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Electronic Money Card Service User Loyalty in Payment Transactions: A Study on Generation Z Students

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Abstract: This study aims to determine factors that influence the quality of service and the loyalty of electronic card service users, particularly in making payment transactions.The study used a quantitative-descriptive research method, collecting primary data from 560 electronic money card users at XYZ University. The sample included 131 users, and the data was analyzed using SmartPLS 3.0. The data was presented as numbers and interpreted into descriptions.This study indicates that: 1) ease of transaction has a positive and significant effect on service quality; 2) ease of transaction has a positive and significant effect on customer loyalty; 3) perceived Security has a positive and significant effect on service quality; 4) perceived security has a positive and significant effect on customer loyalty; 5) service quality has a positive and significant effect on customer loyalty; 6) ease of transaction has a positive and significant effect on customer loyalty through service quality; and 7) perceived security has a positive and significant effect on customer loyalty through service quality.This investigation has the potential to offer novel perspectives on the quality of service and customer loyalty among electronic money card users.

Keywords: Customer Loyalty, Ease of Transaction, Service Quality, Perceived Security.

INTRODUCTION

In the era of digital technology, payment transactions have changed considerably. While the use of traditional payment methods, such as cash, is diminishing, people are integrating into more viable and effective systems, such as electronic money cards (Bhuiyan, Akter, & Islam, 2024; Khando, Islam, & Gao, 2023). However, with all its benefits, many challenges are taking place. Among the main ones is the issue of security of transactions. According to Bank Indonesia (2019), about 40% of customers are still worried about personal information security using digital payment systems. In addition, there remain problems with technology adoption. Specifically, with remote areas, people do not fake technology use, which impedes electronic money card efficiency. Meanwhile, according to Choi et al. (2021), it leads to uneven access and application of such options, which may influence customer retention.

E-money cards, albeit offering a multitude of benefits, also cause several problems that need to be addressed. The foremost concern is a poor acceptance of retail facilities (Arifin & Sugiyanto, 2020; Munacinga, 2021). While the number of companies that accept e-money cards is growing, many facilities, especially those located in rural areas are yet to accept this medium of payment. The Indonesian Internet Service Providers Association (APJII) indicates that approximately 60% of Indonesian retailers implement electronic payment systems (Ciptarianto, 2022). Users are still subject to transaction fees, which present additional challenges. Certain service providers may restrict consumer interest in transacting with e-money cards by imposing additional fees. This demonstrates that, despite the convenience that e-money cards offer, there are numerous factors that can diminish user loyalty.

Electronic money card usage in Indonesia has been on the rise for the past few years. According to the Financial Services Authority's report, the number of electronic money card operation transactions in 2021 will reach more than 1.5 trillion, with the approximate total transaction value being equal to IDR 200 trillion (Romero, 2024). In addition, these figures for 2022 will incline to 2 trillion transactions with a total operation transaction value of IDR 300 trillion. Meanwhile, projections for the 2023 cycle suggest that the number of transactions might be slightly higher than 2.5 trillion, while the operation total transaction value will be around IDR 400 trillion. While the information is clearly a sign that the public is increasingly interested in the rapid methods of paying for operations, it shows the need to address the factors affecting user retention with a greater degree of care (Mashatan, Sangari, & Dehghani, 2022). Therefore, by increasing awareness of the crucial issues, firms can develop a more efficient approach to enhancing customer satisfaction and fostering a more loyal audience (Gazi, Mamun, Masud, Senathirajah, & Rahman, 2024).

The following problem formulations are derived from the problem's background: 1) Does transaction ease have a positive and significant impact on service quality? 2) Does transaction ease have a positive and significant impact on customer loyalty? 3) Does perceived security have a positive and significant impact on service quality? 4) Does perceived security have a positive and significant impact on customer loyalty? 5) Does service quality have a positive and significant impact on customer loyalty? 6) Does transaction ease have a positive and significant effect on customer loyalty through service quality? 7) Does perceived security have a positive and significant effect on customer loyalty in terms of service quality?

METHOD

This investigation employed a descriptive quantitative methodology. We selected this approach because it enables researchers to conduct a thorough examination and comprehension of the phenomenon associated with the loyalty of electronic money card service users. The collection and analysis of descriptive quantitative data enabled researchers to modify their methodology in accordance with the research objectives and characteristics of the subjects under investigation. The study included 560 respondents who used electronic money cards and were part of the 2024 batch at XYZ University. This investigation employed a simple random sampling method. 131 respondents from the 2024 batch of XYZ University, who also utilized electronic money card services for transactions, comprised the sample size.

