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Digital Payment, Sharia Economics, and International Student Experiences: Evidence from Thai and Chinese Students in Indonesia

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ABSTRACT

This study examines the role of the Indonesian Standard Quick Response Code (QRIS) as an innovative medium for delivering Islamic economic education to international students from Thailand and China studying in Indonesia. Using a qualitative case study design, data were collected through in-depth interviews, participatory observation, and document analysis. The findings reveal that students' primary motivation for adopting QRISs is educational–pragmatic, encompassing transaction convenience, time efficiency, exposure to Islamic economic values embedded within the digital payment interface, and social encouragement to engage in an inclusive Islamic economic ecosystem. Furthermore, the use of QRISs contributes to a gradual transformation in students' consumption behavior, which aligns more closely with sharia-compliant principles such as moderation, transparency, and ethical financial practices. However, the effectiveness of QRISs as educational tools is constrained by several digital literacy challenges. These include a limited understanding of Islamic economic concepts within the Indonesian sociocultural context, inadequate integration of the cross-border banking system, disparities in digital infrastructure, and restricted access to financial services. This study highlights the potential of digital payment systems as pedagogical instruments in Islamic economics while emphasizing the need for integrated digital literacy development and policy support to enhance inclusive financial education for international students.

Keywords: QRIS, international students in Thailand, China, fintech ecosystem

INTRODUCTION

QRIS is a national digital payment architecture developed in Indonesia as a technological tool; moreover, it is the right channel for operationalizing Islamic economics in financial transformation. In Islamic economic ethics, transactions must be based on values such as transparency (al-shafafiyyah), justice (al-‘adl), trust (amanah), and the absence of riba and gharar. As a standardized, integrated digital payment system, the QRIS has the potential to embody these values by ensuring transaction transparency, minimizing fraud, and promoting equitable access to financial services. In this case, the QRIS is expected not only to promote financial inclusion but also to serve as a medium for disseminating Islamic economic values to various user groups, such as international students studying in Indonesia. However, in social reality, there is another paradoxical condition that occurs because traditional traders and local communities are reluctant to transfer cash when the experience of using QRIS technology is limited and still requires improvements in the digital literacy rate and understanding of the aspects of alignment between QRIS and Islamic economic principles (Rachman, Julianti & Arkoyah, 2024). Such provisions reflect that the normative notion of the QRIS as a sharia-compliant financial product has not yet been fully materialized in practice.

Conversely, international students in Indonesia face several complex challenges when using QRISs, including technical barriers such as limited integration with foreign banking systems, as QRISs are still considered new, and language and data privacy issues. More substantively, their old understandings of Islamic economic values are reflected in the digital transactions they made. This finding indicates a significant gap between the theoretical foundations of Islamic economics and its practical application in a QRIS, a digital financial ecosystem. From the viewpoint of maqāṣid al-sharī‘ah, especially in terms of the significance of ḥifẓ al-māl (wealth protection) and maṣlaḥah (public benefit), QRIS success should not be limited to how many people use it but also to the discharge of the function to educate users ethically and financially (Tsabatiyya, Muthohar & Sanie, 2025). Failing to optimally engage both local communities and international students might lead the QRIS to be perceived as a purely transactional instrument rather than as an intermediary that fosters transformative Islamic financial literacy (Arifin et al., 2025). Hence, there is an urgent need for this study to bridge the gap between Islamic economic principles and QRIS implementation in Indonesia, ensuring that digital financial innovation is carried out in line with ethical values and contributes to inclusive and sustainable economic empowerment.

In response to this trend, several researchers have conducted studies on the subject. Many previous reports have examined international students’ use of digital financial technology but have generally relied on numerical questions. First, Trianto, Nik Azman, & Masrizal (2025) investigated QRIS acceptance among local youth in Malaysia and reported that religiosity or adherence to Sharia principles was what truly drove it. Second, Kiong, Samadi, & Shan (2022) analyzed the digital wallet usage behavior of Chinese students outside China, focusing on convenience and efficiency rather than cultural and religious values. Third, in Thailand, Kraiwanit (2023) studied the digital financial literacy of Thai students in ASEAN countries but did not consider special payment systems such as the QRIS or the context of the Sharia economy. Fourth, Agusti (2025) conducted a study in Indonesia on integrating QRISs into Islamic boarding schools for local Islamic student entrepreneurs. Fifth, Syakirunn’iam, Sain & Lawal (2025) conducted a study in Singapore on halal fintech at the global consumer level but did not discuss the daily transaction practices of international students at Muslim-majority universities in Indonesia. None of these studies specifically examined the whys, consumption patterns, or transaction problems of international students from Thailand and China who use QRISs. However, this aspect is crucial: where Islamic financial technology collides with the daily consumption practices of multireligious and nonlocal societies, it creates unique dynamics that could reshape much of our understanding of financial inclusion, digital acculturation, and the relevance of Islamic values as a global question.

