

Technology Acceptance, Perceived Risk, and QRIS Purchase Intention: A Gender Comparison Among Generation Z College Students

Anggie Eka Wardani¹, Yogi Dwi Satrio^{*2}, Wahjoedi³, Bagus Shandy Narmaditya⁴

^{1,2,3,4}Universitas Negeri Malang, Indonesia

*Corresponding Author, ✉email: yogi.dwi.fe@um.ac.id

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ABSTRACT

This research investigated the influence of technology acceptance and perceived risk on purchase intention toward QRIS and investigated the possible difference between genders among undergraduate students. A quantitative approach was used with data collected from 374 respondents through an online questionnaire. Respondents were obtained by multistage sampling and the data was analyzed by multiple linear regression and independent-samples t-test using IBM SPSS Statistics version 25. The analysis showed that technology acceptance has a positive and significant effect on purchase intention. whereas perceived risk showed a significant but comparatively weaker negative relationship. Collectively, the two variables explained a substantial proportion of the variation in purchase intention. In addition, no significant gender differences were identified in technology acceptance, perceived risk, or purchase intention. The overall findings suggested that male and female students in Generation Z responded to QRIS in remarkably similar ways, reflecting an increasingly gender-neutral pattern of digital payment adoption.

INTRODUCTION

Data from the Indonesian Internet Service Providers Association indicate a steady increase in internet users in Indonesia between 2018 and 2024 (APJII, 2024). This trend has been closely linked to the expansion of fintech services and e-commerce platforms, which have gradually shifted transaction patterns toward a cashless lifestyle (Sjamsudin, 2019; Calista and Wandebori, 2024). For younger generations, digital technology has become an integral part of both communication and financial activities. However, there are still some challenges to be faced. Issues related to digital ethics, financial literacy, and individuals' capability to navigate more complex financial systems continue to be a concern (Irawan and Cahya, 2025; Ningsih and Atieq, 2025; Rahmawati and Saepuloh, 2025). As a response, Bank Indonesia introduced the National Non-Cash Movement (GNNT), followed by the implementation of the Quick Response Code Indonesian Standard (QRIS) as a unified national payment system (Bank Indonesia, 2019).

QRIS's Merchant Presented Mode (MPM) enables customers to use any mobile banking or e-wallet app to scan a standard QR code presented by the merchant. Participating payment service providers include GoPay, ShopeePay, OVO, DANA, LinkAja, and others. A single QRIS code can be used for several payment platforms, so users do not need to install different apps or scan different QR codes for each payment provider (Bank Indonesia, 2019). This interoperability mechanism allows customers to make transactions by scanning a merchant's QR code, without the need for separate payment infrastructure or even additional application updates (Muchtar et al., 2024).



In addition to offering better transaction efficiency and convenience, QRIS has also developed into a cross-border payment system (QRIS Cross-Border). Indonesian users can make payments using QR on a number of partner countries including Thailand, Malaysia, Singapore, Japan, South Korea, and China. Likewise, international visitors from the participating countries can also use their domestic QR payment applications to make payments at QRIS merchants in Indonesia (Bank Indonesia, 2020). This interoperability enhances the connectivity of payments in the region, supports tourism and cross-border trade and strengthens Indonesia's digital payment ecosystem.

It was reported that in 2024, QRIS had 55 million users, with 38% of them being Generation Z, hence signifying the substantial presence of contactless payments in the new workforce (CNN Indonesia, 2024). The United Nations has also stressed the importance of digital payment systems as a major factor in reaching the Sustainable Development Goals (United Nation, 2022). In the context of higher education, the use of QRIS is both an opportunity and a challenge. Indonesia's financial literacy rate is still around 65%, which is still below the expected national benchmark (BPS, 2024). Even though university students often do not yet have stable income, they tend to be more familiar with digital technologies. Thus, their level of understanding plays an important role in shaping decisions related to the use of cashless payment systems (To'at et al., 2024).

University students are one of the most relevant populations to study QRIS purchase intentions, as they are digital natives who are likely to interact with cashless transactions daily. Previous studies suggest QRIS is increasingly being integrated into student consumption behavior, especially for food and beverage purchases, transportation services, and other routine transactions within and around university environments (Kumparan, 2024). The findings indicate that while QRIS has become an integral part of the students' daily payment practices, their purchase intention is still a complex decision influenced by both the technology benefits and the perceived risks.

