

Digital Payment Behaviour among Generation Z: A Conceptual Study of QR Payment Usage among Malaysian University Students

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ABSTRACT

QR payment is now one of the most visible forms of digital payment in Malaysia, especially with the expansion of DuitNow QR and the growing adoption of cashless transactions in retail, food services, campus settings, and peer-to-peer payment. Nevertheless, the mere availability of QR payment infrastructure at a rapid pace does not automatically explain the behavioural pattern of Generation Z users. Malaysian university students are generally familiar with smartphones, mobile banking and e-wallet applications but their QR payment behaviour can still be influenced by perceived usefulness, ease of use, peer influence, facilitating conditions, habit, perceived security, trust, promotional value and digital payment literacy. Drawing on the latest technology adoption literature, UTAUT-based perspectives and digital payment studies, this conceptual paper develops an integrated framework to explain QR payment usage among Malaysian university students. The proposed framework conceptualizes behavioural intention as the primary mechanism through which psychological, social, technological and security-related factors are associated with QR payment usage behaviour. Trust is also proposed as a key relational driver that reinforces users' willingness to rely on QR payment systems, and digital payment literacy is suggested as an important individual capability that can support a safer and a more sustainable usage. The paper conceptually extends the discussion of digital payment adoption from the general e-wallet acceptance to the QR-specific usage behaviour of Gen Z students in Malaysia. It also has practical implications for universities, payment providers, banks, regulators and merchants who want to promote responsible and sustained use of QR payments among young consumers.

Keywords: QR payment; DuitNow QR; digital payment behaviour; Generation Z; Malaysian university students; UTAUT2; trust; perceived security

INTRODUCTION

The use of digital payments is a key part of Malaysia's ambition to become a more cashless and digitally connected economy. With several forms of digital payment, QR payment is a particularly important form of digital payment due to providing a relatively simple payment interface to consumers and merchant. QR code is just a mobile banking or e-wallet app that users need to scan, verify the amount and the transaction. For merchants – especially small vendors and food outlets on campus – the QR payment also means less reliance on physical cash, and the ability to participate in digital transactions without expensive point-of-sale terminals. This makes QR payment relevant not only to the development of financial technology, but also consumer behavior, service experience and financial inclusion.

DuitNow QR has been a key driver in the rapid development of Malaysia's QR payment ecosystem, enabling interoperable QR transactions between participating banks and e-wallet providers. Bank Negara Malaysia (BNM, 2026) reported a continuing expansion of DuitNow QR acceptance, whereas Payments Network Malaysia (PayNet, 2026) stressed the growing magnitude of digital payment transactions and QR touchpoints

nationwide. This infrastructure growth provides an important research opportunity. The growing availability of QR payment makes it necessary for researchers to understand the frequent, selective or cautious use of this form of payment by young consumers. Availability alone does not mean regular usage as payment behaviour is influenced by usefulness, ease of use, habit, trust, security perception, peer influence, promotional value and payment literacy.

Generation Z university students are an important segment for studying QR payment behavior. They might be familiar with mobile phones, mobile apps and cashless services but they are also at a life stage of limited income, high peer interaction, regular small value purchases and forming financial habits. Malaysian university student can use QR payment to pay for meals, printing, stationery, transport, online shopping, shared bills and events. These payment situations are often routine, fast and social. Therefore, Generation Z students provide a useful context to examine whether QR payment will become a normal daily payment behaviour instead of just a technology that students know how to use.

This paper is a concept paper on the usage of QR payment among Malaysian university students. Different from many studies taking behavioral intention as the primary focus, this paper considers QR payment usage behavior as a direct dependent variable. The paper calls for future empirical work to move beyond asking if students intend to use QR payment and to investigate the factors that directly drive actual usage patterns. The emphasis on direct effects yields a simpler conceptual model that is suitable for testing through surveys and is easier to translate into practical recommendations for universities, financial institutions and payment service providers.

LITERATURE REVIEW

Digital Payment and QR Payment Behaviour

The term digital payment refers to the transfer of monetary value through electronic channels without the direct exchange of physical cash (Nayak et al., 2025). Mobile payment, e-wallet payment, and QR payment are often discussed in the same breath as they are accessed through smartphones and supported by digital financial platforms (Khando et al., 2022). QR payment, though, has its own features. It includes a visual code, a scanning process, a confirmation screen and often a QR interface presented by a merchant or consumer. The features make QR payment a useful object for research on consumer behavior.