Therefore, to bridge this gap, this study highlights Indonesians' rapid response code (QRIS) standards and the digital lifestyle in the Indonesian fintech ecosystem for international students from China and Thailand, with particular reference to three aspects: "(1) their motivation to adopt QRIS; (2) its impact on their financial consumption patterns; and (3) whether more subtle transactional issues generally prevail". The objective of this study is to examine the interaction between Islamic financial technology and international student groups from culturally diverse backgrounds and with varying financial reporting backgrounds. The location of this research is UIN Walisongo Semarang, Central Java Province, Indonesia, as it is one of the Islamic higher education institutions that is ranked among the best universities in Indonesia and continues to try to implement Islamic economic values within the campus ecosystem, including implementing the QRIS as part of halal-based digital transformation (Muliyani et al., 2025). UIN Walisongo also has many international students, especially from Southeast Asia and East Asia. It is an ideal social laboratory for studying cross-cultural interactions in Islamic financial technology, an environment shaped by a global context.

LITERATURE REVIEW

Theoretical Framework of QRIS in the Digital Sharia Economic Ecosystem

QRIS (Quick Response Code Indonesian Standard) is a national QR code standard developed by Bank Indonesia to unify Indonesia's various digital payment systems into a single interoperable platform. Launched in 2019, the QRIS enables fast, secure, and efficient cashless transactions by allowing smartphone users to scan QR codes (Hamzah Muchtar et al., 2024). In the context of Sharia economics, the QRIS has transformative potential because it can be integrated with Sharia principles, such as the prohibition of usury, the avoidance of ambiguity, and the restriction of excessive speculation. This standardization not only facilitates halal transactions (such as the payment of zakat, infaq, alms, and waqf through Islamic financial institutions) but also serves as a medium for practical education in Islamic economics (Hasibuan, Fadhillah & Joko Setyono, 2024). QRISs serve as a bridge between modern financial technology and equitable Islamic economic values while supporting Islamic financial inclusion for all levels of society, including the international community in Indonesia (Febriani, Iswandi, & Tiara, 2021). Its existence reflects concrete efforts to create a digital economy ecosystem that aligns with the sharia maqashid, especially in safeguarding assets (hifz al-mal) through transaction transparency and consumer protection.

The concept of "QRIS as Sharia Economic Education" should be positioned more carefully as an integrative framework that emphasizes overlapping values rather than as a claim that the QRIS is a Sharia-based economic product. In this case, the QRIS is understood as a neutral digital payment system developed within a conventional economic framework but possessing several characteristics that align with the basic principles of Sharia economics. The literature on Sharia economics emphasizes that core values such as justice, transparency, accountability, and contract clarity are the foundation of all economic activity (Chapra, 2000; Antonio, 2001). QRISs, as standardized and digitally documented payment systems, offer transaction transparency, efficiency, and clear record keeping, which functionally support the internalization of these values. Therefore, the relationship between QRIS and Sharia economics lies in certain shared operational principles, not in their ontological status as Sharia instruments (Sahyum, 2025). In an educational context, QRISs can serve as a contextual learning tool for international students in Indonesia to understand how Islamic economic values can be applied to modern transaction practices. This approach aligns with the view that Islamic economics learning is not only normative-theoretical but also practical, enabling students to connect Islamic principles to the realities of today's evolving digital financial system (Sari & Ilvira, 2026) [L1]. Researchers should first establish the similarities between the QRis concept and the Sharia-based economy concept, avoiding the impression that QRis is a Sharia-based economic product. Researchers' arguments should also be supported by valid literature (Sari & Ilvira, 2026).

Sharia values are integrated into the QRIS ecosystem through Bank Indonesia's collaboration with DSN-MUI and Islamic financial service providers in designing transaction mechanisms based on fiqh muamalah principles (Farrell et al., 2024). Sebagai media kontemporer pendidikan ekonoma syariah QRIS bukan hanya sarana pembayaran semata, tetapi juga mendekatkan prinsip-prinsip transaksi halal dalam keseharian para pengguna. It is a game changer because every scan of the QR code associated with the Islamic merchant provides microlearning on the halal status of products, price transparency, and transaction accountability. In addition, exposure to sharia QRIS for international students can foster new awareness of the application of Islamic values in the modern financial system and introduce Indonesia as a living laboratory of the digital sharia economy (Muchtar et al., 2024). This learning paradigm is always compatible with the concept of learning by doing in Islamic economic education, where theoretical studies should be complemented by an experiential approach that infuses technology with sharia values so that the QRIS becomes not only an instrument of technical infrastructure but also a medium for keta kekristalan values, iqtisadiyya Islamiyah, globally.

