

The Effect of QRIS Security and Ease on Transaction Decisions through User Trust among Jakarta State University Students

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Abstract. This study aims to analyze the effect of security and ease of use of the Quick Response Code Indonesian Standard (QRIS) on transaction decisions among students at Universitas Negeri Jakarta, with user trust as a mediating variable. The research is motivated by the increasing use of QRIS among students who are digital users, but there are still concerns about perceptions of security, convenience, and trust in this digital payment system. Using the Technology Acceptance Model (TAM) framework, this study examines how perceived security and ease of use affect transaction decisions through user trust. The results show that security and ease of use significantly affect user trust, and can strengthen students decision to use QRIS in payments. This study contributes to the development of more effective education and promotion strategies, as well as the enhancement of QRIS security and usability features to encourage optimal use of digital payment systems in academic environments.

Keywords: QRIS, perceived security, ease of use, user trust, transaction decisions

Introduction

In supporting the achievement of the Sustainable Development Goals (SDGs), especially regarding the 9th goal covering Industry, Innovation, and Infrastructure and the 8th covering Decent Work and Economic Growth, digital transformation in the financial sector has driven economic efficiency and financial inclusion. Therefore, the creation of a digital payment system that supports this is QRIS (Quick Response Code Indonesian Standard). QRIS can make students use non-cash transactions practically and safely, by using QRIS, users only need to scan the QR code using a digital payment application. In this era of technological advancement, the use of QRIS has been significantly adopted by the general public.

With the high frequency of QRIS use, it can raise the need to understand the factors that can influence the decision to use it, especially among students as the digital native generation. Based on previous studies, security and convenience factors are two important aspects used to encourage the adoption of digital payment technology (Melia Rizky & Hayati, 2025; Putri et al., 2024). With the convenience factor related to accessibility, simple interfaces, and fast and efficient transaction processes. On the one hand, the security factor of personal data protection and risk-free transaction guarantees. There are still not many studies that explain how user trust can mediate the influence of these two factors on transaction decisions.

There is novelty in this research, this can be proven by not only examining the direct effect of security and convenience factors on transaction decisions, but to prove the role of user trust as a mediating variable. With this approach, the decision to use QRIS is not only influenced by technical perceptions, but with subjective confidence in the system and service provider. By observing the dynamics of these three variables, the research is expected to be able to contribute theoretically to the development of the technology acceptance model and can provide practical insight for service providers and people who determine policies to increase the adoption of QRIS among students.

Based on the background in the study, there are objectives, namely to determine the extent to which the security factor and ease of use of QRIS affect the transaction decisions of Jakarta State University students, and

regarding how user trust plays a mediating role in the relationship.

Literatur Review

This study uses four variables, namely security, convenience, user trust, and transaction decisions. These are important factors in the understanding of using QRIS as a digital payment system among students. The security factor does not only explain technical protection, but looks at the user's perception of the system reliability factor and data confidentiality. According to Melia Rizky and Isra Hayati (2025), users tend to evaluate the reliability of digital payment services by paying attention to their ability to be able to protect personal information and ensure secure transactions. Similarly, Nasution (2024) states that perceptions of system stability and fraud prevention are critical in building a sense of control and security among users.

In terms of ease, it is working on the extent to which the system can be easy to learn and use, and complete transactions efficiently. Della Marcella (2023) states that the perceived simplicity of QRIS, including ease of scanning, clarity of interface, and compatibility with mobile devices, can significantly affect user adoption. This is also in line with Suhartini (2023), who suggests that they value systems that can save time and cognitive effort, given the fast-paced academic environment and daily needs.

Trust in the context of digital, regarding user experience, perceived transparency, and system performance. Rabbani et al. (2024) suggest that trust can be recognized if users feel confident that QRIS can function as they expect, especially in terms of data accuracy in transactions and protection of personal data. Fadillah (2022) explains that trust starts from consistent interaction with the system and based on experiences from peers. With trust as the main mediator linking security and convenience and behavioral outcomes with repeated use and willingness to recommend services to others.

Furthermore, regarding transaction decisions, it is an important thing to show the success of a system until it can be used. As explained by Kembarsari (2024), the decision to transact by students is not only influenced by their personal experience with the system, but by social influences and contextual convenience, such as the availability of QRIS payments in the campus environment. Handayani et al. (2023) further also expressed the idea that a good and satisfying user experience can lead to increased adoption. Based on this, it shows that the decision to be able to use QRIS as a digital payment system is not made for rational evaluation, but is shaped towards emotional and social.