To gather primary data for this investigation, users of electronic money card services completed questionnaire instruments and conducted in-depth interviews. Researchers then collected this data using a Google Form to compile research data tabulations. Then, in order to facilitate research on the loyalty of electronic money card users, researchers also gathered previous research data from reputable academic journals, such as the Thomson Reuters Journal, Springer, Taylor & Francis, Scopus, Emerald, Sage, Web of Science, Sinta Journal, DOAJ, and EBSCO, as well as platforms such as Publish or Perish and Google Scholar, books, and other pertinent documents. We used this information to gain a deeper understanding of the loyalty of electronic money card service users. This investigation employed SmartPLS version 3.0 as its

analysis tool. This investigation implemented the validity test, reliability test, inner model, outer model, and hypothesis test.

RESULTS AND DISCUSSION

Results

In this study, the research results include testing the outer model and inner model:

Outer Model for Validity Test

Using convergent validity, If the correlation coefficient is more than (>) 1 or = 1, then the validity measure is considered high. Table 1 presents the results of the outer model convergent validity test (Habib & Hasan, 2019).

Table 1. Convergent Validity Analysis

	X1	X2	Y1	Y2
X1.01	0,843			
X1.02	0,933			
X1.04	0,928			
X1.05	0,859			
X2.01		0,805		
X2.02		0,794		
X2.04		0,775		
X2.05		0,890		
Y1.01			0,910	
Y1.02			0,843	
Y1.03			0,883	
Y1.05			0,786	
Y2.01				0,818
Y2.03				0,856
Y2.05				0,755

The results in Table 1 above confirm the validity of all the variables in this study, with each indicator achieving a loading factor value greater than 0.60, indicating that each variable satisfies the research criteria (Snyder, 2019).

Using AVE (Average Variance Extracted) analysis, validity latent variables can explain, on average, more than half of the variance of their indicators (Nasution, Fahmi, Jufrizen, Muslih, & Prayogi, 2020).

Table 2. AVE Analysis

Variable	*Average Variance Extracted (AVE)*
Ease of Transaction	0.795
Perceived Security	0.668
Quality of Service	0.734

Customer Loyalty	0.657

According to Table 2 above, the transaction convenience variable's AVE value is 0.795, perceived security is 0.668, service quality is 0.734, and customer loyalty is 0.657. This shows that all variables in this study obtained a value of more than > 0.5, meaning that each variable has good discriminant validity.

External Model Reliability Test

Using composite reliability, the purpose of this reliability test is to assess a respondent's relevance and consistency in answering or filling out the provided questionnaire (Guenther, Guenther, Ringle, Zaefarian, & Cartwright, 2023).

Table 3. Composite Reliability Analysis

Variable	Composite Reliability
Ease of Transaction	0.939
Perceived Security	0.889
Quality of Service	0.917
Customer Loyalty	0.852

Based on the test results in Table 3 above, the composite reliability value of the transaction convenience variable is 0.939; the composite reliability value of perceived security is 0.889; the composite reliability value of service quality is 0.917; and the composite reliability value of customer loyalty is 0.852. The overall value of the variable exceeds 0.7, indicating the reliability of all variables.

Cronbach's Alpha analysis can strengthen reliability tests that involve composite reliability. Each variable is considered reliable if its Cronbach's alpha value is greater than 0.7 (Guenther et al., 2023).

Table 4. Cronbach's Alpha Analysis

Variable	*Cronbach's Alpha*
Ease of Transaction	0.913
Perceived Security	0.835
Quality of Service	0.878
Customer Loyalty	0.740

Source: Output SmartPLS 4.1.0.0

According to the test results in Table 4 above, the cronbach's alpha value for the transaction convenience variable is 0.913, the cronbach's alpha value for perceived security is 0.835, the cronbach's alpha value for service quality is 0.878, and the cronbach's alpha value for customer loyalty is 0.740. All variables exceed 0.7, indicating their reliability.

Structural Model Analysis (Inner Model)

This structural model test aims to identify the relationship or influence between constructs, significant values, and R square (Thakkar, 2020).