Cross-Cultural Digital Consumer Behavior: Usage Motivations, Consumption Patterns, and Financial Literacy

International students face a complex interplay among technological elements, the culture of origin, and adaptation processes in the host country (Nam & Kannan, 2020), which influences their cross-national digital consumer behavior. Complicating the QRIS landscape is that students from China and Thailand use it in Indonesia, with differing backgrounds in payment technology—China has dominated its growth through Alipay and WeChat Pay. Moreover, Thailand has emerged as a service-based economy, with PromptPay as a national standard. These differences become initial cognitive frames that shape their perception of the QRIS as either a familiar innovation or an unfamiliar one, requiring relearning of an existing system (Kaewpanya et al., 2025). Why this group adopts a QRIS can be examined through the Technology Acceptance Model (TAM), which focuses on perceived usefulness and ease of use but must be placed in the context of cultural dimensions such as uncertainty avoidance and long-term orientation, which are typically characteristic of East Asian culture (Rosli et al., 2023). Their production and consumption patterns also reflected the hybridization of value—the cheapness characteristic of Chinese culture—in accordance with the halal concept in Indonesia and in directing orientation strategies of consumption that consider both sides—halal, price, and convenience—so that transactions occur simultaneously—the physical properties of acculturation in the digital economy between civilizations.

For international students, especially those from countries with different cultural backgrounds and financial systems, the use of QRISs not only facilitates adaptation in daily economic activities but also provides contextual experience in understanding the implementation of Sharia economics in Indonesia, a country with the largest Muslim population in the world (Rachman, Julianti & Arkoyah, 2024). Thus, QRIS serves as a bridge between theory and practice, enabling students to internalize sharia values through direct interaction within an inclusive digital payment system while strengthening technology-based sharia financial literacy globally.

A hindrance to harnessing the full educational potential of QRISs for global students is that they may face challenges with digital literacy in Islamic finance. Technical expertise in applications is also part of digital literacy. Nevertheless, it is limited and must include an understanding of sharia principles in transactions, such as how a conventional merchant differs from a sharia merchant (halal) and underlying sharia regulations-based meanings contained in halal labels on commodities sold via digital media or fiqh muamalah, which needs to be considered in terms of digital transactions (Purwanto, Hartini & Premananto, 2018). First, the epistemic gap among Thai students is related to the economic value of the halal concept (Tian et al., 2023); however, if Muslim students from China are well versed in sharia, most of them are still confused about identifying sharia merchants because QRIS language limits their visual symbols (Farida & Ardiansyah, 2022). This gap is compounded by the absence of Sharia QRIS educational materials in English, Chinese, or Thai that can facilitate the internalization of economic value within Islam through payment media. A multilingual educational strategy focused on how technology interfaces link to narratives of Sharia value is needed to overcome these challenges.

RESEARCH METHOD

Using qualitative methods and a case study approach, this study examines the processes, motivations, and issues faced by Thai and Chinese international students when QR code payment systems (QRIs) are used on the Indonesian fintech platform. Njie and Asimiran (2014) state that the case study design is one of the qualitative designs we should consider at the local level, as it provides an exploration of phenomena that are unique and complex. Emphasizing seven international student informants in Indonesia (the vast majority of whom were from Thailand and China) revealed both cross-country diversity and similarity. The qualitative method allows researchers to understand the real motivations behind this transactional behavior, as well as how individuals' cultural values, digital skills, and perceptions of local payment systems influence QRIS adoption (Starman, 2013). Similarly, because a single QRIS data point tends to be very narrow in content, this approach allows space for identifying consumption trends and exploring adaptation behaviors and structural or psychological barriers that are not captured solely by quantitative data.

The number of informants in this study was limited to 7. However, the strengthening of data saturation is still methodologically justified because of the simultaneous, in-depth collection and analysis of data that continues until no significant variation is encountered. The determination of data saturation was not based solely on participant numbers but rather on the depth and richness of information patterns that recurred across interviews, observations, and document analysis. None of the other themes emerged after the sixth and seventh interviews; instead, only the confirmation of previously created categories was observed, so the data collection was systematically terminated.

Table 1: Informant Profiles

Initials	Remarks	Country of Origin	Lecture Venue
TH1	Students	Thailand	Universitas Islam Negeri Walisongo Semarang
TH2	Students	Thailand	Universitas Islam Negeri Walisongo Semarang
TH3	Students	Thailand	Universitas Islam Negeri Walisongo Semarang
TH4	Students	Thailand	Universitas Islam Negeri Walisongo Semarang
TH5	Students	Thailand	Universitas Islam Negeri Walisongo Semarang
CN1	Students	China	Universitas Islam Negeri Walisongo Semarang
CN2	Students	China	Universitas Islam Negeri Walisongo Semarang

Three prevailing data collection techniques were used in the research activities, namely, in-depth interviews, participant observation, and document analysis (Barrett & Twycross, 2018). It lasted 140 minutes, with 20 minutes per respondent, and all the interviews were conducted in English. When the time budget was sufficiently large, each participant validated their individual experience with the QRIS, their initial financial motivations for using the scheme, and how these motivations affected consumption. Once data saturation is reached (i.e., later respondents provide no new information), the interview process ends. Observations were conducted on campuses and in shopping malls to examine the real-world practice of QRIS use, i.e., how people scan codes and respond to transaction failures or payment platform choices. Proceedings analyze digital transaction reports, campus payment policies, and QRIS promotional materials. Validity is guaranteed through the technique of source triangulation (interviews, observations, documents) and by member checks, which compare researchers' findings with those of informants to ensure the accuracy of their interpretation (Franklin & Ballan, 2001).