Recent studies have shown that QR payment and mobile payment behaviour is affected by utilitarian, hedonic, security and social factors (Chang et al., 2021). Alam et al. (2024) found that perceived utility and hedonic are important factors that affect Generation Y and Z's intention to use QR code mobile payment. Türker et al. (2022) extended the Technology Acceptance Model to understand the acceptance of QR code mobile payment. Ly (2025) identified trust, service quality and social influence as user-centric factors that drive QR payment adoption in emerging economies. The results of these studies support the argument that usefulness alone cannot explain QR payment behaviour.

Studies on e-wallet and mobile payment adoption in Malaysia were also done on young consumers, working adults and students (Chaw et al., 2024; Che Nawi et al., 2022; Gan et al., 2025; Kaur & Bahar, 2022; Yang et al., 2021). Although these studies offer useful insights, a more focused model for the usage of QR payment by university students is needed because the students interact with QR payment in campus-based and peer-based spending situations.

Generation Z and Malaysian University Students

The generation born into the world of smartphones, platform-based services, mobile applications and digital communication is an important consumer group. In terms of payment behaviour, Gen Z users have often been considered to be more receptive to mobile payment than older consumers. But openness does not automatically lead to safe, consistent and financially responsible use. While the convenience and social acceptance of digital

payments may drive young consumers to adopt it, actual use may depend on peer norms, promotions, trust in providers, merchant availability and personal payment discipline.

University students are a particularly useful sub-group of Gen Z, as their payment behaviour is influenced by campus life, limited income, peer interaction and frequent small value transactions. Students can pay with QR for meals, club fees, event tickets, printing documents or splitting the bill with friends. In such cases, QR payment has become a part of daily routines rather than a special financial activity. Usage behaviour is thus a more meaningful dependent variable than general awareness or simple intention.

It is the student based studies in Malaysia that provide a suitable basis. (Senali et al., 2022) observed e-wallet adoption among undergraduate students in Klang Valley by Kaur and Bahar (2022), and Osman and Yi (2021) studied e-wallet adoption intention among Universiti Putra Malaysia students (Yang et al., 2021). Specifically, Nik Hussin and Abdul Aziz (2026a, 2026b) investigated QR mobile payment adoption among university students (Cao et al., 2021). Building on these studies, this conceptual paper proposes a direct-effects model with QR payment usage behaviour as the main outcome.

Theoretical Foundation: Recent UTAUT-Based Digital Payment Perspectives

QR payment is a technology-mediated consumer behaviour and UTAUT2 is used as the main theoretical foundation in this paper. UTAUT2 explains how consumer technology acceptance and usage are influenced by technology beliefs and social-contextual factors. Recent reviews and empirical studies indicate that UTAUT-based models remain widely applied in digital payment, higher education technology and mobile service research (Blut et al., 2022; Herzallah et al., 2025; Xue et al., 2024; Meiranto et al., 2024).

The proposed framework is adapted from the UTAUT2 by adding performance expectancy, effort expectancy, social influence, facilitating conditions and habit. These construct explain students' perceptions of QR payment as useful, easy, socially supported, technically feasible and routine. However, the model is supplemented with perceived security, trust, promotional value and digital payment literacy because payment behaviour also involves financial risk, provider reliability, incentives and user capability.

The framework is deliberately structured as a direct effects model. All the independent variables are hypothesized to have direct relationships with QR payment usage behaviour. This approach is appropriate for a concept paper that seeks to generate a clear and testable framework without too much structural complexity. It also allows for future researchers to use multiple regression or path modelling to determine which factors have the strongest direct effect on student QR payment usage.

Performance Expectancy

Performance expectancy is the degree to which QR payment is useful in accomplishing the payment more efficiently and effectively (Yamin & Abdalatif, 2024). In a student environment, performance expectancy may be faster payment at food outlets on campus, easier bill sharing, less need to carry cash and more convenient transaction tracking. Lisana (2022) found that students who found QR payment useful in daily life are more likely to use it repeatedly.

However, recent QR and mobile payment studies have continued to show the importance of perceptions of usefulness and performance (Sehat et al., 2024; Yamin & Abdalatif, 2024).

Effort Expectancy

Effort expectancy as perceived ease of learning and using QR payment. QR payment is simple, but user experience may be different between banking apps, e-wallet apps, merchant QR display and authentication steps. Students are more likely to use QR payment in their daily life if they perceive it to be fast, transparent and easy to complete (Lisana, 2022).