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) provides a comprehensive framework for explaining the adoption of digital payment systems (Venkatesh et al., 2012). This model has seven key elements of performance expectancy, effort expectancy, social influence, enabling circumstances, hedonic motivation, price value, and habit, accounting for up to 74% of the variation of behavioral intention (Venkatesh et al., 2016). In this study, these dimensions are treated as a single construct of technology acceptance, based on the assumption that they operate in an integrated and interrelated manner in shaping students' acceptance of QRIS.

The UTAUT2 is widely used to explain individual acceptance of digital payment technologies. However, the model mainly focuses on factors that promote technology adoption through positive evaluations. These constructs describe how users perceive the utility, usability, social support, enabling resources, enjoyment, economic value, and habitual nature of a technology. But decisions on QRIS adoption are not just about benefits, before they use a digital payment service, they also think about the risks of losing money, privacy breaches, transaction errors, fraud, and system security. Thus, purchase intention is not a function of a single factor but rather a function of the simultaneous occurrence of positive evaluations of technology and negative evaluations of risk.

Penney et al. (2021) extended the UTAUT2 model by including perceived risk and trust to explain mobile money adoption in Ghana, offering support for the integration of technology acceptance and perceived risk in a single research model. Their results suggest that perceived risk is an important determinant of behavioral intention, implying that digital payment adoption cannot be understood only in terms of perceived benefits and convenience. Also, recent studies on fintech adoption show that the decision-making of users is impacted by the trade-off between the expected benefits and the perceived uncertainties. Hence, the combination of UTAUT2 and perceived risk provides a more comprehensive explanation of students' purchase intention toward QRIS. (Penney et al., 2021; Padma Kiran and Vedala, 2025).

In the Knowledge Integration framework, technology acceptance can be seen as the integration of multiple interrelated components, including cognitive factors like performance expectancy and effort expectancy,

sociocultural factors such as social influence and facilitating conditions, and experiential factors such as hedonic motivation, price value, and habit (Linn, 2012). These components do not work in isolation, but interact to generate a holistic perception of QRIS acceptance. The use of digital payment technologies shows that a person is eager to do a digital transaction which can improve purchase intention. However, this is not always straightforward, since it might be restricted by a range of systemic and structural constraints (Lim et al., 2023). Perceived risk is a major obstacle to digital banking adoption and involves financial, security, psychological, social and time concerns (Featherman and Pavlou, 2003). As internet usage grows, the prevalence of cyber threats, data breaches, and transaction failures becomes more obvious, which could undermine user trust (Ko et al., 2004; To'at et al., 2024; Truc, 2024).

Despite the growing quantity of studies on e-wallet adoption, there are still significant gaps. First, most empirical studies using the UTAUT2 model are only limited to the general technology adoption or e-commerce environment, and the research on the purchase intention through QRIS is limited (Oktavia et al., 2024; Piarna et al., 2020). Second, the role of findings on perceived risk remains inconsistent. Some studies have indicated that perceived risk considerably reduces purchase intention, while other studies imply that persons with a higher level of digital familiarity might underestimate these risks due to overconfidence (Mohd Razif et al., 2020; Dharmawan et al., 2024).

Third, there is still less research on comparative studies regarding gender differences in technology acceptability, perceived risk, and purchase intentions of digital native students. Gender is usually recognized as a moderating element in the context of the UTAUT2 paradigm (Venkatesh et al., 2012). For example, utilitarian constructs such as performance expectancy and facilitating conditions are more likely to influence male users. Women tend to place greater importance on hedonic motivation, trust, and perceived risk in their evaluation of digital payment technologies (Faqih, 2022). Thus, gender may affect the extent to which perceived risk and technology acceptance factors affect QRIS purchase intention, as differences in behavior suggest. This finding aligns with the traditional views have suggested that women are more careful and sensitive to risk, and this may lead to distinct behavioral reactions under uncertainty (Lee et al., 2019). But recent research demonstrates that these inequalities are gradually disappearing among digitally literate people (Sehrawat and Chaudhary 2025; Phamthi et al., 2024). However, actual research regarding QRIS usage in Indonesia is currently lacking.