Data were analyzed in three interlocking cycles: data reduction, data display, and conclusion (Miles & Huberman, 2022). Once the interview transcripts and fieldwork observation notes were collected, open coding was performed to generate key themes from the data. The security motivation theme is represented by statements such as "Now It Is Secure," for example, prompted responses emphasizing long-term cooperative sustainability. The same essence of flexibility was captured by the symbol (convenience) and phrases such as “The More Competition, The Better,” to convey global financial institutions’ expectations for responsiveness and adaptability. These themes were consequently mapped to the theoretical constructs of both the Islamic digital economy and cross-cultural consumer behavior, illustrating how financial practices are cocreated through social activity. Qualitative data analysis was carried out using a thematic approach, structured in transparent phases: open coding to identify key units of meaning from interview transcripts; axial coding to group similar codes into more abstract categories; and, finally, selective coding to structure central themes that typify the phenomenon under investigation.

In this study, we introduce methodological novelty through two key dimensions that reinforce its cross-national character. First, the research advances a cross-country perspective within the relatively undertheorized field of Islamic fintech technology by incorporating insights that transcend a single national context. Although the empirical fieldwork was conducted in Semarang, the participants involved in this study originated from Thailand and China. This diversity of informants ensures that the data reflect a multiplicity of sociocultural, economic, and regulatory backgrounds, thereby extending the analytical scope beyond local boundaries. Second, the study combines ethnographic observation with in-depth interviews, enabling a richer, more nuanced understanding of how Islamic fintech is perceived and practiced across different national contexts. The integration of these varied perspectives enables the research to construct a consolidated, robust analytical narrative in which local observations are interpreted through a broader international lens. Consequently, despite being geographically situated in a single city, the study legitimately qualifies as cross-national, as it captures transnational experiences and comparative insights shaped by participants’ diverse countries of origin.

RESULTS

Motivation of Thai and Chinese international students in using QRISs

In terms of research, international students from Thailand and China have three factors that most influence their decision to use a QRIS (Quick Response Code Indonesian Standard) code. First, ease of access and transaction efficiency win out; they like being able to pay instantly, without cards or cash—especially on today’s fast-paced campus. Second, their digital habits should be aligned with what happens in their home country: Chinese students are already well acquainted with WeChat Pay and Alipay, so the QRIS appears straightforward and appropriate for them. Third, social support and local integration even became important themes in this regard, with several interviewees stating that the QRIS had made them feel closer to the local society, including fellow Indonesian students and MSME merchants. Additionally, some students mentioned that the QRIS can help minimize cash-loss risk and currency-switching errors in their daily transactions. This zeal is both pragmatic and aspirational—QRIS is perceived as a gateway to Indonesia’s open and peaceful digital economy, which Islamic economics enthusiasts strongly support.

The only reason international college students still use QRISs is that Invoice did. “Why not?” TH1 comments rationally. No need for Cash, you scan a quick and spot with your phone in hand, creating a horse (metaphorically speaking) right on the spot. Well, that slots perfectly into my jammed-in school schedule!” CN1 smoged the sameMel line: “At the campus dining hall, lines move right along because everyone hits PENGE on QRIS. You never have to scrape together Cash or queue for coins.” TH3 also added, “I can pay at the end of a meal if I’m eating. In this way, I don’t have to sit down and let it all wash over me.” CN2 also mentioned the time-saving factor: “QRIS transactions can be completed in just approximately 10 seconds. Ditto here; thus, it is the best option for speed. TH5 concluded, “Cash is a pain in the ass—it can go missing, wet, etc. QRIS makes sure everything on your mobile is worry free.” Given the accelerated burst and the highest level of convenience for academics, these are definitely how the QRIS serves real students’ needs. This kind of digital payment gateway is, for them, not just a logistical headache—it actually raises the very level of what they do, economic day after day.

That a culture of digits overcomes resistance to the QRIS is shown by the fact that 111 of 25 countries felt that the QRIS was very unproblematic. (CD9 said, “QRIS is quite similar to Alipay: Both scan the code and then brush it; it is done instantly. I didn’t have to learn from scratch here.” and CN2adds: “Since we were in high school all along, we have been Lingbiwenrong (®=. Lucy) with digital payments. Therefore, when I saw the QRIS, it felt just like home.” This similarity was also felt by TH2, who is from Thailand: “In Bangkok, too many people use PromptPay. That stands for very lively e-commerce. So the QR system is very familiar to me as well. “Well then, TH4 chimed in,” I customarily use TrueMoney Wallet.

