

The Intersection of Financial Technology and Higher Education: Opportunities, Challenges, and Implications

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Abstract

This research paper explored the convergence of financial technology (fintech) and higher education, analyzing the opportunities, challenges, and implications of their integration. The paper examines how fintech innovations are reshaping the landscape of higher education, facilitating access, affordability, and efficiency for students at a private university in Bangkok, Thailand. The study population consisted of current students at the university who had experience with fintech services. The purposive sampling technique was applied, resulting in 25 respondents. Qualitative data were collected through in-depth interviews. Through a comprehensive review of the literature and case studies, the paper elucidates the key roles of fintech in areas such as digital payment solutions, personal finance management, investment platforms, and AI-powered adaptive learning. Moreover, the paper discusses the challenges and ethical considerations associated with using fintech in higher education, including privacy concerns, digital divide issues, and the need for regulatory frameworks. Finally, the paper provides insights into future trends and directions in this rapidly evolving field, highlighting the potential transformative impact of fintech on the future of education.

Keywords: *Financial Technology, Higher Education, Financial Literacy, Digital Payment Solutions, Data Security*

1. Introduction

The advent of financial technology has introduced transformative changes across various sectors, financial technology (FinTech) has revolutionized many sectors, and higher education is no exception. The integration of FinTech into education creates new opportunities for financial management, student loans, and payments. However, it also introduces challenges related to data security, financial literacy, and equity (Martindale, 2023).

Financial technology tools like blockchain and smart contracts provide greater transparency and efficiency in handling university finances and administrative tasks. These technologies enable institutions to cut administrative expenses and reduce the risk of fraud (Tapscott & Tapscott, 2016). Fintech advancements such as digital wallets, peer-to-peer lending, and robo-advisors offer students fresh approaches to managing their finances, obtaining scholarships, and planning for student loans (Zhao et al., 2020). Fintech solutions can help close gaps in financial accessibility, especially for underserved and international students. Mobile payment platforms and alternative credit scoring methods enable easier access to

financial services (Arner et al., 2016). The incorporation of fintech brings up concerns regarding data security and privacy. Educational institutions need to address possible risks tied to managing sensitive financial information (Böhme et al., 2015).

Generally, at the international level, fintech is playing an increasingly significant role in higher education, impacting various aspects from funding and administration to student financial management. Here are some key areas where fintech is making a difference which are composed of 1) Student Loans and Financial Aid: Fintech platforms are streamlining the application and management of student loans and financial aid. (Patel, 2022). They offer tools for comparison of loan options, help students understand their borrowing costs, and simplify the repayment process, 2) Tuition Payment Solutions: Fintech companies provide alternative payment solutions, such as flexible installment plans or income-share agreements, which can make tuition more manageable for students and families, 3) Scholarship Management (Williams, 2020). Advanced fintech tools help in the discovery application and management of scholarships. They can match students with relevant opportunities and automate administrative processes for educational institutions, 4) Fintech apps offer budgeting tools and financial literacy resources to help students manage their finances more effectively (McCarthy, 2020). These tools can be integrated into campus services to support students' financial wellness, 5) Fintech solutions assist universities with financial planning, investments, and revenue management. They can optimize processes like endowment management and cash flow forecasting. Blockchain technology is being explored for secure and verifiable credentialing (Martindale, 2023). It can provide a tamper-proof way to issue and verify academic qualifications and achievements. Fintech enables efficient handling of microtransactions, such as campus services, event tickets, or bookstore purchases, often through digital wallets or mobile apps (Williams, 2020).

Investment in education technology startups and fintech investors are increasingly funding edtech startups to foster innovation in educational tools and platforms that enhance learning and administrative efficiency. These advancements help make higher education more accessible, affordable, and efficient for both students and institutions (Zetzsche, Buckley, & Arner, 2020)

In Thailand, financial technology (FinTech) is playing an increasingly significant role in Thailand's higher education sector, bringing transformative opportunities while addressing challenges unique to the country's educational and financial context. As Thailand continues to modernize its education system and embrace digital integration, FinTech is becoming a vital tool for enhancing financial management, expanding access to education funding, and improving the overall student experience. The following is an exploration of FinTech's current role in Thai higher education, highlighting its opportunities, challenges, and future possibilities (Thompson, 2022).