This study contributes novel aspects to the literature. First, it extends the UTAUT2 framework by including perceived risk on a single model that provides a more comprehensive explanation of students' intention toward QRIS in Indonesia. Second, previous studies on QRIS have mainly focused on the general public, consumers, or specific user groups and have investigated technology acceptance and risk perception separately or in different analytical contexts. This study investigates both constructs simultaneously among university students in Indonesia. Third, this study considers gender as a comparative variable to see whether the relationships between technology acceptance, perceived risk, and purchase intention are different for male and female students. This study combines these perspectives in the context of QRIS adoption in higher education and provides a more holistic insight into digital payment behavior and contributes empirical evidence to the burgeoning literature on QRIS adoption in Indonesia. The findings of the study are expected to contribute to the understanding of the digital transaction behavior of Generation Z and provide useful insights to higher education institutions and fintech players.

METHODS

The quantitative method was used in this study to investigate the relationship between perceived risk and technology acceptance and purchase intention. Additionally, the study explored gender differences to offer a comparative perspective of the observed relationships. The subjects of this study were 3,498 students from the Faculty of Economics and Business, Universitas Negeri Malang, in the period 2022-2024. The Faculty of Economics and Business comprises three departments: Development Economics, Accounting, and Management.

The multi-stage sampling method was applied as a two-stage sampling technique (Ahmed, 2024). The population was partitioned into cohort years (2022, 2023, 2024) to guarantee proportional representation. In

the second stage, random sampling was applied to select respondents in each stratum using a table of random numbers and the proportional random sampling method. The minimum sample size is 359, in order to minimize the possibility of response bias such as incomplete answers and straight-lining patterns, the target number of respondents was increased to 400 respondents (Sugiyono, 2023:135). After screening the data for outliers and invalid entries, there were 374 usable responses. The effective response rate was 93.5%, which showed that the sample was statistically adequate and representative of the target population.

The primary data were collected by the use of closed-ended questionnaires of a five-point Likert scale. Secondary data were gathered from books, journal articles, and other academic sources. Measurement indicators of each latent variable were adopted from prior studies in the international literature. Technology acceptance (X1) was measured by integrating the seven dimensions of the UTAUT2 model proposed by Venkatesh et al. (2012), performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. Instead of considering these aspects as separate elements, they were viewed as a related set of perceptions that collectively influence how students accept QRIS. This is consistent with the knowledge integration view that highlights the integration of cognitive and experiential components to form individual understanding (Linn, 2012; Linn and Eylon, 2015). Perceived risk (X2) was measured by the six dimensions identified by Featherman dan Pavlou (2003), which are performance risk, financial risk, privacy risk, psychological risk, social risk, and time risk. In the meantime, purchase intention (Y) was measured by 4 indicators based on Ferdinand (2002), namely transactional intention, payment priority, referral intention, and information-seeking behavior on promotions.

The research instrument was translated using a forward–backward translation procedure to ensure conceptual equivalence. Prior to its use, the content validity of the instrument was carefully evaluated by academic experts. In addition, a pilot test was conducted with 30 respondents outside the main sample to assess the clarity and readability of the items. Construct validity was examined using Pearson’s product–moment correlation, where each item was considered valid if the calculated r-value exceeded the r-table value at a 5% significance level. Reliability was measured by Cronbach’s Alpha with a value of more than 0.60 that indicates adequate internal consistency (Sugiyono, 2023). Due to the cross-sectional and self-reported nature of the data, the possibility of Common Method Bias (CMB) was assessed using Harman’s Single Factor Test (Podsakoff and Organ 1986). All measurement items were subjected to an unrotated Exploratory Factor Analysis (EFA). The results showed that the largest single factor explained less than 50% of the total variance, suggesting that CMB was not a serious concern in this study.

The data were analyzed in two main stages using IBM SPSS version 25. Firstly, a multiple linear regression analysis was performed to examine the direct and simultaneous effect of the independent variables on purchase intention. Prior to the analysis, composite variables were created by summing the individual item scores for technology acceptance and perceived risk. Prior to running the regression model, several classical assumptions such as normality, were checked by using the Kolmogorov-Smirnov test. The Central Limit Theorem (CLT) provided additional support for the analysis because of the comparatively large sample size. Moreover, heteroscedasticity and multicollinearity tests were conducted to check the robustness of the model. Secondly, an Independent Samples t-test was used to compare the mean differences of male and female students. This study sought to determine whether gender-based behavioral differences still exist among Generation Z users. The comparison was carried out separately for technology acceptance, perceived risk, and purchase intention. All statistical tests were performed at a significance level of $\alpha = 0.05$.