Theoretically, research states that security (X1) and convenience (X2) have a direct and indirect impact on transaction decisions (Y), then can be mediated by user trust (Z). Meanwhile, some studies (e.g., Nur Isma Tasya, 2023; Mayang, 2022) suggest a positive linear relationship regarding each variable. In addition, other studies also expressed mixed findings. According to Euricho et al. (2022), the user trust factor can be thwarted by a single technical failure, regardless of prior perceptions of security and ease of use. Based on this statement, it is important to study the relationship further, especially the population of specific users such as university students.

Given the increasing reliance on digital payment tools in higher education, this study focuses on how the perceived characteristics of a digital payment system can influence students trust, which in turn can shape their decision to transact digitally through QRIS. In addition, the model also assumes that technical quality initiates adoption, but psychological assurance of trust is dominant to usage behavior.

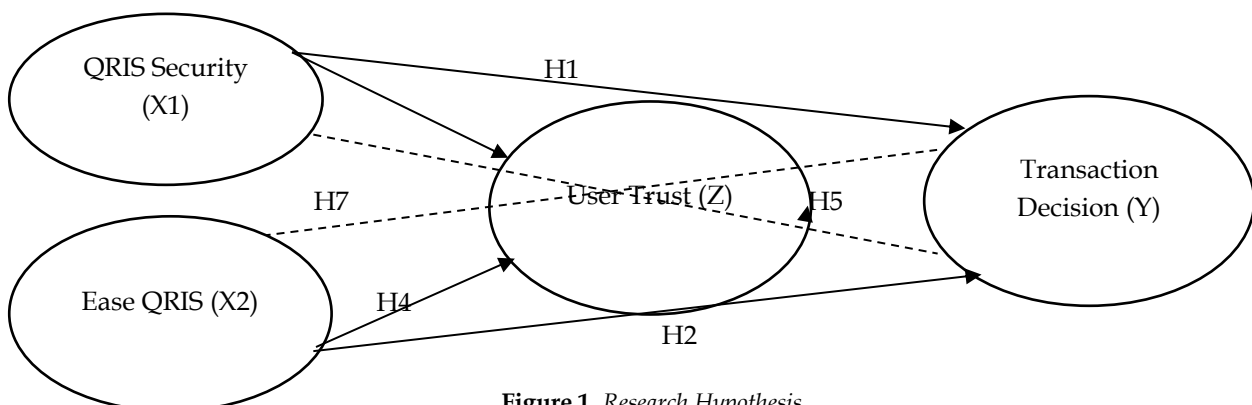


Figure 1. Research Hypothesis

Based on Figure 1. Research Hypothesis, the study examines the relationship between four main variables,

namely QRIS security (X1), QRIS ease of use (X2), user trust (Z), and transaction decisions (Y). The model has stated direct and indirect relationships in order to see how students at Jakarta State University can decide to use QRIS with their perceptions of the features of the system and the trust they provide.

Starting with assumptions about security and ease of use that can affect student trust in the system. This is indicated by hypotheses H1 (security \rightarrow trust) and H2 (ease of use \rightarrow trust). Based on this statement, if the safer and easier the QRIS system is perceived, the higher the level of trust generated by users, including students. This is in line with the Technology Acceptance Model (TAM), which states that user confidence in the usefulness of the system and ease of use can form behavioral intentions with the attitude path, which is interpreted as trust.

Furthermore, user trust (Z) is hypothesized to directly influence transaction decisions (Y), this is also reflected in hypothesis H3. Based on the statement, it shows that students who trust QRIS as a digital payment system are more likely to use it in daily digital transactions. With trust acting as the main influence.

If previously regarding the indirect path, then it includes directly from the safety factor (H4) and ease of use (H5) regarding transaction decisions using QRIS. This means that without the need for trust mediation, students can decide to use QRIS if they have confidence that QRIS is safe and easy to use. So the direct effect tests how trust as a mediator is needed or only as an enhancing factor.

Finally, this model also incorporates two mediated relationships, H6 (security \rightarrow trust \rightarrow transaction decision) and H7 (ease of use \rightarrow trust \rightarrow transaction decision). This shows that user trust serves as a mediator, which reinforces the idea that while security and convenience are important, it is the trust factor that can ultimately lead to more consistent QRIS usage among university students.

With this framework, this study aims to provide a comprehensive understanding of how technical and assurance views interact to shape students decision to use QRIS as a digital payment system. Additionally, this research offers insights for developers and policymakers to improve features that build trust in digital payment systems.