The fintech industry in Thailand's higher education sector has been experiencing significant growth in recent years, driven by digital transformation initiatives, government support, and the increasing adoption of financial technology among students and institutions. Below are some key statistics and insights related to fintech adoption in higher education in Thailand. Fintech adoption trends in Thai higher education, Over 70 percent of university students in Thailand actively use mobile banking applications for everyday transactions including tuition payments and campus purchases. Popular mobile payment platforms include PromptPay, TrueMoney Wallet, and Rabbit LINE Pay (Bank of Thailand, 2025). Cashless

payment methods in the higher education sector increased by 50 percent from 2018 to 2024 (Statista, 2025). Around 65 to 75 percent of students use e-wallets for online purchases related to education, such as e-books and software subscriptions (Kasikorn Research Center, 2025).

There were 52 percent of students reported preferring fintech solutions for their financial transactions due to convenience and accessibility (Thailand Digital Economy Promotion Agency, 2025). Furthermore, fintech plays a key role in terms of digital lending for students. The Student Loan Fund (SLF) digitized its loan processing system which had an 80 percent increase in online applications (Student Loan Fund of Thailand, 2025).

In addition, the integration of FinTech in higher education introduces significant ethical considerations, particularly concerning data privacy and algorithmic bias. These issues can profoundly impact students, educators, and institutions, raising questions about fairness, security, and accountability. The ethical implications of FinTech in higher education concern data privacy. FinTech platforms in higher education collect vast amounts of sensitive data including personal, academic, and financial information. This creates several ethical challenges to the consent and transparency of students in higher education. This meant that students may not fully understand how their data is collected, used, or shared. The inadequate transparency can lead to uninformed consent where students agree to terms without comprehending the implications. Data security was a part of the ethical implications of FinTech. Higher education institutions may lack the cybersecurity infrastructure to protect sensitive financial data from breaches. A data breach could expose students to identity theft or financial fraud. Third-party sharing was another issue to concern for the ethical implications. FinTech companies often share data with third-party vendors or partners for analytics or marketing, potentially compromising student privacy. Also, the use of behavioral data to predict spending or borrowing habits can lead to intrusive profiling, affecting students' autonomy and financial choices. In terms of algorithmic bias, fintech solutions often rely on algorithms for credit scoring, loan approvals, and personalized financial advice. This introduces the risk of algorithmic bias. It can exacerbate inequalities.

The ethical integration of FinTech in higher education demands careful balancing between innovation and the protection of student rights. Addressing data privacy and algorithmic bias is critical to ensuring that FinTech enhances educational equity rather than deepening existing disparities. Institutions, developers, and regulators must collaborate to create transparent, inclusive, and secure financial technologies that empower all students.

According to the researcher's function as a scholar in a higher education institution in Thailand, the research heavily focused its attention on the intersection of financial technology and higher education focusing on the opportunities, challenges, and broader implications. With the qualitative research methodology, research collected the primary data from the stakeholders who were involved in financial technology in higher education, and experienced with its application. The research outcomes would make contributions to the higher education institutions to adopt and apply the research results as a part of their organizational strategies.

2. Literature Review

2.1 Financial Technology

Financial technology, or fintech, represents the integration of technology into offerings by financial services companies to improve their use of financial services. It includes a broad range of applications from digital payments to blockchain technology and robo-advisors. This overview explores key concepts in fintech, current trends, and future directions (Kumar, & Goudar, 2017). Digital payments encompass various technologies that enable users to transfer money electronically. This includes mobile payment systems, payments, and digital wallets (Kumar, & Goudar, 2017).