RESULTS AND DISCUSSION

Result

Respondent Characteristics

The study involved 374 respondents drawn from three academic cohorts at the Faculty of Economics and Business, Universitas Negeri Malang, consisting of 138 students from the 2022 cohort, 119 from 2023, and 143 from 2024. In terms of gender, the sample was predominantly female, with 294 female participants (78.6%) compared to 106 male participants (21.4%), reflecting the actual demographic composition of the faculty.

Measurement Model Assessment

Prior to hypothesis testing, the validity and reliability of the research instrument were evaluated to ensure the adequacy of the measurement items.

Table 1. Validity and Reliability Test

Variable	Product Moment-Pearson	Cronbach's Alpha
Technology Acceptance (X ₁)	0,416 – 0,871	0,942
Perceived Risk (X ₂)	0,517 – 0,879	0,950
Purchase Intention (Y)	0,688 – 0,926	0,960

Sources: Processed by the researcher (2026)

As presented in Table 1, validity was assessed using Pearson Product-Moment correlation, with all items demonstrating r-values within an acceptable range: 0.416–0.871 for Technology Acceptance (X₁), 0.517–0.879 for Perceived Risk (X₂), and 0.688–0.926 for Purchase Intention (Y). The instrument comprised 26 items for Technology Acceptance, 22 items for Perceived Risk, and 15 items for Purchase Intention. Reliability was examined using Cronbach's Alpha, with all constructs yielding values well above the minimum threshold of 0.60, specifically 0.942 for Technology Acceptance, 0.950 for Perceived Risk, and 0.960 for Purchase Intention, indicating strong internal consistency across all variables.

Common Method Bias Assessment

Harman's Single Factor Test was performed to address the possible Common Method Bias (CMB) due to the use of self-reported data.

Table 2. Harman's Single Factor Test

Factor	Total Variance Explained					
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative	Total	% of Variance	Cumulative
1	17,026	27,025	27,025	16,400	26,032	26,032

Sources: Processed by the researcher (2026)

The results, presented in Table 2, show that the largest factor accounted for 27.025% of the total variance, which decreased slightly to 26.032% after extraction. All of these values are well below the 50% threshold, indicating that no single factor dominates the data and that CMB is not a serious concern in this study.

Classical Assumption Tests

Before running a multiple linear regression analysis, classical assumption tests were first performed to ensure that the data met the required criteria. These tests included a normality test using the Kolmogorov-Smirnov test, a multicollinearity test using the Variance Inflation Factor (VIF), and a heteroscedasticity test using the Glejser test. The results of these three tests are presented in Table 3. below.

Table 3. Result of Classical Assumption Tests

Variable	Kolmogorov-Smirnov Unstandardized Residual	VIF	Heteroscedasticity
Technology Acceptance (X ₁)	0,082	1,071	0,106
Perceived Risk (X ₂)		1,071	0,450

Sources: Processed by the researcher (2026)

The Kolmogorov–Smirnov test (n = 374) resulted in a significance value of 0.082 (> 0.05) and showed that the residuals are normally distributed. Multicollinearity was tested using the Variance Inflation Factor (VIF) and all VIFs were 1.071 which is less than the critical value of 10. In addition, the Glejser test showed the existence

of non-heteroscedasticity with a significance value of 0.106 for technology acceptance (X1) and 0.450 for perceived risk (X2), both above 0.05. Overall, these results confirm that the dataset meets the assumptions required for regression analysis.

Simultaneous Hypothesis Testing (F-Test)

To test the simultaneous influence of technology acceptance and perceived risk on purchase intention, an F-test was conducted at the 5% significance level. This test aims to determine whether the two independent variables together have a significant influence on the dependent variable. The test results are presented in Table 4. below.