Ease of use is still important to digitally savvy users. Gen Z students may still avoid QR payment even though they are comfortable with smartphones if the apps take too long to load, the payment confirmation is not clear, the login is difficult, or the transactions do not go through. Recent studies on mobile payment and e-wallet indicate that the effort-based perception still plays a role in the adoption and usage of mobile payment and e-wallet by young consumers (Belmonte et al., 2024; Kuppusamy & Xiang, 2024; Nik Hussin & Abdul Aziz, 2026a).

Social Influence

Social influence is the extent to which students perceive that salient referents around them encourage or expect them to use QR payment. Peer influence can be strong in a university context (Luna et al., 2023; Wei et al., 2021). If classmates and friends often use QR payment to split bills, pay for food or transfer money, students may see QR payment as the normal and expected payment method.

However, recent digital payment studies still find social influence as a relevant factor, although its strength may vary depending on the context (Rahadi et al., 2021). If merchants prefer QR payment, if friends encourage it or if university events utilize cashless payment channels, QR payment can be socially reinforced among Gen Z students.

Facilitating Conditions

The facilitating conditions are the perceived availability of resources and support to use QR payment. These conditions for students are: access to a smartphone, stable internet, mobile banking or e-wallet accounts, sufficient balance, merchant QR acceptance and clear payment instructions. QR payment is popular among students, but the actual usage can be low if the support conditions are poor.

Studies on digital payment and mobile technology have indicated that facilitating conditions may have a direct influence on usage through reducing behavioural barriers by means of infrastructure and support (Faqih & Jaradat, 2021; Herzallah et al., 2025; Ramayanti et al., 2024). In campus environments facilitating conditions are very apparent. With most campus merchants displaying valid QR codes, receipts being verified quickly, and students having access to reliable mobile data or Wi-Fi, it's easier to make QR payment.

Habit

The degree of automaticity or routine nature of QR payment is referred to as habit. Once students repeatedly use QR payment for meals, printing, transport or shopping, the behaviour may become less reliant on active decision-making. Thus habit is more important to explain continued usage than only initial adoption.

The recent literature on mobile payments reveals that habit can have direct effects on usage and continuance, because of the automaticity created by repeated behaviour (Chaw et al., 2024; Herzallah et al., 2025; Zhao & Bacao, 2021). In the context of QR payment, habit can be created through repeated exposure of QR payment facilities to students and the success of transactions. For example, a student who uses QR payment every day at the cafeteria may continue to use it even when cash is available.

Perceived Security

Perceived security is the belief that QR payment protects users' money, account information, transaction details, and personal data. In payment systems, security is not a secondary concern, as users authorize real financial transactions. Students may not prefer QR payment due to fear of fake QR codes, misuse of their account, unauthorised deduction, failure to reverse payment and leakage of privacy.

In recent studies, perceived security, perceived risk, and information security have repeatedly been identified as important for mobile payment and e-wallet usage (Lai & Liew, 2021; Prawira et al., 2024; Widyanto et al., 2022). Nik Hussin and Abdul Aziz (2026a) also emphasized perceived security in the adoption of QR mobile payments

among university students. Perceived security has a direct effect on Gen Z students' confidence in using QR payment for daily transactions (Lisana, 2022).

Trust

Trust is the user's willingness to rely on QR payment systems, participant banks, e-wallet providers, and merchants. Trust reduces uncertainty in digital payments, as users cannot see the money being transferred physically, as they do in cash exchange (Greiffenhagen et al., 2022). Students need to be confident that the platform will process payments correctly, keep their information safe and provide reliable records.

Recent research shows that trust is central to digital payment behavior. Trust is a key driver of QR payment adoption in emerging economies (Ly, 2025), and can influence e-wallet use behaviour (Tian et al., 2023). Kee et al. (2024) associated service satisfaction and trust of young financial technology users in Malaysia. Hence, trust is proposed as a direct predictor of QR payment usage behaviour.

Promotional Value

Promotional value is the students' perception of QR payment as giving them financial or experiential benefits such as cashback, discounts, loyalty points, vouchers or fee savings. Students from Gen Z may be especially susceptible to promotions, as many have limited budgets and actively compare payment benefits (Lisana, 2022).