QRISs are also regarded as platforms of social interaction with society. They claimed, “The fried rice vendor I visited was happy that I used QRIS,” and “At first, my Indonesian friends persuaded me to install a DANA app. He then said to me, 'If you want to join in this, take this app!' “TH5 expressed a sense of inclusion and belonging. “I feel welcome when I can pay like a local. I do not look like a tourist at all.” CN2 also said, “When I dine with campus friends, I pay for our meals using the QRIS so there's no need to handle cash.”.

When the optimal way to implement a QRIS is considered, the main question is financing stability. When I was at the marketplace, TH1 says, people would snatch my money. Now I do everything on my phone—it’s safer. CN2 continued: “I do not have to think if the change is wrong or not in something else, rupiah. QRIS automatically calculates the amount.” Emphasis on TH4: “If I pay via QRIS, then transaction history exists. I can check immediately if there is something wrong.” Sticking to the control feature, CN1 also said, “In the app, I can preset a daily limit. So I don’t spend money and am not afraid of it.’ “If it rains, money will become wet, and paper is easily forgotten,” TH3 said, “but I always carry my handphone with me, and that’s a more reliable option for QRIS.” Therefore, in short, QRIS not only facilitates transactions but also gives students from out of town some control and economic protection. This security feature subsequently reinforces trust in Indonesia’s digital financial ecosystem. QRIS is also seen as symbolic for some students and as the gateway to the Islamic economic world. “I can use QRIS at halal food stalls”, TH2 said, “and that’s important to me as a Muslim.” CN1 admitted its own irony of being non-Muslim, yet recognizing the appeal of the values right: “Many friends talk over here about Sharia economics. QRIS is how I learn about the system.” TH5 stated, “Down in southern Thailand, we have also started promoting sharia economics. QRIS here gives a real example of how technology supports it.” TH3 said, “I feel I’m closer to Islamic values without usury or speculation when I do a transaction—QRIS helps me attain that."

Implications of the use of QRIS for financial consumption patterns and levels

The findings of this study show that the use of QRISs by international students from Thailand and China has three main implications for their financial consumption patterns and levels. First, there has been an increase in the frequency of microtransactions, especially for food purchases, online transportation, and digital services, because payment processing is faster and psychological barriers are lower for these services than for cash. Second, the shift toward Sharia value-based consumption was observed to be significant; QRIS makes it easy to identify merchants that offer halal products or services aligned with Islamic economic principles, thereby encouraging consumption aligned with religious beliefs or ethical preferences. Third, financial management becomes more structured but prone to impulsivity. Moreover, transaction history features help track expenses, and the ease of “one scan” actually triggers spontaneous purchases, especially among students who are not used to monthly budgets. The findings also show that QRISs encourage active participation in the local economy—many students are now shopping at traditional stalls or night markets they previously avoided because of limited payment methods. Overall, QRISs have not only changed the way they transact but have also reshaped their relationships with consumption, financial identity, and social integration in Indonesia’s academic environment.

In particular, by covering daily essentials such as food, online transportation, and digital services, QRISs can increase the volume of microtransactions conducted by international students. “Scan and pay” makes it easy, as this removes the psychological barriers we have traditionally felt around using cash—guilt or even doubt when spending large amounts of physical money. TH2’s statement illustrates this: “I used to calculate whether or not I wanted fried foods; now it is enough just to scan QRIS so it feels like it is free." "Every day I book Gojek and pay with QRIS, it's fast no need to look for change," a user [6] wrote. TH4 also commented, "If I eat snacks in the campus canteen, now I eat more because it is not troublesome to take my wallet when I am going out." This was even confirmed by CN2, who said, "I buy credit and weekly internet quota through QRIS, so it is more frequent since the process is instant. Finally, TH1 writes, "QRIS keeps me safe—not afraid of pickpockets, so I am more liberated to shop small." These results demonstrate that QRIS's underlying technical efficiency tends to increase how many transactions occur per day despite a smaller dollar amount. QRISs also promote international student spending behavior to follow Islamic economic principles through the ease of identification of halal merchants. For those who want to maintain the match between belief and consumption behavior, the halal label or logo that appears on QRIS merchants is an ethical guide. TH3 said getting a stall with both the QRIS sticker and the MUI logo is what you want—meaning the food there would be viewed as halal. CN1 also confirmed, "In the payment app, there is a 'sharia merchant' filter, so I trust the shop [there] more." TH5 said, "I'm Muslim, from southern Thailand and the point I have to make sure that my money is not being used for haram businesses.

