

# The Impact of Perceived Security and Customer Literacy on E-Loyalty with Platform Functionality as Mediating Variable: A Case Study on Shopee Customers

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## Abstract

As businesses increasingly shift toward digital platforms to engage with customers, understanding the factors influencing e-loyalty becomes crucial. Shopee, one of the biggest cross-border e-commerce in Indonesia, can sustain loyal customers. However, the illegal use of customer data may become the reason for the downfall of loyal customers. To understand how customer loyalty is gained, it is important to consider factors such as customer literacy and perceived security on their platform. Moreover, this study explores the role of platform functionality as a mediator, drawing insights from the Technology Acceptance Model (TAM) theory to establish a conceptual model encompassing ease of use, customization, and access. The author researched using the data collected from 125 Shopee customers in Indonesia. The findings, analyzed through structural equation modeling, indicate that platform functionality is important in customer literacy and perceived security toward customers' e-loyalty. Theoretical implication suggests customer literacy has a stronger influence than perceived security on e-loyalty through platform functionality. On the practical side, e-commerce platforms such as Shopee should increase activities promoting security concerns and educational resources to enhance customer literacy.

## Keywords:

Technology Acceptance Model (TAM) Theory; Customer Literacy; Perceived security; E-loyalty; Platform Functionality

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## Introduction

The rapid emergence of e-commerce platforms has created a profound shift in business operations, forcing firms to pivot from traditional marketplaces into the dynamic world of online commerce (Ghali, 2021). The persistent development of information technology drives this shift, leading to a growing e-commerce user



base—a market characterized by the online exchange of goods, services, and information (Nathaniel et al., 2019). Notably, this digital revolution has brought about paradigm-shifting innovations such as Electronic Data Interchange (EDI). This paradigm change is intrinsically inclusive because it allows rural areas to participate in the economy and allows small and medium-sized businesses (SMEs) to compete on a global, regional, and national level (Sadeeq, Abdulla, Abdulraheem, & Ageed, 2020) (HAJI, 2021).

A thorough look at the benefits and difficulties of cross-border e-commerce (CBeC) is now possible due to the startling 32,23% of Indonesian enterprises, or 2,868,178 businesses, that adopted online operations in the fourth quarter of 2022 (Annur, 2022) (Taher, 2021) (Fan, 2019). Shopee, Indonesia's top CBeC platform, serves as a compelling example of this revolutionary path as it has achieved the top spot in the monthly user rankings for 2022, overcoming competitors like Tokopedia and Lazada (Gabriella & Agus, 2021) (CNBC Indonesia, 2022). In light of this, Shopee has amassed a devoted following of customers (Putri & Pujani, 2019). However, this transition from traditional markets to e-commerce has also resulted in various difficulties, calling for a deeper investigation of customer loyalty and security and literacy dynamics within the online environment.

This study attempts to identify several factors that influence e-loyalty through the Theory of Technology Acceptance Model (TAM) lens. The TAM model states that two main factors influence how and when people will use technology (Hizkia, 2023). The first factor is perceived usefulness, which determines whether technology does what the user wants. The second factor is the perceived ease of use, which explains the minimum effort needed to use technology. So, in general, TAM theory explains individuals' beliefs and perceptions of technology. The research is based on customers' knowledge and perception of e-payment systems in Shopee and how it affects e-loyalty.

Some attributes determine how well Shopee meets the needs of its users and how, in return, customers provide loyalty to the platform by looking at its associated security systems. It consists of the way the security of the platform is perceived and the knowledge of e-payment systems that encourage customers' buying behavior towards Shopee subsequently. The intention of customers to repurchase on the same platform or recommend it to other users is called e-loyalty (EL) (Purwanto, 2022). The confidence and awareness attribute of Shopee consists of perceived security (PS) and customer literacy (CL), which may affect e-loyalty. It is supported by research that found a significant effect between PS and EL (Ghali, 2021) (Pham & Ahammad, 2017) (Wilson et al., 2021), while studies by Farhat (2019) and (Camilleri, 2021) show that PS does not affect e-loyalty, where PS can become a negligible factor because the security level of a platform has no

significant impact on customer happiness, trust, and consequently, loyalty. Moreover, CL was found to have a significant effect on e-loyalty (Hajli et al., 2014) (Nurul et al., 2021) (Santika et al., 2020). Inversely, this is proportional to research by (Perera et al., 2019), where CL has no significant effect on e-loyalty by observing the effect of word-of-mouth (WOM). Based on these arguments, it can be seen that there are empirical gaps in the relationship between the effect of perceived security and customer literacy on the platform Shopee towards e-loyalty.