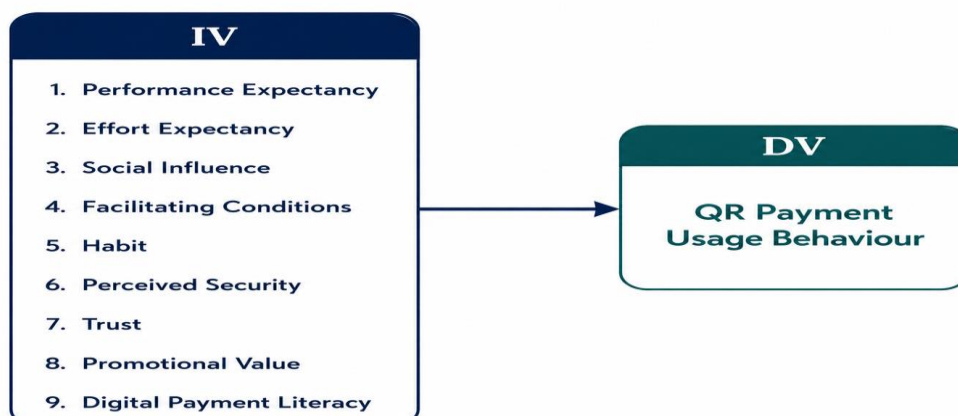
Recent studies on e-wallet and mobile payment have found that incentives, price value and perceived benefits affect the payment behaviour of young consumers (Gan et al., 2025; Lim et al., 2022; Yang et al., 2021). However, promotional value can establish short term usage patterns. Students may increase QR payment usage during promotions but decrease when incentives are removed (Sudirjo et al., 2023). This renders promotional value an important independent variable in the proposed model.

Digital Payment Literacy

Digital payment literacy is the ability to read, analyze and safely use digital payment instruments. This includes knowing how to verify QR codes, check payee information, monitor transaction history, protect passwords, recognise suspicious links and manage digital spending. This construct is important as Gen Z students may be digitally active, but not necessarily financially careful or security aware (Lamichhane, 2025).

The study of payment security and mobile fintech shows that user knowledge might affect continuous use and safer payment behaviour (Nguyen et al., 2021; Prawira et al., 2024). The present paper suggests that digital payment literacy directly influences QR payment usage behavior, as students with a higher level of payment knowledge are more likely to use QR payment confidently, carefully and consistently .

Figure 1 Conceptual Framework



Research Propositions and Hypotheses

As this is a conceptual paper, the following hypotheses are proposed for future empirical testing. All hypotheses are written as direct-effect relationships between the independent variables and QR payment usage behaviour.

Hypothesis	Statement
H1	Performance expectancy positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H2	Effort expectancy positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H3	Social influence positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H4	Facilitating conditions positively influence QR payment usage behaviour among Gen Z university students in Malaysia.
H5	Habit positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H6	Perceived security positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H7	Trust positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H8	Promotional value positively influences QR payment usage behaviour among Gen Z university students in Malaysia.
H9	Digital payment literacy positively influences QR payment usage behaviour among Gen Z university students in Malaysia.

PROPOSED RESEARCH METHODOLOGY

Research Design and Instrument

A quantitative cross-sectional survey design can be used to study the QR payment usage behaviour among the Gen Z university students in Malaysia for future empirical research. The design is suitable as the proposed framework contains a number of independent variables which can be measured by means of structured questionnaire items. The survey can get data from students in public and private universities who are aware of or have experience of using QR payment through mobile banking or e-wallet applications. Include a screening question to ensure that the respondent is aware of QR payment. Where possible, researchers may use stratified or quota sampling according to type of university, region, gender, year of study or field of study. However, in cases where probability sampling is not feasible, purposive sampling may be used, with a clear statement of the limitation.

The questionnaire should be created using validated scales from technology adoption and digital payment studies. Items can be scored on a five-point or seven-point Likert scale, ranging from strongly disagree to strongly agree. The questionnaire should contain demographic information, QR payment experience and measurement items for each construct. The QR payment usage behaviour can be measured by frequency of use, usage in different purchase situations, preference of QR payment rather than cash, consistency of use and recent usage. Digital payment literacy can also be gauged by asking students if they verify the merchant name, transaction history, protect login details and if they can identify suspicious QR payment requests.

Plan for Data Analysis

The data analysis suggested can be performed using SPSS, SmartPLS or AMOS depending on the methodological preference of the researcher and the sample size. The analysis should start with data screening, missing value handling, outlier detection and descriptive statistics. The respondent profile and the QR payment usage profile should be presented to describe the study context.