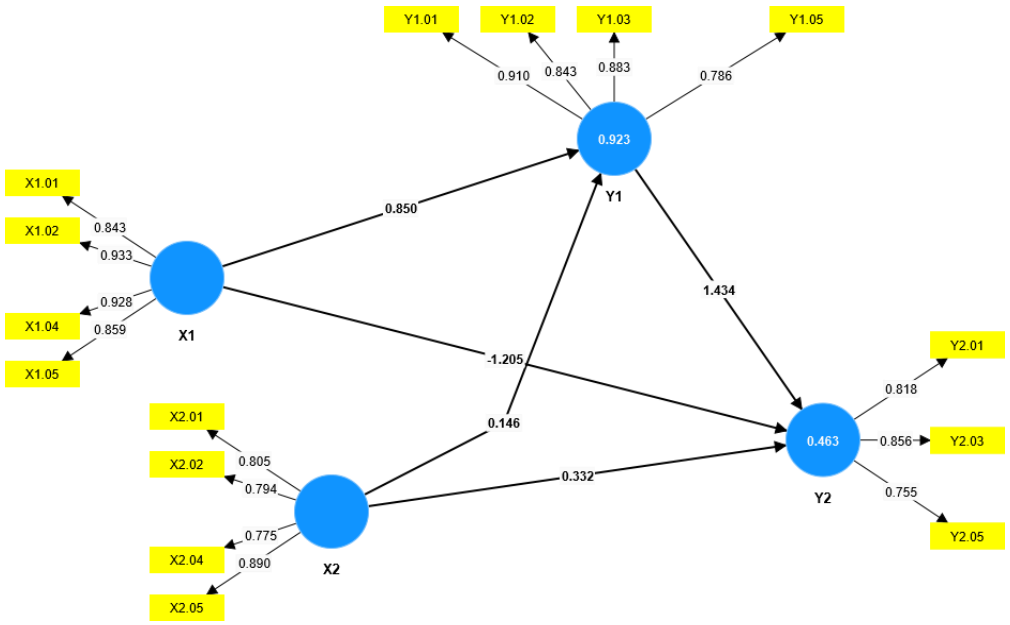


Figure 1. Output Inner Model
Source: Output SmartPLS 3.0

In this structural model analysis, the aim is to determine the magnitude of the influence or relationship between the independent variables and the dependent variables. Thakkar (2020) used three measurement standards: a substantial influence of 0.75, a moderate influence of 0.50, and a weak influence of 0.25. The R-Square SmartPLS 3.0 results are as follows:

Table 5. Structural Model Analysis Output (R-Square)

Variable	*R-Square*	*R-Square Adjusted*
Service Quality (Y1)	0.923	0.921
Customer Loyalty (Y2)	0.463	0.450

Source: SmartPLS 3.0 Output

The R-square data in Table 5 above reveals that the combined impact of the variables Ease of Transaction (X1) and Perceived Security (X2) on the variable Service Quality (Y1) is 0.921 (92.1%), indicating that all exogenous construct variables (X1 and X2) have a simultaneous influence of 92.1% on Y1. Therefore, if the adjusted R square value exceeds 0.75, or 75%, it indicates that the exogenous variables fall into the substantial category of influence. We know that the combined impact of the variables Ease of Transaction (X1), Perceived Security (X2), and Service Quality (Y1) on the variable Customer Loyalty (Y2) is 0.450 (45%), indicating that all the exogenous construct variables (X1, X2, and Y1) simultaneously influence Y2 by 45%. Therefore, if the adjusted R square value exceeds 0.25 or 25% but falls below 0.50 or 50%, the exogenous variable's influence falls into the weak category.

Hypothesis Testing Results (Significance Test)

Hypothesis testing using output path coefficients and indirect effects Thakkar (2020) are presented in Table 5 below.

Table 6. Hypothesis Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values

Ease of Transaction -> Quality of Service	0.850	0.853	0.037	23.176	0.000
Ease of Transaction -> Customer Loyalty	-1.205	-1.254	0.262	4.595	0.000
Perceived Security -> Quality of Service	0.146	0.143	0.043	3.385	0.001
Perceived Security -> Customer Loyalty	0.332	0.328	0.114	2.919	0.004
Service Quality -> Customer Loyalty	1.434	1.480	0.262	5.477	0.000
Ease of Transaction -> Quality of Service -> Customer Loyalty	1.218	1.268	0.262	4.642	0.000
Perceived Security -> Service Quality -> Customer Loyalty	0.210	0.205	0.051	4.147	0.000

The purpose of this bootstrapping test is to minimize the abnormality in the research data. Here are the results of the bootstrapping test:

Ease of Transactions on Service Quality

The results of the first hypothesis test show that ease of transaction has an effect on service quality, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was 0.850 with a T statistic value of 23.176 and a P value of 0This value exceeds the t table value of 1.978, and the P value is less than 0.05, indicating a significant effect.icant.

Therefore, ease of transaction has a significant impact on the quality of electronic money card services. It means that H1 is accepted.

Ease of Transactions on Customer Loyalty

The results of the second hypothesis test show that ease of transaction has an effect on customer loyalty, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was -1.205 with a T statistic value of 4.595 and a P value of 0.000. This value is greater (>) than the t table value (1.978), and the P values value is smaller (<) 0.05, meaning it has an effect and is significant.

Therefore, ease of transaction has a significant impact on customer loyalty to electronic money cards. It means that H2 is accepted.

Perceived Security on Service Quality

The results of the third hypothesis test show that perceived security influences service quality, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was 0.146 with a T statistic value of 3.385 and a P value of 0.001. This value exceeds the t table value of 1.978, and the P value is less than 0.05, indicating a significant effect.

Therefore, perceived security has a significant effect on the quality of electronic money card services. It means that H3 is accepted.