Table 4. Results of the Simultaneous Test (F-Test)

Model	ANOVA ^a				
	Sum of Square	df	Mean Square	F	Sig.
Regression	23375,606	2	11687,803	320,083	0,000 ^b
Residual	13547,026	371	36,515		
Total	36922,632	373			

Sources: Processed by the researcher (2026)

The analysis yielded an F-value of 320.083 ($p < 0.001$), indicating that both variables simultaneously contribute to explaining students' purchase intention in using QRIS. This finding confirms that the regression model is statistically significant and has strong explanatory power in the context of digital payment behavior.

Hypothesis Testing (Partial Test)

To test the partial influence of each independent variable on purchase intention, a t-test was conducted at a 5% significance level. This partial test aimed to determine the contribution of the technology acceptance (X1) and perceived risk (X2) variables individually in influencing students' purchase intention towards using QRIS. The test results are presented in Table 5. below.

Table 5. Partial Significance Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	53,001	0,312		169,625	0,000
Technology Acceptance (X1)	0,550	0,023	0,773	23,756	0,000
Perceived Risk (X2)	-0,070	0,031	-0,074	-2,285	0,023

Sources: Processed by the researcher (2026)

The results also indicated a positive and significant relationship between technology acceptance and purchase intention ($B = 0.550$, $t = 23.756$, $p < 0.001$). This implies that the higher the technology acceptance, the higher the purchase intention of students. On the contrary, perceived risk showed a negative but relatively small effect ($B = -0.070$, $t = -2.285$, $p = 0.023$) indicating that the higher the risk perception the lower the purchase intention but the impact is limited.

Independent Samples t-Test

To test whether there are significant differences between male and female students in terms of technology acceptance, perceived risk, and purchase intention regarding QRIS use, an independent samples t-test was conducted at the 5% significance level. Before comparing the average values of the two groups, a Levene's test was first conducted to determine the homogeneity of variance, which then determines whether the interpretation uses the equal variances assumed or equal variances not assumed line. The test results are presented in Table 6. below.

Table 6. Independent Samples t-Test Results by Gender

		Levene's Sig.	t	df	Sig. (2-tailed)	Empirical Note
Technology Acceptance (X ₁)	Equal variances assumend	0,526	-1,472	372	0,142	No Significant Difference
	Equal variances not assumed		-1,406	146,063	0,162	
Perceived Risk (X ₂)	Equal variances assumend	0,115	-1,883	372	0,060	No Significant Difference
	Equal variances not assumed		-1,769	142,483	0,079	
Purchase Intention (Y)	Equal variances assumend	0,044	-0,388	372	0,698	No Significant Difference
	Equal variances not assumed		-0,371	146,122	0,711	

Sources: Processed by the researcher (2026)

The findings reveal that no significant differences were found between male and female students in all the variables. Levene's test supported homogeneity of variance for perceived risk and technology acceptance. However, for purchase intention, the assumption was not satisfied, and the Welch correction was applied. With this adjustment, the results consistently show that technology acceptance, perceived risk, and purchase intention are similar for both groups.

Test of the Coefficient of Determination (R²)

The coefficient of determination (R²) is presented in Table 7. to assess the explanatory power of the model.

Table 7. Model Summary for the Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,796 ^a	0,633	0,631	6,042755560

Sources: Processed by the researcher (2026)

The value of adjusted R² is 0.631, which means that 63.1% of purchase intention can be explained by technology acceptance and perceived risk. The other 36.9% is probably affected by other factors that are not included in this study.

Discussion

The Effect of Technology Acceptance on Purchase Intention

Technology acceptance has a positive and statistically significant effect on students' intention to use QRIS ($B = 0.550$, $p < 0.001$). This finding suggests that students are more likely to accept QRIS if they perceive the technology as useful, easy to use, and useful in assisting their everyday transactions (Venkatesh et al., 2016). The majority of respondents do not consider QRIS to be a new or unknown innovation. Instead, it has become part of their everyday payment routine. Its practical use is further enhanced by features such as ease of use, fast transaction processing, interoperability between payment providers and acceptance by a wide range of merchants, all of which help to ensure continued use in daily purchasing activities.