Methods

This study was conducted using a quantitative research approach with a comparative causal method, aiming to determine how influential perceptions of security and convenience are on transaction decisions using QRIS which have been mediated through user trust. For this research model is based on the Technology Acceptance Model (TAM) and testing is carried out using Structural Equation Modeling (SEM) techniques through Partial Least Squares (PLS) with the software application, SmartPLS. This approach is used by considering the ability to dominate the process of analyzing complex models and relating each latent variable.

Participants in this study were carried out with the criteria that they were active students of Jakarta State University (UNJ) by using QRIS for at least the last three months. The sampling technique used in this study is purposive sampling, with respondents according to the criteria already mentioned to ensure the relevance of the data. Later, the number of samples is calculated through the use of the Slovin formula with a confidence level of 95% and a margin of error of 5%, so a sample that is representative of the student population as a whole can be produced and it is possible to generalize the use of QRIS as a digital payment system.

The research instrument in this study uses a structured questionnaire, which can measure four main variables, namely security (X1), convenience (X2), user trust (Z), and transaction decisions (Y). Each of these variables can be grouped into several question indicators, and respondents are asked to rate the statement using a five-point Likert scale with frequencies (strongly disagree), (disagree), (neutral), (agree), and (strongly agree). Furthermore, the questionnaire was distributed both online using Google Forms to reach students efficiently. In addition to the survey, the researcher also conducted observations regarding QRIS usage behavior by being located in campus canteens and student cooperative outlets, to be able to provide appropriate context and validate responses from Jakarta State University (UNJ) students with real world interactions.

The data obtained from the questionnaire can be aggregated and analyzed using SmartPLS software, which allows to assess the measurement model and structural model. The analysis process begins by first conducting an outer model test to be able to assess convergent and discriminant validity, after the process is complete, hypothesis testing is then carried out through path coefficient analysis. This includes evaluating the mediation effect. Such a comprehensive method is carried out to ensure that the relationship between security, convenience, trust, and transaction decisions can be accurately identified and interpreted in accordance with

the context of using QRIS among students, especially students of Jakarta State University (UNJ).

Result and Discussion

The empirical results section of the research model, the process of analyzing the direct and indirect effects of QRIS security (X1) and ease of use (X2) on transaction decisions (Y), with user trust (Z) as a mediating variable. Hypotheses were tested using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS 4. Where the focus is on understanding the strength and significance of relationships within the conceptual framework.

The direct effect tests regarding each variable are presented in the following table. The table reports the five structural paths analyzed, including the original sample value (O), mean value (M), standard deviation (STDEV), T-statistic, and significance level (p-value).

Table 1: Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. -> Y	0.231	0.224	0.105	2.206	0.027
X1. -> Z	0.697	0.701	0.065	10.678	0.000
X2. -> Y	0.434	0.438	0.085	5.111	0.000
X2. -> Z	0.215	0.212	0.078	2.741	0.006
Z -> Y	0.275	0.275	0.105	2.627	0.009

Based on Table 1 Path Coefficients, five out of seven hypotheses are statistically significant ($p < 0.05$), with each path showing a positive influence. In several of these hypotheses, the strongest path is influenced by the security factor (X1) on user trust (Z) ($O = 0.697$, $t = 10.678$, $p = 0.000$). This indicates that the security perceived by users is one of the dominant factors in shaping students' trust in digital payment systems such as QRIS. Moreover, students are individuals who greatly rely on a sense of security when using technology, especially regarding financial issues. Therefore, when QRIS is considered secure in transactions, protects privacy, and prevents fraud, trust is substantially reinforced. Thus, this trust can form an emotional foundation that supports continuous use and advocacy for the QRIS system.

In addition, the trust (Z) can significantly influence transaction decisions (Y) ($O = 0.275$, $t = 2.627$, $p = 0.009$). This relationship indicates that trust plays a dominant role, acting as a bridge that connects perceptions of the rational system of security and ease of use with behavioral intentions. If users trust the system, they will engage in transactions repeatedly, making QRIS their daily digital payment method, becoming more involved with the service, and recommending it to others. Therefore, trust is not merely a passive result of perception, but can serve as an active catalyst for behavior.

Furthermore, the influence of ease of use on trust ($X2 \rightarrow Z$) ($O = 0.215$, $p = 0.006$) indicates that ease can affect trust, although not as dominantly and strongly as security. However, user-friendly systems can provide a sense of comfort and satisfaction for users, which over time can develop into emotional trust. This is important as it shows that functional experiences can produce affective outcomes. Through this, ease of use can not only affect operational needs but also consistently build trust, especially when experienced.