Perceived Security on Customer Loyalty

The results of the fourth hypothesis test demonstrate the influence of perceived security on customer loyalty, as shown in Table 5. The hypothesis test analysis yielded a value (O)

where the path coefficient was 0.332 with a T statistic value of 2.919 and a P value of 0.004. This value exceeds the t table value of 1.978, and the P value is less than 0.05, indicating a significant effect.

Therefore, perceived security has a significant effect on customer loyalty of electronic money cards. It means that H4 is accepted.

Service Quality on Customer Loyalty

The results of the fifth hypothesis test show that service quality has an effect on customer loyalty, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was 1.434 with a T statistic value of 5.477 and a P value of 0.000. This value exceeds the t table value of 1.974, and the P value is less than 0.05, indicating a significant effect.

Therefore, Service Quality has a significant effect on Electronic Money Card Customer Loyalty. It means that H5 is accepted.

Ease of Transaction on Customer Loyalty through Service Quality

The results of the sixth hypothesis test show that ease of transaction has an effect on customer loyalty through service quality, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was 1.218 with a T statistic value of 4.642 and a P value of 0.000. This value is greater (>) than the t table value (1.974), and the P values value is smaller (>) 0.05, meaning it has an effect and is significant.

Therefore, Ease of Transaction has a significant effect on Customer Loyalty through the Quality of Service for Electronic Money Card users. It means that H6 is accepted.

Perceived Security on Customer Loyalty through Service Quality

The results of the seventh hypothesis test show that perceived security influences customer loyalty through service quality, as shown in Table 5. The hypothesis test analysis yielded a value (O) where the path coefficient was 0.210 with a T statistic value of 4.147 and a P value of 0.000. This value is greater (>) than the t table value (1.974), and the P values value is smaller (>) 0.05, meaning it has an effect and is significant.

Therefore, Perceived Security has a significant effect on Customer Loyalty through the Quality of Service for Electronic Money Card users. It means that H7 is accepted.

Discussion

Ease of Transaction on Service Quality

According to the results of this reserch, the ease of transaction has a significant impact on the quality of service for e-money card users, especially students in the 2024 class at XYZ University. The user's perception of practicality and efficiency when making payments or transactions with an e-money card characterizes ease of transaction. This element covers various aspects, including ease of access, speed of transaction processing, and minimal technological constraints encountered during use. For students, who often have high mobility and limited time, ease of transaction is essential to support their fast-paced digital lifestyle (Tulinayo, Ssentume, & Najjuma, 2018). Students can use e-money cards to make payments at various locations, including canteens, minimarkets, and public transportation, without having to carry large amounts of cash (Mulyana, Tetep, Hamdani, & Uno, 2022; Viviana & Mulyono, 2022).

When transactions are simple, users feel safer. College students, who are the main users in this survey, prefer e-money cards because they reduce the risk of losing cash or theft (Foster,

Hurriyati, & Johansyah, 2022). Meanwhile, according to the results of this study, the ease of topping up and checking balances in real time via mobile applications increases their confidence in using e-money cards. In this context, ease of transacting does not only refer to the payment process but also to the entire ecosystem that supports the use of e-money cards, such as ease of topping up balances, providing transparent balance information, and ease of access to payment service provider networks (Kajol, Singh, & Paul, 2022).

Consumer convenience in transacting with e-money cards has a significant impact on the level of service provided. It means that when students feel that the transaction procedure is smooth and without obstacles, they tend to rate the quality of service provided by e-money cards higher (Kim, Wichianrat, & Yeo, 2024). It includes a quick response from the system when they make payments, the ability to connect the card to various digital platforms, and customer service support that is ready to help if problems arise. It is in line with the results of this study. The study suggests that students are more satisfied with e-money cards if they can use them without lengthy verification processes, leading to increased satisfaction with the quality of service provided by e-money card issuers and ease of transaction. The relationship between service quality and ease of transaction can be examined from a user experience perspective. Students' satisfaction with using e-money cards for daily activities like cafeteria payments, book purchases, and public transportation is a metric that can evaluate the quality of service at XYZ University.

Additionally, the ease of transactions influences consumer loyalty. Students who perceive that e-money cards offer convenience in every transaction are considerably more inclined to continue employing the service than those who encounter technological obstacles or complications. For instance, students may seek alternative, more practical alternatives if the balance top-up process is excessively complex or the card is frequently damaged during use (Braun, 2023). E-money card providers must guarantee that their systems are easily accessible to students and operate smoothly in order to enhance customer loyalty and maintain high-quality service (Restuputri, Masudin, & Damayanti, 2022).