To answer the research gap above, the variable platform functionality is needed to mediate Shopee's confidence and awareness attribute. Customers' willingness to use and satisfaction with a platform is highly influenced by the platform's functionalities, including ease of use, customization, and accessibility (Camilleri, 2021). The capability of customers to understand and navigate the platform efficiently is referred to as ease of use, while the ease of customizing order details is referred to as customization. The technical capability of customers to place orders is referred to as access. E-loyalty is influenced by user input on these functionalities and is decreased by negative feedback. Thus, while Shopee plays a role in e-commerce transactions, Shopee must pay attention to the factors, such as platform functionalities that build customer trust and beliefs, and consequently e-loyalty, in the transaction security. Therefore, this research proposes to tackle these gaps in comprehension. This research aims to analyze the confidence and awareness attribute of Shopee customers that are PS and CL toward e-loyalty from the lens of the TAM with PF as a mediator variable.

## **Hypothesis Development**

### **The Effect of Perceived Security**

Hypothesis Development The Effect of Perceived Security PS involves payment security, privacy policies, and vendor reliability. The more secure the platform is, the more trust the customers give, and the more loyalty is expressed. Thus, concerns about private information leakage due to fraud and hacking influence user loyalty (Alshurideh et al., 2021).

PS positively influences PF (Farooq et al., 2020) through the intention of using e-platforms to gain more knowledge through the perceived usefulness (having access) and perceived ease of use of the platform.

Moreover, platform security's pivotal role in determining client e-loyalty is highlighted in Barusman's (2019) report. Customers would feel satisfied and loyal if they believe the platform has strong security and effective functionality. This trust improves the online shopping experience and motivates users to return to the platform and recommend it to others (Cui et al., 2018). Thus, the thesis hypothesis is as follows:

H1: Perceived security significantly affects loyalty.

H2: Perceived security significantly affects Platform Functionality.

H3: Perceived security significantly indirectly affects e-loyalty through platform functionality as the mediating factor.

### **The Effect of Customer Literacy**

The Effect of Customer Literacy Customer literacy entails understanding a platform's dynamics gained from personal experiences and materials, such as seminars and booklets (McGregor, 2011) (Bonfanti & Brunetti, 2018). Customer literacy emphasizes communication in building robust Customer Relationship Management (CRM) crucial for e-loyalty (Elkhanssa et al., 2016). Customer knowledge fosters trust, increasing loyalty (Aslam et al., 2019).

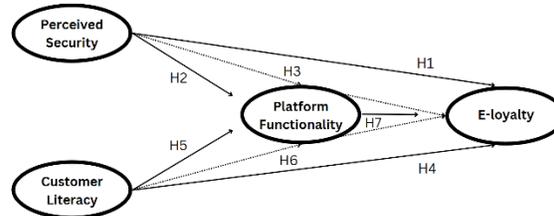
Customer literacy drives the usage of e-payment systems in the platform. The usage is influenced by interactions, such as reviews (Utami et al., 2021), ease of use, and accessibility (Farooq et al., 2020). Thus, customer literacy significantly influences platform functionality, such as ease of use and accessibility.

Furthermore, customer knowledge significantly impacts e-loyalty (Perera et al., 2019) through word-of-mouth. This is important because it promotes the profitability of the e-commerce platform by attracting and retaining customers (Khan & Hashmi, 2016). So, to sustain a successful e-business, e-commerce platforms such as Shopee must encourage customers to share their platform experiences with others. H4: Customer literacy significantly affects loyalty. H5: Customer literacy significantly affects platform functionality. H6: Customer literacy significantly and indirectly affects e-loyalty through platform functionality as the mediating factor.