The researcher should test for internal consistency reliability, convergent validity and discriminant validity to verify the measurement. If one applies structural equation modeling, one can report Cronbach's alpha, composite

reliability and average variance extracted. For discriminant validity, Fornell-Larcker criterion and heterotrait-monotrait ratio can be applied. If multiple regression is used, reliability analysis and factor analysis should be carried out before testing the regression model.

For the hypothesis testing, the researcher can use a multiple regression or direct path model in PLS-SEM. The primary aim is to investigate the direct effect of performance expectancy, effort expectancy, social influence, facilitating conditions, habit, perceived security, trust, promotional value and digital payment literacy on QR payment usage behaviour. The researcher should report path coefficients or regression beta values, p-values, confidence intervals, effect sizes and explained variance of . When PLS-SEM is used, predictive relevance may also be reported.

Expected Contribution

The first expected contribution is the development of a QR-specific behavioral framework for Malaysian Gen Z university students. Many existing studies discuss the mobile payment or e-wallet adoption in general . This paper will focus on QR payment. This is especially applicable in Malaysia with the advent of DuitNow QR and the increasing touchpoints of QR payment in our daily transactions (Sehat et al., 2024).

The second contribution is the integration of UTAUT2-based constructs with trust, perceived security, promotional value and digital payment literacy. Recent literature on technology adoption suggests that models should be contextualized, rather than applied mechanically (Kruger & Steyn, 2024; Mogaji et al., 2024). The existing framework reflects the fact that payment behaviour is both technological and financial.

The third contribution is that the usage behaviour of QR payment is adopted as the dependent variable. This is important, because intention alone may not tell us how often students are using QR payment or if it has become part of their daily spending habit. The framework contributes to a more practical understanding of cashless payment among university students by focusing on usage behaviour.

For universities, the proposed framework indicates the promotion of QR payments should be more than just promoting cashless payments. Universities can improve user behaviour by providing reliable QR acceptance by campus merchants, educating students about safe payment practices, and integrating QR payment into campus services responsibly.

The model also underlines the importance of user experience, trust, perceived security and digital payment literacy for banks, e-wallet providers and PayNet-related stakeholders. Young consumers are more likely to continue using QR payment when they feel the system is secure, reliable and understandable although they may use QR payment when the process is fast and convenient.

For merchants, particularly campus food outlets and small businesses near universities, QR payment can increase transaction speed and cut down on cash handling. Merchants should however display QR codes clearly, update payment details, confirm transactions professionally and support students when payment issues arise. This can help to build trust and encourage more repeat usage.

The framework emphasizes the importance of linking the expansion of digital payments with financial literacy and digital safety education for policymakers and stakeholders of financial education. “Using QR payment should be combined with awareness about fraud prevention, monitoring of spending and safe transaction habits.

Limitation And Future Research Directions

This study is a conceptual paper and does not report empirical findings. The proposed framework should be tested using data collected from students of Malaysian universities. Future research should be careful about generalizing too broadly based on a single university or region, as QR payment infrastructure, merchant acceptance, and student financial behavior may differ across campuses.

Further researches may compare urban and semi-urban campuses or students of public and private universities or students of different fields of study. Researchers may also look at whether QR payment behaviour differs by income level, source of allowance, bank account ownership, choice of e-wallet and exposure to campus cashless initiatives.

Another future direction is to research QR payment and financial well-being. QR payment makes it easier to pay, but may also reduce the salience of spending and encourage some students to make impulse purchases. Further research may examine the link between QR payment use and budgeting behaviour, spending control, and financial stress among university students.

CONCLUSION

QR payment has become an important part of the digital payment ecosystem in Malaysia, and Generation Z university students are a relevant group for understanding the behavioural development of QR payment. While students are often digitally savvy, their adoption of QR payments is driven by factors beyond just having a smartphone. Usefulness, ease of use, peer influence, support conditions, habit, perceived security, trust, promotional value and digital payment literacy influence their behavior.

This paper contributes by developing a direct-effects conceptual model for QR payment usage behaviour among Malaysian university students. The framework is intentionally designed with independent variables and one dependent variable. This renders the model clear, testable and suitable for future empirical research using survey-based methods. This paper also contributes to the discourse of digital payment by relating the usage of QR payment to responsible digital payment literacy and campus-based consumer behaviour.

Overall, the proposed paper can help guide future empirical studies, help universities create a safer cashless campus environment and help payment providers understand the behavioural conditions that facilitate sustained use of QR payments amongst young Malaysian consumers.

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