This study, which concentrated on the class of 2024 at XYZ University, concluded that the quality of e-money card services is significantly influenced by the ease of transaction. Pragmatism and efficiency are highly valued by students, who are a digital native generation, value pragmatism and efficiency in all aspects of their lives, including money and transactions (Bhalla, Tiwari, & Chowdhary, 2021; Zubareva, 2020). Consequently, in order to satisfy user expectations and maintain exceptional service quality, e-money card service providers must persist in their efforts to improve transaction ease. Therefore, the simplicity of transactions can significantly contribute to the satisfaction of students who utilize e-money cards.

Ease of Transaction on Customer Loyalty

Based on the results of this study, especially among the 2024 cohort of students at XYZ University who utilize e-money cards, the ease of transaction is a critical factor in fostering customer loyalty. Ease of transaction is the degree to which it is effortless and effective for users to access information about e-money cards, make payments, and top up their balances (Rahmiati & Susanto, 2021; Widayat, Masudin, & Satiti, 2020). E-money cards have become a favored payment method due to their capacity to adapt to the fast-paced and digital lifestyles of 337 e-money service users in Indonesia (Susanto, Hoque, Hashim, Shah, & Alam, 2022). This ease of use encompasses factors such as transaction speed, accessibility, and minimal user interface challenges. Therefore, based on the results of this study with additional previous studies, students' dedication to the service is enhanced when they are convinced that using e-money cards is easy and convenient.

E-money cards are frequently employed by students for a variety of daily activities, such as making payments at cafeterias, convenience stores, and public transportation. Users are more satisfied when transactions are completed quickly and without difficulty, which in turn

increases their loyalty to the service provider (Viviana & Mulyono, 2022). This transactional simplicity also provides users with psychological solace, as they are relieved of the burden of carrying currency or encountering technical difficulties when conducting transactions. Additionally based on the results of this study, the simplicity with which users can access their balances through digital payment systems or applications fosters a greater sense of control, which in turn enhances their satisfaction and loyalty. Therefore, students who take advantage of this convenience are significantly more likely to continue using e-money cards in the future.

The positive impact of ease of transaction on customer loyalty is demonstrated by the increase in consumer trust in the service. According to the results of this study, students who have had a positive transaction experience are more likely to trust the e-money card provider because they believe the service is dependable and responsive to their needs. Meanwhile, the concept of loyalty encompasses more than just the frequency with which consumers utilize an e-money card; it also encompasses emotional factors, such as trust and attachment to a brand or service (Fathur & Cassandra, 2023). Students are convinced that the e-money card provider prioritizes their user experience due to the frequent ease of transactions, which strengthens the long-term relationship between users and service providers.

Additionally, the ease of transaction influences the perceived value that students derive from using an e-money card. Simplifying the transaction process increases the customer's value of the service. Students will experience a sense of time and effort conservation, which will have a positive impact on their daily lives (Susanto et al., 2022). This results in a higher level of loyalty, as individuals are inclined to continue utilizing services that they perceive as offering greater value. This convenience could include the ability to conduct transactions without queuing, top up quickly, or verify balances with a few clicks in the application for e-money cards (Sandbukt, 2021). This enhanced value motivates students to continue utilizing the service and even advocate for it to others.

A user experience that is enjoyable is also influenced by the ease of transaction. Students who consistently experience effortless and seamless transactions have an overall positive experience with the service. These positive experiences are instrumental in fostering user loyalty, as they are convinced that the service consistently meets or exceeds their expectations (Chen, Guo, Gao, & Liang, 2021; Vila, González, Araújo Vila, & Fraiz Brea, 2021). These positive experiences not only encourage users to continue using the service but also to resist the temptation to switch to other options that may not offer the same level of convenience. Additionally, students' loyalty is influenced by the convenience that e-money card companies provide in response to technological advancements influences student client loyalty. Students' loyalty will increase when they perceive that they can effortlessly utilize new features or services that facilitate transactions (Susanto et al., 2022). Students, for example, will be more inclined to use an e-money card provider's services if they are provided with QR code-based payment options or integrations with e-commerce and transportation applications, as these features are readily accessible (Hassan, Shukur, & Hasan, 2021; Sani et al., 2023). Additionally, it provides a more dynamic experience that caters to their requirements.

In general, the class of 2024 at XYZ University has demonstrated that customer loyalty is significantly and positively influenced by the ease of transactions. Students are not only more satisfied with the services provided, but also more loyal when they see the genuine advantages of fast, simple, and effective transaction procedures. This loyalty is evidenced by the frequency of use, recommendations to friends, and increased trust in the brand or service provider. Consequently, in order to preserve and enhance customer loyalty, e-money card providers must persist in their efforts to enhance the ease of transactions, particularly among students who have high expectations for fast and efficient service.