### **The Effect of Platform Functionality**

According to Calimeri (2021), platform functionality is related to instrumental utility, technical capabilities, and efficiency. Platform features such as e-payment access, ease of use, and customization capabilities play important roles in the platform succession journey (Li et al., 2020) (Camilleri, 2021). Customers look at the product they intend to purchase and consider the service provided in making transaction decisions (Nasution et al., 2019). This means their use of the platform can influence customer loyalty. Thus, the proposed hypothesis is as follows: H7: Platform functionality significantly affects e-loyalty.

**Figure 1.**  
*Research Framework*



## METHOD

This study uses a quantitative method by collecting primary data by distributing online questionnaires using Google Forms. The sampling method used is non-probability sampling, namely the purposive sampling method, by selecting the criteria for respondents who use Shopee as their e-commerce platform with at least three transactions and the age of 17 to 40 years old. The questionnaire is divided into four parts; the first part is where respondents agree to become this research's participant and agree they have the proper criteria. The three following sections contain the measuring variables and indicators with 28 question items using a 5-point Likert Scale, "1 = fully disagree" to "5 = fully agree". Based on the Slovin method, with a population (N) of 160 populations, with an estimated error rate of 5%, the minimum number of samples (n) is  $\frac{160}{1+160(0,05)^2} = 114.28$  rounded down to 114 Shopee users.

Data were analyzed using Partial Least Square-Structural Equation Modeling (PLS-SEM) with SmartPLS software version 3.0. PLS-SEM has a prediction accuracy in statistical models

with straightforward and uncomplicated justifications. Therefore, PLS-SEM is chosen in this research model, with the mediator as the variable being studied.

## RESULT AND DISCUSSION

The result of descriptive research consists of the research sample amounting to 125 respondents. The following are the characteristics of respondents used in this study: have done a transaction in Shopee more than three times, come from various backgrounds and parts of Indonesia, and have a range of ages

between 17 and 40 years old. The characteristics of the respondents in more detail can be seen in Table 1.

**Table 1.**  
*Respondents' Characteristics*

Respondents Characteristics	Amount (Person)	Percentage (%)
Have transacted at least 3 times	125	100%
Age:		
17 - 18	4	3.2%
19 - 24	101	80.8%
25 - 40	20	16%

Source: Primary Data (2023)

### Confirmatory Factor Analysis (CFA)

The CFA test aims to test whether the indicators grouped based on their latent variables remain consistent in their constructs so that the model developed is by theoretical framework. According to Isah, Ibrahim, and Karim (2023), the measurement of latent variables through convergent validity and reliability is used to test the value of loading factor, average variance extracted (AVE), composite reliability, and Dijkstra-Henseler rho ( $\rho_A$ ) higher than 0.60 (Ali et al., 2021). Testing the reliability and validity of each latent variable is explained in Table 2 and Table 3.

**Table 2.**  
*Outer Model Test Results*

Construct	Item Code	Loading Factor	AVE
Perceived Security	PS1	0.821	0.691
	PS2	<b>0.851</b>	
	PS3	0.650*	
	PS4	0.793	
Customer Literacy	CL1	<b>0.852</b>	0.627
	CL2	0.759	
	CL3	0.760	
	CL4	0.083*	
Platform Functionality	PF-E1	0.708	0.620
	PF-E2	0.772	
	PF-E3	0.787	
	PF-E4	0.710	
	PF-E5	0.640*	
	PF-C1	0.728	
	PF-C2	<b>0.843</b>	
PF-C3	0.774		

	PF-C4	0.736	
	PF-A1	0.139*	
	PF-A2	0.207*	
	PF-A3	0.643*	
	PF-A4	0.675*	
	PF-A5	0.661*	
E-loyalty	EL1	0.840	0.726
	EL2	0.856	
	EL3	0.845	
	EL4	<b>0.869</b>	

Source: Data processed through SmartPLS 3.0 (2023) Note: \*the indicator not use in path analysis test because the outer loading number is <0.60).