The findings are consistent with the earlier studies of Pham and Ahammad (2017) and Verkijika and De Wet (2019) that highlighted the role of perceived usefulness and ease of use in promoting the adoption of digital payments. However, this study adds to the previous studies by showing that technology acceptance not only influences adoption behavior but also directly affects purchase intention in offline transaction contexts using

QRIS. More fundamentally, the use of technology by Generation Z seems to be motivated not only by rational considerations like perceived usefulness but also by a habitual dependence on digital platforms. This suggests a move from a conscious to a more habitual digital behavior and therefore extends the traditional understanding of the UTAUT2 framework.

Most students in the context of QRIS have experienced the adoption phase and are in the post-adoption stage. The continued use of QRIS is more due to habit and experience than to be considered. As QRIS becomes more familiar, people no longer view the technology as an option. From a deeper perspective, the effect of technology acceptance by generation Z seems to be influenced not only by rational evaluation such as perceived usefulness but also by their habit of depending on digital platforms. This indicates a shift in behavior from conscious evaluation to more routine-based digital behavior, thus expanding the traditional understanding of the UTAUT2 framework.

The results of this study indicate that technology acceptance not only determines initial use, but also contributes to the sustainability of continued use and purchasing behavior in the post-adoption stage. This study stresses the importance of incorporating post-adoption perceptions into the UTAUT2 model, particularly in the context of users who are digital natives and have a high level of familiarity with digital financial technologies (Kuntadi, 2025; Susilowati et al., 2025). Consistent with the results of Karmaker et al. (2025) the results also show that cashless payment systems can increase consumption by improving transaction efficiency and convenience. The study concludes by emphasizing the role of the UTAUT2 model in explaining Generation Z's overall consumption behavior in the context of digital payments, as well as their technological acceptance.

The Effect of Perceived Risk on Purchase Intention

The empirical findings indicate that perceived risk has a negative and statistically significant effect on purchase intention in the context of QRIS usage, with a regression coefficient of -0.070 and a significance value of 0.023. The finding suggests that higher levels of perceived risk tend to reduce students' willingness to use QRIS for transactions, but the magnitude of the effect is relatively modest. The result is consistent with the risk theory proposed by Featherman dan Pavlou (2003) that different forms of perceived risk such as performance risk, financial risk, privacy risk, psychological risk, social risk, and time risk may affect the adoption of digital products. In the digital payment context, users consider potential benefits and evaluate possible negative consequences during the transaction process. Users are still worried about cyber risks, such as fake QR codes, failed transactions, and breaches of personal data breaches (Truc, 2024; Usman et al., 2024). However, the relatively small coefficient suggests that perceived risk does not act as a primary barrier to students' behavioral intentions.

The quick development of Indonesia's digital payment infrastructure may outweigh any worries students may have about possible technical flaws. With increasing use of QRIS in daily transactions, this can help reduce the perceived risks by making users more familiar and comfortable with it. In addition, students of the Faculty of Economics and Business are expected to have relatively higher levels of financial literacy, which could increase their ability to assess and manage transaction-related risks more effectively (Duarte et al., 2022). This finding is also observed among Generation Z users who are accustomed to digital environments. The increased use of digital platforms may lead to a more balanced risk-benefit calculation where the concrete benefits like convenience, speed and efficiency are greater than the possible risks (Usman et al. 2024). This implies that decision makers do not ignore the perceived risk, but take it as a second order factor.

These findings help to clarify the inconsistent findings of previous studies. However, some studies have revealed that perceived risk does not have a significant effect on the adoption of digital payments (Dharmawan et al., 2024; Piarna et al., 2020). The results show that perceived risk is still an important factor, but it is becoming less common. This means that perceived risk is still present in the cognitive assessment stages of digital native users, but only as a last resort before the completion of a transaction.

Gender Differences in Technology Acceptance

The independent samples t-test results indicated that there was no statistically significant difference in technology acceptance between male and female students ($t = -1.472$; $p = 0.142$). This finding demonstrates that gender is no longer a significant predictor of student digital payment adoption. This convergence can be attributed to the relatively homogeneous academic environment at the Faculty of Economics and Business, Universitas Negeri Malang. Students have similar access to learning materials, digital infrastructure, and financial literacy. These conditions likely minimize differences in technological familiarity and use between male and female students.