Perceived Security on Service Quality

The quality of service provided to e-money card customers is significantly and positively influenced by perceived security, particularly among the XYZ University class of 2024. The user's perception of the e-money card system's ability to safeguard personal data and financial transactions, as well as prevent misuse or information leakage, is referred to as perceived security. Students, who frequently utilize e-money cards for a variety of daily activities, including online transactions, public transportation, and canteen purchases, prioritize security when assessing their confidence in the service (Viviana & Mulyono, 2022). Users are more likely to evaluate the quality of service provided by the e-money card issuer. Identity theft protection and data encryption are critical components of perceived security (The World Bank, 2024a). System protection is of paramount importance to e-money card users, particularly students who frequently utilize digital services. If users are assured that their personal information and payment details are securely protected by features such as encryption, two-factor authentication, or real-time transaction alerts, they will feel more at ease and confident in using the service. This perceived security not only provides a sense of tranquility but also leads to a more seamless and stress-free user experience.

According to the results of this study, students experience a greater sense of security when they perceive high levels of security, which in turn safeguards them from the possibility of illegal purchases or the misuse of their credit cards. The implementation of supplementary security measures, such as the ability for consumers to immediately report and block lost cards or automatic card blocking in the event of suspicious behavior, enhances the sense of security. This trust is instrumental in the enhancement of service quality, as consumers are convinced that e-money card service providers are genuinely safeguarding their interests. Students who are comfortable with e-money cards generally regard service quality favorably because it meets their security expectations. The service provider's reputation is also a factor in security. This will enhance users' perceptions of the service's overall quality if an e-money card issuer has a proven history of safeguarding customer data and transactions. Students who perceive that they are receiving services from a secure and dependable system are considerably more inclined to remain loyal and continue to utilize the service. This indirectly enhances the reputation of the e-money card provider, as they are also more inclined to recommend the service to their friends (Octabriyantiningtyas, Suryani, & Jatmiko, 2019). In this context, service quality is assessed not only by transaction completion efficiency, but also by the level of protection and support that users experience from the service provider.

This perceived security element can also enhance the overall satisfaction of users. Students are satisfied with the overall service provided when they are assured that all of their transactions are secure, in addition to a fast and straightforward payment process. Operational efficiency is not the only aspect of excellent service quality; it also encompasses safeguarding users from potential threats during the transaction process (The World Bank, 2024a). In this scenario, perceived security significantly influences the development of a positive perception of service quality. Furthermore, perceived security can reduce consumer complaints or issues. With strong security mechanisms in place, e-money card customers rarely face issues such as identity theft or unauthorized transactions. This significantly reduces the need to complain or resolve issues after a transaction has occurred. As a result, when people feel secure, they are more satisfied with the services they receive because they are not dealing with security issues (Chen et al., 2021).

In conclusion, this investigation focused on the 2024 cohort of students at XYZ University and discovered that service quality is significantly influenced by perceived security. Data security and transaction integrity are of paramount importance to students, who are members of the digital native generation. When consumers are assured that the e-money card they use offers sufficient security, they are considerably more inclined to provide favorable reviews of the service. Perceived security is not only a form of physical or digital protection, but it also plays a significant role in the development of user trust and loyalty to e-money card

services. As a result, it is imperative that e-money card service providers enhance security features to ensure that users feel secure, thereby improving their perceptions of the quality of service they receive.

Perceived Security on Customer Loyalty

Perceived security significantly and positively influences the customer loyalty of e-money card users, particularly those from the 2024 batch at XYZ University. Perceived security is the degree to which users believe that the e-money card system effectively protects their personal information, safeguards financial transactions, and mitigates the risk of misuse. Students who frequently utilize e-money cards in their daily routines, including online shopping, public transportation, and cafeteria payments, prioritize security. Confidence in the security of their data and transactions enhances users' loyalty to e-money card service providers, as trust and security are essential components of a positive user experience.

Because students are active consumers of digital technology, they will prioritize security during transactions. E-money cards that incorporate sophisticated security features, including data encryption, real-time transaction notifications, and two-factor authentication, offer users confidence and peace of mind (Octabriyantiningtyas et al., 2019). Users who have confidence in the service's ability to protect their personal information and financial activities are more likely to regularly use e-money cards. Not only does this sense of security influence the frequency of use, but it also fosters emotional loyalty among students, who perceive that the card provider is genuinely concerned with their interests (The World Bank, 2024b). The reluctance to switch to alternative services, as well as recommendations to others, are indicative of this loyalty.

Perceived security is also critical for long-term loyalty development because it fosters consumer happiness. When students feel secure in their protection from potential risks like identity theft or illegal transactions, their satisfaction with the service they receive increases (Bhuiyan et al., 2024)v. This satisfaction has a direct effect on loyalty, as satisfied users are more likely to continue using the same service and avoid the risks associated with using competing services that may be less secure (Kajol et al., 2022). In this scenario, e-money card providers that can offer a high level of security assurance will have a greater likelihood of retaining client loyalty in the face of expanding competition in the digital financial services sector.