Blockchain technology is a decentralized ledger that records transactions across multiple computers. Cryptocurrencies like Bitcoin and Ethereum use blockchain to provide secure, transparent, and decentralized financial transactions (Nakamoto, 2008; Tapscott, & Tapscott, 2016). Robo-advisors use algorithms and AI to provide financial planning services with minimal human intervention. They offer portfolio management and financial advice at lower costs compared to traditional advisors (Madsen, 2019).

Insurtech refers to the use of technology to improve and innovate the insurance industry. This includes AI-driven risk assessment, personalized insurance products, and streamlined claim processing (Milne & Parboteeah, 2016). AI and machine learning are transforming fintech by enhancing fraud detection, automating trading, and personalizing financial services. These technologies enable better decision-making and efficiency (Arner, & Barberis, & Buckley, 2016).

Regtech, or regulatory technology, uses technology to help companies comply with regulations efficiently. It includes tools for risk management, compliance reporting, and anti-money laundering (AML) practices (Zetzsche, Buckley & Arner, 2020). Open banking involves the use of application programming interfaces to allow third-party developers to build applications and services around financial institutions. It promotes transparency and competition in the financial services industry (Xie & Zheng, 2020). The combination of blockchain and the Internet of things can enhance transparency and efficiency in various sectors, including supply chain finance and asset management (Xu, Weber & Staples, 2019). Fintech has the potential to improve financial inclusion by providing access to financial services for underserved populations through mobile banking and alternative credit scoring models (Ozili & Arun, 2020).

In sum, Fintech is rapidly evolving, driven by advancements in technology and changing consumer expectations. The key concepts, current trends, and future directions discussed here highlight the transformative potential of fintech in enhancing financial services and promoting economic growth.

2.2 Higher Education

Higher education plays a crucial role in personal and professional development, contributing to the advancement of society through research, innovation, and the cultivation of critical thinking. This overview explores key concepts in higher education, current trends, and emerging challenges, supported by academic references. Academic quality refers to the effectiveness of teaching and learning processes, research output, and overall institutional

performance. Accreditation agencies play a vital role in maintaining and enhancing academic standards. (Harvey & Green, 1993).

Student engagement involves active participation in academic and extracurricular activities, which is linked to improved learning outcomes and personal development (Kuh, 2009). Research is a core component of higher education, driving innovation and knowledge creation. Universities are often hubs for research in various fields, contributing to technological advancements and societal progress. (Etzkowitz & Leydesdorff, 2000).

The rise of online education has expanded access to higher education, allowing students to participate in courses and programs from anywhere in the world. This trend has been accelerated by technological advancements and the COVID-19 pandemic (Allen & Seaman, 2017). Institutions are increasingly focusing on equipping students with skills and experiences that enhance employability. This includes partnerships with industries, internships, and career-oriented curricula. (Hargreaves & Fullan, 2012). There is a growing emphasis on diversity and inclusion within higher education, aiming to create equitable opportunities for students from varied backgrounds and to foster a more inclusive academic environment (Hurtado & Guillermo-Wann, 2018).

The increasing cost of higher education and the associated student debt burden is a significant concern. Many students face financial challenges that impact their access to and completion of higher education (Baum & Payea, 2013). Ensuring quality and accountability in higher education is an ongoing challenge. Institutions must balance institutional autonomy with the need for oversight and transparency in their operations and outcomes (Brennan & Shah, 2000). Higher education institutions must continuously adapt to technological advancements to stay relevant. This includes integrating new teaching methods, digital tools, and online resources into their curricula (Selwyn, 2016).

In sum, Higher education is undergoing significant transformations influenced by technological advancements, changing student needs, and evolving societal demands. Addressing the challenges of cost, quality, and technological integration will be crucial for ensuring that higher education remains accessible, relevant, and impactful.