Overall, this study supports the broader application of the Technology Acceptance Model (TAM), which shows that external perceptions of security and ease of use have a direct influence on behavior and an indirect effect through trust. In addition, ease of use can encourage rapid engagement, trust that is primarily formed by security to ensure retention and deeper use. And for QRIS service providers, this discussion can emphasize

the importance of designing a system that is not only required to be secure but also smooth.

Understanding the relationship beyond direct relationships, this study also examines the role of mediation on user trust (Z) regarding the relationship between security system features and ease of use on transaction decisions. In addition, security and ease of use can be directly felt by users, the trust factor is how emotional responses often arise to determine whether a desire can become an action. Therefore, testing for mediation can help to identify this. The results of the analysis of specific indirect effects using bootstrapping are summarized in the following table:

Table 2: Specific Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. -> Z -> Y	0.192	0.193	0.077	2.475	0.013
X2. -> Z -> Y	0.059	0.058	0.032	1.850	0.064

Based on Table 2 Specific Indirect Effect, it can be seen that the indirect effect of security on transaction decisions through trust (H6) is statistically significant ($\beta = 0.192$, $p = 0.013$). This shows that trust plays an important role in mediating students' perceptions of security which become actual usage behavior. In conditions where students consider transactions using QRIS to be safe, they do not directly make transactions without exception that view develops into trust. And if the trust factor has been formed, then students can use it with confidence, without having to reduce doubts or risks for the future.

This study states that in the digital financial system, in the context of student users, the security factor does not only function as a technical requirement, but also for psychological assurance. Students may not always fully understand digital systems such as encryption, privacy policies, or fraud protection behind QRIS, but when the factor of trust in the system is more dominant, then they will understand it. That is why trust is important to influence the knowledge gap and encourage behavior based on belief, not just logic.

Meanwhile, the indirect effect of ease of use on transaction decisions between trust (H7) is not statistically significant ($O = 0.059$, $p = 0.064$). Although the direction of the relationship remains positive, the results state that trust does not act as a strong mediator. This shows that it is not necessary to trust QRIS when using it, in their position they have felt the ease of use factor. Factors of convenience such as scanning codes, and completing transactions quickly can provide motivation to do it directly, without requiring emotional belief first.

The results explain that the fact of ease, among students who are developing in the digital era like today, if it is connected with closeness. When they trust a system is often built gradually, while ease of use refers more to the actions that occur at that time. So, students will try or use a platform with an ease factor, namely regardless of how their emotional relationship is.

Where if contributed, the results of the mediation state two different behavioral paths. First, security can be useful if through trust, which means security must be built through emotional certainty before it can influence decisions. Second, ease of use can operate directly, where security can influence decisions by first making actions very simple so that trust becomes secondary.

The results of these calculations validate that user trust is important in terms of security, but can be taken for granted when the system is easy to use. Therefore, digital payment platforms such as QRIS are able to address both the rational and emotional sides of user behavior. By building a system that is secure and trustworthy enough, application developers can ensure continued use among students.

Conclusion

The results of this study indicate that security and ease of use factors have a significant influence on transaction decisions among students of Jakarta State University, both directly and indirectly through user trust as one of the main factors. The strongest relationship found was regarding the perception of security and user trust, which states that emotional assurance plays a central role in shaping behavioral intentions. In addition, trust can significantly influence transaction decisions, by explaining its function as a psychological bridge that can connect system perceptions with actual behavior. Meanwhile, ease of use also directly influences transaction decisions that are stronger than security. This shows that simplicity of operation remains the main factor in encouraging direct use.

Overall, it shows that students not only decide to use a digital payment system by looking at security

factors, but also by looking at their ease of interacting in real time. The Technology Acceptance Model (TAM), as the basis of this study, shows the reality in measuring the influence of the relationship between perception, trust, and usage behavior in the context of QRIS.

In addition, the mediation analysis process states that trust can fully mediate the effect of security on transaction decisions, but not in terms of ease of use. Based on this statement, it explains that although security needs to be processed emotionally through trust before it can become behavior, ease of use has a direct functional effect. Students will act more according to convenience without having to build deep trust first, but trust is also needed to maintain their ongoing engagement. Therefore, this study emphasizes the dual strategy needed by QRIS service providers to further improve technical security and manage the process transparently to strengthen trust, while increasing usability to ensure the system is practical.

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