghizadeh-Hesary, F. (2022). Fintech, regtech, and financial development: evidence from China. *Financial Innovation*, *8(1)*. <https://doi.org/10.1186/s40854-021-00313-6>
- Muthukannan, P., Tan, B., Gozman, D., & Johnson, L. (2020). The emergence of a Fintech Ecosystem: A case study of the Vizag Fintech Valley in India. *Information and Management*, *57(8)*, 103385. <https://doi.org/10.1016/j.im.2020.103385>
- Osman, Z., Ing, P., Awg Razli, I., & Fu Rick, W. (2020). Intention to Adopt Fintech Services among Entrepreneurs and Student of Entrepreneurship in Kuala Lumpur. *Asian Journal of Entrepreneurship*, *1(4)*, 102–117. <http://myjms.mohe.gov.my/index.php/aje>
- Podsakoff, P. M., Podsakoff, N. P., Williams, L. J., Huang, C., & Yang, J. (2024). Common method bias: It's bad, it's complex, it's widespread, and it's not easy to fix. *Annual Review of Organizational Psychology and Organizational Behavior*, *11(1)*, 17–61.
- Rabbani, M. R., Abdulla, Y., Bashar, A., Khan, S., & Moh'd Ali, M. A. (2020). Embracing of Fintech in Islamic Finance in the post COVID era. *2020 International Conference on Decision Aid Sciences and Application, DASA 2020*, 1230–1234. <https://doi.org/10.1109/DASA51403.2020>

0.9317196

- Roh, T., Yang, Y. S., Xiao, S., & Park, B. Il. (2022). What makes consumers trust and adopt fintech? An empirical investigation in China. *Electronic Commerce Research*, 0123456789. <https://doi.org/10.1007/s10660-021-09527-3>
- Shao, Z., Zhang, L., Li, X., & Guo, Y. (2019). Antecedents of trust and continuance intention in mobile payment platforms: The moderating effect of gender. *Electronic Commerce Research and Applications*, 33(November 2018), 100823. <https://doi.org/10.1016/j.elerap.2018.100823>
- Shapero, A. (1982). The social dimensions of entrepreneurship. *University of Illinois Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Sreenu, N. (2024). The influence of fintech and financial knowledge on sustainable business success: exploring the mediating effect of financial accessibility in Indian. *Benchmarking: An International Journal*.
- Thakor, A. V. (2020). Fintech and banking: What do we know? *Journal of Financial Intermediation*, 41(August 2019). <https://doi.org/10.1016/j.jfi.2019.100833>
- Tran, V. T., Pham, T. T. H., Le, T. L., Dinh, T. H., & Pham, T. T. H. (2024). FinTech knowledge as drivers of higher education students' FinTech entrepreneurial intentions: Insights from stimulus-organism-response theory. *International Journal of Management Education*, 22(3), 101027. <https://doi.org/10.1016/j.ijme.2024.101027>
- Vamvaka, V., Stoforos, C., Palaskas, T., & Botsaris, C. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. *Journal of Innovation and Entrepreneurship*, 9(1). <https://doi.org/10.1186/s13731-020-0112-0>
- Yang, Y., Su, X., & Yao, S. (2021). Nexus between green finance, fintech, and high-quality economic development: Empirical evidence from China. *Resources Policy*, 74(July), 102445. <https://doi.org/10.1016/j.resourpol.2021.102445>