In the UTAUT2 context, gender has traditionally been considered to be an important moderating variable. However, the present results suggest a gradual decrease in gender-based behavioral differences. When digital literacy and usage intensity are at similar levels, the adoption of technology is more influenced by direct user experience than by gender-related psychological characteristics. The results in this sense provide empirical support for the claim that the relevance of gender as a moderating variable may decrease in digitally mature user groups. This is in line with the findings of Tamilmani et al. (2021), who argue that gender differences may disappear with higher levels of user experience with technology. Moreover, the prevalence of QRIS in the university context may have contributed to the speed of this process, as the system is now a regular part of students' daily interactions. This indicates that QRIS adoption has reached a more mature stage, where behavioral differences across gender are no longer prominent.

The results are also in line with Herzallah et al. (2025) who found that gender gaps tend to narrow in populations with high levels of financial literacy and internet penetration. The evidence suggests that in practice attempts to increase uptake of QRIS should not be heavily gender segmented. The emphasis should be on increasing system reliability, transaction efficiency, and enhancing the user experience for all users.

Gender Differences in Perceived Risk

The results of the independent samples t-test show that there is no statistically significant difference in perceived risk between male and female students ($p = 0.060$). This finding indicates that the two groups are similar in their evaluation of potential risks by means of QRIS. This finding is against the traditional theories of risk aversion which generally treat females as more sensitive to financial and technological risks (Lee et al., 2019). In contrast, the current study suggests that gender-based differences in risk perception may be less pronounced in the context of digital payment usage among younger populations.

Several contextual factors are responsible for the convergence of behavior. First, the sample's academic homogeneity, which is made up entirely of students from the Faculty of Economics and Business, is likely to contribute to a relatively equal level of financial and digital literacy. According to Duarte et al. (2022), this common background may encourage similar cognitive approaches to risk assessment, thereby reducing gender disparities. Secondly, the increasing maturity of QRIS as a payment system in Indonesia seems to play an essential role. Early on in the adoption of technology, gender disparities often emerge due to information asymmetry and uncertainty (Phamthi et al., 2024). However, as QRIS becomes more popular and familiar, cumulative user experience may reduce uncertainty and lead to more stable risk perceptions for both genders ((Sehrawat and Chaudhary 2025).

These results indicate that institutional support and experience familiarity may play a greater role than demographic variables in shaping user behaviors in digital payment contexts. This indicates that in advanced digital ecosystems gender may not be a significant differential factor anymore as in the original UTAUT2 framework. Moreover, digital commonality and learning environments seem to influence behavioral patterns more and more, especially among Gen Z users.

Gender Differences in Purchase Intention

The result of independent samples t-test shows there is no difference between male and female students in their mean scores of purchase intention toward QRIS usage (Sig. = 0.711). The behavioural similarity can be caused by similar levels of technology acceptability and perceived risk resulting in similar behavioural goals. The

evidence contradicts the assertion stated by Kanwal et al. (2022) that females are more likely to have higher digital purchase intentions due to stronger social influence and peer recommendations. However, in the present context, gender seems to have less impact than contextual factors such as digital literacy, intensity of technology use and normalisation of cashless payment systems inside the academic setting. This is because male and female students were exposed to the similar academic environment and digital financial experiences. Thus, they may have evolved similar attitudes towards QRIS and similar appraisals of the advantages and cons of it. Such a similar experience may help to lessen the conduct differences usually associated with gender.

This conclusion is consistent with the results of Palau-Saumell et al. (2019) and Yuliana and Aprianingsih (2022) and improves the understanding of UTAUT2 design. This suggests that in an evolving digital payments environment, traditional demographic characteristics such as gender may not be as predictive of technology-related purchasing intentions. In fact, Generation Z, the most hyper-connected generation, is more impacted by shared digital experiences and perceptions of technology than gender gaps in purchase intent.

The Simultaneous Influence of Technology Acceptance and Perceived Risk on Purchase Intention

For the simultaneous test, the F-statistic is 320.083 with a significance value of 0.000 and an adjusted R² of 0.631. These results reveal that technological acceptability and perceived risk both influence students' purchase intention for QRIS and explain 63.1% of the variation of the dependent variable. The model's reasonably high explanatory power indicates that students' decisions about their use of QRIS are based on their assessment of the benefits and possible risks of the technology. This finding supports the earlier work of Padma Kiran and Vedala (2025) and Penney et al. (2021), which highlight the importance of incorporating risk elements into technology adoption models. The findings suggest that the addition of perceived risk into technology acceptance offers a more holistic view of digital payment behaviour.