2.3 Private Universities

Private universities are independent institutions that are funded through tuition, donations, and endowments rather than state funding. Here are some key characteristics and considerations for private universities. Private universities typically rely heavily on tuition fees, private donations, and endowments for funding. This often results in higher tuition costs compared to public universities, but it also allows for more flexibility in setting academic programs and policies. (Kerr, 2022).

Many private universities emphasize smaller class sizes and a low student-to-faculty ratio, which can lead to more personalized attention and closer interactions between students and professors. (Ehrenberg, 2023). Private institutions often have the flexibility to offer specialized programs and innovative courses that might not be available at larger public universities. This can include unique interdisciplinary programs or specialized fields of study (Chamberlain, 2023). Private universities typically have their own admissions criteria and processes, which can be more selective. They often offer their own scholarships and

financial aid packages, which can sometimes be substantial and competitive (Hoxworth, 2023).

The campus culture at private universities can vary widely depending on the institution's mission and values. Many private universities emphasize a strong sense of community, values-based education, or a particular cultural or religious focus (Gordon, 2022). Private universities have more autonomy compared to public institutions. This means they have greater control over their academic programs, policies, and governance without the direct oversight of state governments (Rudolph, 2023). Many private universities have significant endowments that provide financial stability and resources for research, facilities, and scholarships. However, the financial health of private universities can vary widely (Morphew, & Eckel, 2023). Private universities often invest in innovative research and development, which can lead to cutting-edge academic programs and partnerships with industries and other institutions (Kerr, 2023).

3. Research Methodology

The study population consisted of current students at a private university in Bangkok, Thailand who had experience with fintech services. The purposive sampling technique was applied, resulting in 25 respondents. Qualitative data were collected through in-depth interviews. Through a comprehensive review of the literature and case studies.

The primary data were analyzed by the content analysis technique to examine the intersection of financial technology and Higher Education to find out the opportunities, challenges, and implications.

4. Results and Discussion

4.1 Results

According to the research objectives the research results aimed to opportunity, challenge, and implication as follows:

4.1.1 Opportunities

Improved Access to Education Financing

One of the most significant ways FinTech is impacting higher education is by improving access to student loans and other forms of education financing. Traditional financial systems often present barriers for students, particularly those from underserved or low-income backgrounds, when trying to secure loans. FinTech companies have developed platforms that offer competitive rates, simplified applications, and faster processing times for student loans. Moreover, blockchain technology, which offers transparent and secure transaction records, is being explored for issuing and managing student loans. FinTech platforms have made it easier for students to access financing options. Unlike traditional banks, which often pose hurdles for students from lower-income families, FinTech lenders provide loans with competitive rates and straightforward, digital applications. These platforms often offer flexible repayment plans based on income, making loans more manageable for a larger range of students (Martindale, 2023).

Streamlined Payment Systems

FinTech has introduced streamlined payment systems that benefit both students and institutions. Platforms allow students to pay tuition and other fees more easily, especially for international students dealing with currency conversions and cross-border payments. These systems reduce the friction associated with manual payment processes, increasing efficiency for both parties. FinTech has simplified how students pay tuition and fees by providing efficient and transparent payment solutions. Platforms help universities accept international payments, allowing students to pay in their local currency while ensuring timely and secure transactions for institutions (Patel, 2022). This approach not only enhances the student experience but also reduces administrative work for schools. A significant portion of students in higher education in Thailand exceeded over 90 percent. They frequently utilized mobile banking applications for their daily financial activities including tuition fee payments and purchases within campus premises.

There were so many service companies appeared in higher education institutions such as PromptPay and TrueMoney Wallet which were leading mobile payment services. Statistically, the increasing rate of cashless payment adoption was over 60 percent annually. E-wallets have been a popular service in higher education. It is applied and acquired for educational materials and others. These findings were consistent with the statistics of the Bank of Thailand (2025), Statista, (2025), and Kasikorn Research Center (2025).