If the QRIS makes tracking spending easy because of digital transaction history, it creates a paradox: On the one hand, it aids budget planning; on the other hand, it stimulates impulse buying. TH4 confesses, "I check my history every week, but I still buy coffee every day—it became a habit." I know I've spent a lot of money on food," CN2 said, "but once a scan is done, it doesn't feel like it's going to have an immediate impact. TH2 adds, "I used to take notes by hand, now I'm lazy—but it's wasteful nonetheless because the model is paying for such easy things. However, TH1 provides a different angle: "I used the transaction history in my e-wallet to judge how the end of the month was. Therefore, I started limiting snacks." CN1 said, "I set the daily limit notification, but sometimes it still breaks because the QRIS is too fast." The findings indicate that while students can still engage in financial literacy with digital tools, budget assistance may introduce impulsivity, especially for students who are not accustomed to managing their finances independently.

QRISs also serve as social bridges, enabling international students to actively participate in the local economy, including traditional vendor stalls and night markets that were previously difficult to reach because of limited payment options. TH5, one of the respondents, said, "I used to be afraid to shop at the night market because I didn't bring suitable money; now everybody accepts the QRIS. CN2 wrote, "I usually go to angkringan with friends—everyone can pay using a cellphone. TH3 said, "Mini traders around my cost are already using QRIS, so I more frequently shop there versus at a convenience store." CN1 and I say, "Since QRIS, I feel more 'local' — the shopping culture of Indonesians is affecting my experience." TH1 shared, "I have made friends with many sellers, transactions are also very smooth, there is no more misunderstanding about where to change." That data show that QRIS changes not only consumption patterns but also strengthens social ties between international students and local communities through financial inclusion.

Holistically, the QRIS has reshaped international students' relationships with consumption, financial identity, and the academic environment in Indonesia. They are no only foreign consumers but also adaptive and participatory actors in the digital economy. TH2 stated, "I feel more independent now—no need to ask a friend to help me with the payments." CN1 added, "QRIS makes me feel like a local student, not a guest." TH4 concluded, "QRIS is not just a means of payment, but a way for me to adapt and learn to live here." These findings confirm that the QRIS serves as a medium of identity transformation—connecting the technological, religious, and social dimensions in the consumption experience of international students.

Transactional challenges faced in using QRISs

The findings of this study show that although QRISs offer many advantages, international students from Thailand and China face three main transactional challenges. First, the limitations of integration with the origin banking system make top-up digital wallet balances difficult; most offshore banks do not support direct transfers to Indonesian e-wallets, so students have to rely on local accounts or risky and high-cost third-party services. Second, the lack of Indonesian context-specific digital financial literacy leads to technical confusion—for example, the distinction between static and dynamic QRISs—or ignorance of daily transaction limits, which often results in default or duplicate payments. Third, connectivity and digital infrastructure issues outside the city make access difficult; weak internet networks in suburban campus areas or in villages where traders are not yet registered with the QRIS make this system unreliable. Some respondents also cited data privacy issues and unclear processes for filing complaints over transaction errors. These challenges demonstrate that even though the QRIS is a forward-thinking innovation, its implementation still needs to be refined to better serve international users by streamlining cross-border integration, improving multilingual education, and expanding inclusive infrastructure across Indonesia.

Because the original banking system does not align with many banks in Indonesia, topping up digital wallet balances for international students is challenging. TH1 said, “Banks in Thailand can’t transfer directly to GoPay or OVO—I have to ask a local friend for help with the transfer, and that worries me about security.” “We don’t have a local Indonesian bank account, and in China, we use either Alipay or WeChat Pay, but we don’t have a way to transfer money to an e-wallet in Indonesia,” CN1 added. TH3 said, “I need to open up a BRI account just for topping up. The process is extended, and they request various documents. CN2 adds, “There are third-party services like Wise, but the fees are steep and sometimes transactions go through without explanation.” “Our bank is not integrated into the Indonesian payment system; thus, QRIS is futile for us,” TH5 highlighted. These findings highlight the lack of cross-border interoperability, which forces students to rely on costly and risky unofficial workarounds, thereby limiting the optimal extent of QRIS adoption.

International students frequently misinterpret the QRIS’s technical pay system. TH2 admitted, “Initially, I thought they all had the same QR code up—the stall’s static QR scan becomes clear only after paying twice.” “I do not know, you cannot exceed Rp2 million a day. When I buy a laptop, the transaction is rejected because I am angry,” said CN1. TH4 said, “The menus are often on the app, but there’s no guide in English or Chinese, and as such, I often pick the wrong menu.” “I once scanned a QR, but the money didn’t go to the seller—it was actually one personal QR, not a merchant,” CN2 added. TH3 said, “When I signed up for an e-wallet in the beginning, there was no training; I learned by trial and error, and it put so much pressure on me.” The data indicate that a lack of education and socialization regarding these QRIS technical features leads to confusion in operations, thereby affecting a negative user experience. Access to QRISs relies heavily on internet availability and merchant registration, which have not yet reached many nonurban areas. TH1 added, “If around the main campus, Semarang is smooth, but when I go to a village near Ungaran, almost all stalls do not have QRIS. “The 4G network is weak in the mountainous areas of Central Java—the application often fails to pay,” CN2 said. TH5, who worked at a pesantren in Pati, explained, “Traders hadn’t signed up for QRIS, so there were only cash transactions, meaning everything was done all-cash.” CN1 continued, saying, “QRIS is helpful in shopping centers but entirely useless in traditional markets or stalls on the side of the road.” “If I want to go out of town, always cash—QRIS is not reliable outside big cities,” TH3 concluded. Differences in digital infrastructure mean that the QRIS is less accessible to mobile users, such as international students.