Perceived security can also decrease user anxiety during transactions, thereby increasing the frequency of use. Students who are confident in their ability to use e-money cards will engage in more frequent transactions without concern for potential consequences. When individuals are assured that their data will not be exploited and that their transactions are secure, they are more inclined to utilize e-money cards for a diverse range of activities, including small purchases such as food and larger payments (The World Bank, 2024b). This security-free experience leads to a consistent pattern of use, which is a critical indicator of consumer loyalty. Additionally, consumer loyalty is contingent upon their perception of the value they derive from a secure service. Adequate security enhances students' perceptions of service quality, leading them to believe that the service provides reasonable protection and convenience compared to its cost. This promotes loyalty among customers, as they perceive that they are receiving more than just a payment method; they are also receiving protection to guarantee a positive transaction experience (Octabriyantiningtyas et al., 2019). Even if cheaper alternatives offer less security, users who value the service more for security are more likely to use it.

Perceived security influences loyalty over time through word-of-mouth. Users who are satisfied with the security of an e-money card service are more inclined to recommend it to their friends, family, and colleagues. This type of recommendation is particularly popular among college students and has the potential to expand the service's user base. Users' willingness to actively advocate for the service to others, as evidenced by their personal experiences, not only

determines loyalty, but also their ongoing utilization of the service. When consumers perceive security as satisfactory, they are more likely to remain loyal to a service because they are able to share positive experiences with others. In general, the perceived security of e-money card users in the XYZ University class of 2024 positively and significantly influences their customer loyalty. Good security not only fosters trust and happiness but also motivates users to continue using and recommend the service to others. Therefore, in order to guarantee that users are secure, e-money card issuers must persist in their efforts to innovate in the realm of system security. This, in turn, will strengthen their loyalty to the service.

Service Quality on Customer Loyalty

Service quality significantly and positively influences the loyalty of e-money card users, particularly those in the 2024 class of XYZ University. In this context, service quality encompasses a variety of factors, including customer service responsiveness, accessibility, usability, and speed. Students who frequently utilize e-money cards depend on them for a variety of transactions, such as online shopping, public transportation, and cafeteria payments. The extent to which service quality meets or exceeds their expectations directly influences customer loyalty. System reliability significantly influences service quality. A stable and uninterrupted system is a top priority for e-money card users, particularly students who conduct frequent transactions (Octabriyantiningtyas et al., 2019). Reliable service provides users with the assurance and convenience of being able to conduct transactions at any time without concern for errors or delays. Users are more likely to be satisfied when a system is reliable and functions efficiently, which in turn fosters loyalty to the service (Rahayu, Rahmatia, Hamrullah, & Junior, 2023). They will prefer to remain loyal to an e-money card that has demonstrated stability rather than trialing alternative options that may not necessarily be superior.

In addition to reliability, ease of use is a critical factor in the development of loyalty. College students place a high value on services that are both user-friendly and simple to acquire, particularly those that have intuitive interfaces. When transactions execute effortlessly, users are considerably more inclined to continue using their electronic money cards. An application or platform that is uncomplicated, straightforward, and provides clear instructions to users will improve the overall user experience. This positive experience will encourage consumers to stay loyal to the e-money card issuer, as they believe the service simplifies their daily routines.

Service providers' responsiveness to customer complaints or difficulties is also a sign of good service quality. When faced with issues such as lost cards or failed transactions, students who utilize e-money cards anticipate a prompt response and appropriate resolution. Service providers who promptly address consumer concerns and offer suitable solutions will earn the trust and loyalty of clients. This response demonstrates that the service provider is genuinely concerned with user satisfaction, which in turn fosters a sense of value among users. Users who experience a sense of value and satisfaction are more likely to remain loyal and refrain from switching to other services.

Additionally, high-quality services can provide users with a sense of security. Students who feel confident about the security of their personal information and transactions are more likely to use e-money cards. The assurance of security enhances the overall user experience and brings peace of mind. Assuring students that they can use e-money cards without worrying about data leakage or transaction misuse will boost their loyalty to the service provider. Consequently, service quality, including security assurance, significantly influences client loyalty. The 2024 cohort of students at XYZ University found that service quality significantly influences customer loyalty. Students who have favorable experiences with e-money cards in terms of security, responsiveness, reliability, and ease of use are more inclined to continue using them. They will use the service again and recommend it to friends, boosting their loyalty to the provider. In the current digital era, where financial service providers are in fierce competition,

it is imperative to provide exceptional service quality in order to establish and sustain customer loyalty.