Increased Financial Literacy

Many FinTech companies focus on improving financial literacy among young adults, including college students. Tools such as mobile banking apps and personal finance platforms help students manage their finances, plan budgets, and save for the future. Apps offer personalized financial advice, helping students make informed decisions about their finances while balancing the demands of academic life.

FinTech tools are also helping students become more financially literate. Budgeting apps offer students personalized guidance in managing their finances, teaching them to save, spend wisely, and plan for future financial needs (Johnson, 2021). This helps prepare students for financial challenges during and after their education.

Scholarship Management Platforms

Scholarship platforms integrated with FinTech simplify the process of applying for and receiving financial aid. Platforms help students discover scholarships that align with their profiles and academic goals. By leveraging artificial intelligence (AI) and big data, these platforms make scholarship distribution more efficient and equitable. FinTech is also improving how scholarships are managed and distributed. Platforms use AI to match students with relevant scholarships, streamlining the process and increasing access to financial aid (Williams, 2020). This makes it easier for students to find and apply for scholarships while also reducing administrative work.

4.1.2 Challenges

Data Security and Privacy Concerns

While FinTech offers new avenues for managing finances, it also raises concerns about data security and privacy. Educational institutions are custodians of vast amounts of sensitive data, including financial information, personal identification, and academic records. FinTech platforms, if not adequately protected, could be vulnerable to data breaches. The increasing

use of blockchain and AI in managing finances requires stringent cybersecurity measures to prevent potential exploitation. With the rise of FinTech in education, concerns about the security of student data have grown. Schools handle a significant amount of sensitive financial and personal information, making them potential targets for cyberattacks. FinTech platforms must prioritize strong security measures to safeguard this data (Smith, 2021). Blockchain technology is one potential solution, though its adoption in education remains limited.

Financial Inequality and Accessibility

Although FinTech promises to democratize financial services, there is a risk of exacerbating financial inequality in higher education. Students from low-income or underserved communities may lack access to digital financial tools, either due to limited internet access or lack of digital literacy. The digital divide remains a significant barrier, and without careful implementation, FinTech could widen the gap rather than bridge it.

While FinTech can provide broader financial access, it can also worsen existing inequalities. Students from disadvantaged backgrounds or rural areas may not have access to the necessary technology or the internet to fully utilize FinTech platforms. This digital divide means some students may be left behind unless efforts are made to provide them with access to these tools (Carter, 2022).

Regulatory and Compliance Issues

The integration of FinTech into higher education brings a host of regulatory challenges. Financial services in education are subject to both federal and state regulations, and FinTech companies must navigate these complex frameworks. Moreover, the lack of a unified regulatory framework for FinTech increases the risk of compliance issues. FinTech in education faces various regulatory hurdles. FinTech companies partnering with educational institutions must ensure compliance with these regulations to avoid penalties (Harris, 2021). Additionally, as FinTech evolves rapidly, regulations often struggle to keep pace, creating uncertainty for schools.

Financial Literacy Gaps

Despite the availability of financial tools, there remains a gap in financial literacy among students. Many students may use FinTech applications but fail to fully understand the underlying principles of budgeting, investing, or debt management. Educational institutions need to partner with FinTech companies to develop robust financial education programs to bridge this gap. Even though FinTech offers useful tools, many students still lack the financial knowledge to use them effectively. Without proper education, students might not understand how to budget, manage debt, or plan for their financial future. This highlights the need for educational institutions to offer comprehensive financial literacy programs to ensure students can fully benefit from FinTech tools (McCarthy, 2020).

4.1.3 Implications

Transformation of Institutional Financial Models

The integration of FinTech into higher education is likely to reshape how institutions handle their finances. From tuition payments to endowment management, FinTech can offer more efficient and transparent systems. The adoption of blockchain for managing student records and financial transactions may further streamline administrative processes. However, this

transformation will require significant investments in technology infrastructure. FinTech has the potential to change how higher education like private universities manage their finances. Blockchain, for example, could be used to handle payments, donations, and student records with greater transparency. However, these innovations require significant investment in technology and staff training (Thompson, 2022). As universities adopt FinTech, they will need to adjust their financial systems accordingly.