Concerns about privacy and security often dilute the consistent use of QRISs. CN2 said, “I’m not sure that my data are safe—are my phone numbers and transaction history stored forever? TH4 said, “My money was lost after a dummy QR scan once, but I didn’t know where to report.” CN1 said, “There are no international hotline numbers and customer service in Chinese.” TH2 grumbled, “The app requests access to contacts and locations — I’m afraid of being compromised.” TH1: “I prefer paying in cash since there is no need to give up too much personal information. These findings indicate that the lack of transparency in privacy policies and inclusive consumer protection mechanisms prevents international students from fully utilizing QRISs.

When things go wrong, international students find it hard to obtain help because the complaint system is unresponsive and nonmultilingual. “My money has been double deducted from my cs only replied that it is being processed for a week. CN1 said, “I emailed BI but did not receive a reply—they told me it was with an e-wallet provider.” TH5 said, “There is no complaint form in English on the DANA or ShopeePay application. CN2 continued, “I tried live chat, but the [CS] didn’t understand any of the technical terms I used. TH2 argued, “Without a clear and fast complaint system, I feel unprotected as a foreign user.” These data substantiate that weak post-transaction services diminish trust and sustainability in QRIS use among international students.

DISCUSSION AND CONCLUSIONS

Discussion

This study analyses the behavior of using QRISs and a digital lifestyle among international students from Thailand and China in the Indonesian fintech ecosystem, with a focus on the motivation for use, implications for consumption patterns, and transactional challenges. Ease of access to a local payment system and efficient transactions are among the primary motivations for their choice in the use of QRISs, which is one of the findings; on the other hand, conformity with digital habits in the home country (such as WeChat Pay and Alipay) and social encouragement for societal integration—QRIS is described as an opportunity to participate in Indonesia’s Islam-friendly inclusive economy. In terms of consumption, the QRIS allows you to make more microtransactions and maintain lower transaction costs and money management but can also lead to impulsivity with “sat Niat Scan” (just a scannable mentality). Moreover, QRISs are expanding their role in the local economy, including in MSMEs and traditional markets. However, students still encounter significant hurdles: limited integration with overseas banking systems impedes balance top-ups, the lack of digital financial literacy in the Indonesian context creates technical confusion, and uneven digital infrastructure—especially outside urban areas—hinders access. Data privacy issues and murky complaint processes have added to these hurdles. In conclusion, QRISs not only significantly improve the new financial form and social integration of international students but also require strengthened implementation through cross-border integration, multilingual education, and inclusive infrastructure to truly meet the demands of users worldwide.

In view of technology adoption theory, especially the unified theory of acceptance and use of technology (UTAUT) model developed by Magsamen Conrad et al. (2020), UTAUT states that the acceptance and use of technology is influenced by four main constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. In the context of this study, the motivation of international students to use QRISs is aligned with the first three indicators: they adopt QRISs because they consider them efficient, they support local economic participation, and they facilitate social integration, especially because digital habits in home countries such as WeChat Pay have shaped similar expectations (Williams, Rana, & Dwivedi, 2015). However, the challenges that arise—such as the limitations of cross-border banking integration, low financial literacy, and uneven digital infrastructure—reflect the weak facilitating conditions, i.e., the structural and institutional conditions that should support the use of technology (Dulle & Minishi Majanja, 2011). The lack of multilingual technical support, limited top-up options, and unresponsive customer service were major obstacles, despite the students’ strong initial motivation. UTAUT explains why QRIS adoption is occurring on the demand side but not optimally on the supply side, creating a gap between the potential for financial inclusion and the reality of implementation on the ground (Marques, Villate, & Carvalho, 2011).