Most crucially, the data suggest the perceived functional value of QRIS (transaction speed, convenience, cost efficiency and integration with cashless payment ecosystems) is a strong driver of purchase intention. Perceived risk remains an important driver but is considerably less influential than the acceptance of technology. This pattern can be explained by the characteristics of Generation Z users, who are generally more receptive to digital technologies and more likely to emphasize convenience and utility when evaluating digital payment systems (Lee et al., 2023). The unexplained variance of 36.9% indicates that purchase intention cannot be completely explained by technology acceptability and perceived risk at the same time. This implies that additional elements like financial knowledge, trust in digital payment systems, previous user experience or social influences may also affect behavioural intentions. Future research is thus advised to incorporate more variables to gain a better understanding of QRIS adoption behaviour.

Practically, the dominant role of technological acceptance suggests that attempts to enhance QRIS usage should focus on enhancing user perceptions of usefulness, convenience and efficiency. Besides, Bank Indonesia and QRIS service providers should keep boosting consumer confidence through focused educational programs on transaction security, personal data protection and fraud prevention. At the institutional level, universities can further promote the use of QRIS by including digital payment methods in various campus offerings to promote regular use, as well as educating students on cybersecurity.

CONCLUSION

The result of this study reveals that technological has a positive effect on purchase intention towards QRIS, while perceived risk has a significant negative effect but is rather modest. Together the two variables explain 63.1% of the variance of students' purchase intention. This indicates that views connected to technology remain major drivers of digital payment behaviour among Generation Z.

More importantly, there were no significant variations in technological acceptance, perceived risk and purchase intention between male and female students. This research implies that behavioural disparities that have historically been connected with gender may be decreasing among technologically literate student populations. Thus, the study offers empirical data to support the concept of gender neutrality in the adoption of

QRIS among the Generation Z users. QRIS adoption initiatives should focus mostly on strengthening beliefs about utility, convenience and efficiency of transaction. Bank Indonesia and QRIS service providers shall continue to improve the security of transactions and to increase the knowledge on the protection of personal data and the prevention of fraud. Universities are also urged to integrate QRIS into a wide range of campus services and to conduct digital financial literacy programs to foster safe and efficient use of digital payments.

The present study has significant limitations. First, the sample was limited to students from one faculty at one university, which may impact the generality of the findings. Second, the sample was not evenly distributed in terms of gender. This is in line with the real demographic structure of the faculty, but it could potentially impact the robustness of comparisons across genders. Third, we assessed gender differences using independent samples t-tests, which only assess mean differences and do not capture the potential moderating impact of gender in connections across study variables.

Further studies are suggested to add some more characteristics such as digital financial literacy, trust and user experience to explain the remaining variance of purchase intention. To investigate the structural function of gender in greater depth, researchers may use more complex analytical tools such as Structural Equation Modelling (SEM), Partial Least Squares-SEM (PLS-SEM), Multi-Group Analysis (MGA), or moderation analysis. Moreover, a wider sampling of different faculties and universities might improve the generalisability of the findings.

AUTHOR CONTRIBUTION

[A.E.W]: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing - original draft preparation. [Y.D.S]: Conceptualization, Methodology, Supervision, and Review. [W]: Validation and Monitoring. [B.S.N]: Validation and Monitoring. All authors reviewed and approved the published version of the manuscript.

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DATA AVAILABILITY

The data underlying the findings of this investigation are available from the corresponding author on reasonable request. The dataset is not publically available owing to respondent privacy and ethical restrictions.

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COMPETING INTEREST

The authors declare no conflicts of interest for the publication of this work.

ETHICAL CLERANCE

Formal institutional ethical approval was not required for this study, as it was a non-clinical voluntary anonymous self-reported survey of undergraduate students. Each participant gave explicit informed consent before to completing the online questionnaire, with complete confidentiality and privacy precautions in place.

AI STATEMENT

The author claims that Artificial Intelligence based techniques were used for grammar checking and text editing only in the creation of this paper. All recommendations provided by the AI algorithms were carefully examined, modified and validated by the author. No AI techniques have been used for data collection, data

processing, interpretation of results or formulation of scientific findings. The author alone is responsible for the integrity, originality and correctness of this published work.

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