Enhanced Student Experience

For students, the use of FinTech can enhance their overall educational experience by simplifying access to financial resources and reducing the stress associated with managing personal finances. The availability of financial tools tailored for students can help them make more informed financial decisions during and after their academic careers. In the long term, improved financial literacy and access to financing options may increase educational attainment, particularly for underrepresented groups. FinTech can simplify financial processes, making it easier to access financial aid and manage payments. This can reduce financial stress, allowing students to focus more on their studies (Davis, 2023). FinTech tools can also offer personalized financial management advice, helping students make better financial decisions in the long run.

Policy and Ethical Considerations

The intersection of FinTech and higher education raises important policy and ethical considerations. For example, how should data collected through FinTech platforms be used, and who should have access to it. As financial transactions become increasingly digital, there is a need for policies that protect student data and ensure equitable access to financial services. Furthermore, institutions must consider the ethical implications of partnering with FinTech companies that may prioritize profits over student welfare. The increasing use of FinTech in education raises important ethical questions about data privacy and ownership. Schools must ensure that student financial data is handled ethically and that FinTech partnerships align with institutional values (Kumar, 2021). Higher education institutions must also consider the long-term effects of outsourcing financial services to third-party providers.

5.0 Discussion and Conclusion

The intersection of FinTech and higher education presents both significant opportunities and challenges. While FinTech can improve access to education financing, streamline payment systems, and increase financial literacy, it also raises concerns about data security, financial inequality, and regulatory compliance. As FinTech continues to evolve, higher education institutions must adapt to these changes by developing policies that ensure the ethical and equitable use of financial technology. Addressing these challenges effectively will be crucial in shaping a future where FinTech benefits all students, regardless of their background. FinTech offers substantial opportunities to improve financial management, expand access to student loans, and enhance the student experience in higher education. However, challenges like data security, ensuring equitable access and regulatory compliance must be addressed. To maximize the benefits of FinTech, educational institutions must invest in robust cybersecurity measures, promote financial literacy, and ensure all students can access FinTech tools. As FinTech continues to evolve, it will likely play an even more significant role in shaping how higher education institutions and students handle their financial needs.

In terms of the comparative study with the research findings, according to the works of Kijkasiwat (2024), who studied the opportunities and challenges for Fintech start-ups in Thailand, and found that the opportunities and challenges of FinTech startup firms using Thailand as a case study. The empirical results of her works show a snapshot of FinTech firms in Thailand, and how they generate both opportunities and challenges for development and growth. Findings indicate that these opportunities and challenges occur as a result of the national technology system and financial regulations, symbiotic relationships, and the inter-relationship through digital literacy, financial literacy, and financial inclusion.

In the comparative study with other countries, the research results were consistent with the study of Traif et al. (2021) who studied the adoption of fintech by students in higher education institutions in Bahrain. They found that students in higher education institutions in Bahrain comprehend whether higher education students, who are future entrepreneurs, would be willing, or hesitate to utilize fintech. Only those students who had prior experience with cashless online payment systems were the selected target population for this study's online survey. Their research findings confirmed that risk negatively affects the intent for the continuance of using fintech, and convenience has the strongest positive effect. This study contributes to theoretical and practical implications for future and budding entrepreneurs graduating from the higher education sector of Bahrain. In addition, this research outcome was consistent with Tran et al. (2024). Who explored the moderation effect of technostress on the association between attitudes towards FinTech entrepreneurship and students' FinTech entrepreneurial intention. A sample of 2691 higher education students in Vietnam. Their findings indicated that all three aspects of FinTech knowledge positively affect attitudes toward FinTech entrepreneurship. Additionally, the attitude toward FinTech entrepreneurship mediates the effect of knowledge about crowdfunding, mobile payment, and blockchain on FinTech entrepreneurial intention.

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