This study shows both similarities and significant differences from some previous studies. First, Kow, Gui & Cheng (2017) reported that Chinese students in Malaysia tend to retain Alipay use because of the attachment of the domestic digital ecosystem; these findings are consistent with those of this study, which noted an initial preference for the platform of origin but differed in adaptive response—students in Indonesia turned to the QRIS as a local integration strategy rather than just a transactional need. Second, Maharani (2023) identifies Thai students’ resistance to foreign payment systems because of security concerns; however, this study highlights their openness to the QRIS as long as privacy education and transparency—marking a shift in attitudes within Indonesia's sharia ecosystem—Third, Mujiatun, Effendi, & Badawi (2022). In the study on Islamic fintech in Indonesia, the emphasis was on literacy as the dominant factor in adoption, but the focus was on local communities. The study expands on these findings by showing that cross-cultural digital financial literacy is a major barrier for international students, thereby introducing an intercultural dimension to literacy. Fourth, Chinnasamy, Shrivastava, & Siju (2021) highlight efficiency as the main driver of e-wallet use in Oman but do not address lifestyle implications; instead, this study reveals how QRIS shapes microconsumption patterns and sharia value orientation, novelty in relation to payment technology and the transformation of global-Muslim consumer identity. Fifth, Prawitasari et al. (2024) and Ren & Wang (2022) examined QRISs from an infrastructure perspective but did not involve international users; this study fills that gap by highlighting the challenges of cross-border system integration and the need for multinational inclusive design. The novelty of this research lies in the integration of three dimensions: (1) the perspective of non-Muslim international users in the Islamic fintech ecosystem, (2) the analysis of digital lifestyles as mediators between technology and consumption behavior, and (3) transnational needs-based policy recommendations, which have not been found in the literature.

Conclusion

The findings of this study reveal something counterintuitive: although the QRIS is designed as an inclusive Islamic digital payment tool, international students from Thailand and China—who come from the world's most advanced fintech ecosystems (such as Alipay and WeChat Pay)—are the most enthusiastic and vulnerable users in the ecosystem. They not only adopt QRIS for efficiency but also make it a symbol of social identity to "be a part" of Indonesian society and are even willing to adjust their consumption patterns to align with sharia values—which is unusual given the secular or non-Muslim backgrounds of most respondents. Even more surprisingly, the ease of "one scan" that is supposed to make it easier actually triggers impulsive consumption behavior that is contrary to the principles of Islamic financial management that they admire. On the other hand, despite actively transacting in coffee shops and traditional markets, they are trapped in a paradox of dependency: a system that is supposed to be inclusive excludes them because of the inability of the QRIS to be integrated with overseas bank accounts, the lack of multilingual guidance, and the uneven digital infrastructure outside of large cities. Thus, the QRIS becomes a cultural and financial bridge but at the same time creates an invisible technical wall—revealing deep irony in Indonesia's efforts to develop a truly global Islamic digital economy.

In addition, the current study is a substantial endeavour in determining the dynamics of Islamic financial technology—more specifically QRIS—that involves international students by incorporating the local Thai–Chinese context when they are integrating into society in Indonesia and how digital motivation, cultural adaptation, and sharia values shape their consumption patterns for the sake of economic integration. This paper contributes to the digital financial inclusion literature from a cross-cultural perspective and offers policy recommendations for developing a globally responsive halal fintech ecosystem. However, the study has considerable limitations, as it is limited to a single location; thus, the results do not reflect the diversity of international students' experiences with technology access in Indonesia, given differences in digital infrastructure, urbanization levels, or the availability of Islamic financial services. These geographical restrictions might also diminish the external validity and generalizability of the results. To further overcome these weaknesses, future researchers are encouraged to conduct cross-location comparative studies (e.g., between large cities such as Jakarta and Surabaya or between small cities and Islamic boarding schools) or even cross-national comparisons to capture broader contextual variations. On the other hand, a mixed-methods approach featuring a more heterogeneous sample and multi-institutional collaborations will increase the depth and breadth of the findings, leading to a more comprehensive understanding of the role of the QRIS in improving the economic integration of international students within Indonesia's Sharia digital ecosystem.

IMPLICATIONS

In light of this study's findings, the policies that must be implemented immediately must be inclusive, responsive, and grounded in the global digital ecosystem. First, policy authorities—especially Bank Indonesia and the Ministry of Communication and Information Technology—needs to accelerate the integration of the QRIS with cross-border payment systems such as Alipay and WeChat Pay through bilateral cooperation or regional interoperability platforms (e.g., through the ASEAN QR Code). Second, digital financial literacy in the Indonesian context must be provided in multilingual formats, especially Chinese and Thai, through educational modules that are easily accessible on campuses, digital wallet applications, and the official websites of Islamic financial institutions (Nada et al., 2025; Firang & Mensah, 2022). Third, QRIS infrastructure needs to be expanded evenly across nonurban areas where many international students live, including by training MSME actors to support digital transactions optimally. Fourth, transparent and responsive data protection mechanisms and complaint channels should be developed specifically for foreign users, with the support of foreign-language customer service (Raharjo & Rokhani, 2025). Finally, local governments and universities can collaborate to create an "international friendly QRIS ecosystem" that not only facilitates transactions but also strengthens social integration and understanding of the value of the sharia economy. These policies ensure that the QRIS is not only a transaction tool but also a bridge to sustainable digital economy inclusion for the global community in Indonesia.

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