Ease of Transaction on Customer Loyalty through Service Quality

The ease of transactions significantly influences the loyalty of e-money card customers in the current digital era. The primary focus of this investigation is on the class of 2024 at XYZ University, who frequently employ e-money cards. The younger generation has increased their use of e-money by 60% in the past two years (Arifin & Sugiyanto, 2020). However, the primary attraction is the convenience of transactions. Ease of transaction can be defined as the speed and efficiency with which an individual can make a payment without encountering any significant obstacles. In the context of students who frequently have high mobility and busy schedules, the use of e-money cards offers a simple alternative to satisfy their daily transaction requirements. According to research by Annisa Fitrah and Taufiq Chaidir (2024), 75% of students prefer to use e-money cards due to their faster transaction process compared to traditional payment methods like cash or bank transfers.

Furthermore, service quality significantly influences user loyalty. High service quality can enhance customer satisfaction, which in turn fosters loyalty, as per Santos et al. (2020). In this study, students are more satisfied when they use e-money cards that offer responsive and effective customer service. For instance, the speed and precision of problem resolution during a transaction significantly influences the user's perception of the service. The Indonesian Internet Service Providers Association (APJII) reported in 2023 that 80% of e-money card customers were satisfied with the services and ease of access provided by service providers. This demonstrates a positive correlation between user loyalty and transactional simplicity. When users receive excellent treatment and enjoy a seamless transaction, they are more inclined to stick with the product in the future.

Use of digital payment programs, including GoPay and OVO, which are exceedingly popular among students, serves as an appropriate case study. Both offer numerous transactional advantages, including user transfers and merchant payments. Rahardja et al. (2023) conducted a survey, which revealed that 85% of GoPay users expressed their intention to continue using the service due to its satisfactory service quality and convenience. This indicates that the combination of high-quality service and transaction ease can enhance user loyalty. In conclusion, the results of this investigation suggest that the quality of service has a substantial and beneficial effect on customer loyalty as a result of the ease of transaction. Service providers must maintain their commitment to enhancing the quality of service and guaranteeing that transaction procedures are straightforward and efficient in the context of XYZ University students who utilize electronic money cards. Consequently, as technology advances and market demands evolve, it is likely that user loyalty will remain intact and potentially even grow.

Perceived Security on Customer Loyalty through Service Quality

Security is a critical element of financial transactions in the current digital era, particularly for individuals who utilize electronic money card services. The primary focus of this investigation is on the 2024 class of students at XYZ University who are enthusiastic users of electronic money cards. The study's results reveal that user perceptions of security significantly and positively impact customer loyalty. Kumar & Gupta (2020) conducted a study that found that security perceptions directly influence consumer satisfaction and loyalty in digital financial services. Perceived security is the user's conviction that their personal information and transactions are secure from potential attacks. Data theft, fraud, or information leakage are frequently the areas of concern for users of electronic money cards. PwC (2020) conducted a survey in which over 67% of respondents stated that they would refrain from using digital financial services if they experienced an unsafe environment. Consequently, electronic

money card service providers must guarantee that their security protocols are sufficiently robust to inspire users' confidence.

A data leak at one of Indonesia's digital payment service providers serves as a tangible illustration of the significance of security. An incident in 2021 that disclosed customer data significantly eroded public confidence in the service. After the incident, the number of active users of the service decreased by 30%, as per Sabian et al. (2023). This highlights the importance of security in preserving client loyalty. Service quality also significantly influences consumer loyalty. Users may experience an enhanced sense of security as a result of superior service quality. Hamdan et al. (2023) discovered a positive correlation between perceived security and service quality. When users perceive that the service they receive is responsive and satisfactory, they are inclined to continue utilizing it. In this context, it is imperative that e-money card service providers prioritize the enhancement of service quality, including the speed of transactions, the ease of access, and the response to consumer complaints.

Furthermore, it is imperative that service providers provide users with information regarding transaction security. Numerous consumers are uncertain about the most effective methods for safeguarding their personal information during online transactions. Service providers can enhance users' sense of security by furnishing them with information that is both concise and comprehensible regarding the security measures they can implement. Users who possess an understanding of transaction security are inclined to exhibit greater loyalty to the services they employ, as per Valdez-Juárez et al. (2021). Perceived security significantly and positively influences customer loyalty, and e-money cardholders' quality of service achieves this. In order to maintain and increase customer loyalty, service providers must prioritize security and service quality, particularly among students, who are among the demographics of users rapidly utilizing e-money cards.

CONCLUSION

Based on the research results that have been obtained, the conclusions in this study are as follows:

1. Ease of Transaction has a positive and significant effect on Service Quality.
2. Ease of Transaction has a positive and significant effect on Customer Loyalty.
3. Perceived Security has a positive and significant effect on Service Quality.
4. Perceived Security has a positive and significant effect on Customer Loyalty.
5. Service Quality has a positive and significant effect on Customer Loyalty.
6. Ease of Transaction has a positive and significant effect on Customer Loyalty through Service Quality.
7. Perceived Security has a positive and significant effect on Customer Loyalty through Service Quality.

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