**Table 3.**  
*Reliability Test*

Variable	Composite Reliability	Rho (pA)
PS	0.872	0.782
CL	0.832	0.814
PF	0.928	0.914
EL	0.914	0.882

Source: Data processed through SmartPLS 3.0 (2023)

### Discriminant Validity

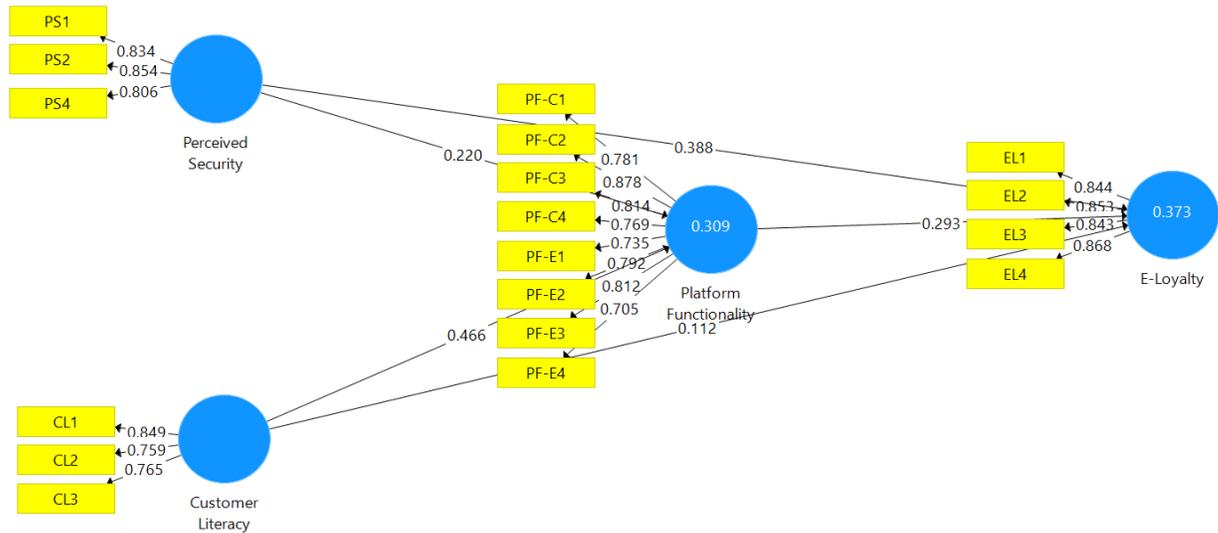
Test using correlation values between variables from the Heterotrait-Monotrait ratio (HTMT) found that all correlations between variables did not exceed the cut-value of 0.90 (Siraj et al., 2022) so that the four variables can be ascertained with discriminant validity. According to (Hair Jr et al., 2021), the method using the HTMT ratio is more effective in testing discriminant validity when compared to the criteria from Fornell-Larcker. Complete results can be seen in Table 4.

**Table. 4**  
*Discriminant Validity by HTMT*

	CL	EL	PS	PF
CL	0.792			
EL	0.343	0.852		
PS	0.210	0.505	0.832	
PF	0.512	0.474	0.318	0.787

Source: Data processed through SmartPLS 3.0 (2023)

**Figure 2.**  
*The Results of Full Model Analysis*



Source: Data processed through SmartPLS 3.0 (2023)

**Path Analysis Test Results with PLS-SEM**

**Table 5.**  
*Research Hypothesis Test*

Hypothesis		Coefficients $\beta$	Results
Perceived security $\square$ E-Loyalty	H1	0.000*	Significant
Perceived security $\square$ Platform Functionality.	H2	0.003*	Significant
Perceived Security $\square$ Platform Functionality $\square$ E-Loyalty	H3	0.032**	Significant
Customer Literacy $\square$ E-Loyalty	H4	0.404	Non-significant
Customer literacy $\square$ Platform Functionality.	H5	0.000*	Significant
Customer literacy $\square$ Platform Functionality $\square$ E-Loyalty	H6	0.022**	Significant
Platform functionality $\square$ E-Loyalty	H7	0.008*	Significant

Source: Data processed through SmartPLS 3.0 (2023) note: \*p value < 0.01; \*\*p value < 0.05

**RESULTS AND DISCUSSION**

The first hypothesis stated that perceived security significantly increases e-loyalty. Shopee provides secure payment gateways, allowing users to pay through various methods. Besides that, Shopee provides a buyer protection program, ensuring customers that their purchases are protected against non-delivery or damaged

items. In addition, there are user reviews and ratings, seller verification, a secure communication channel between buyer and seller, regular security updates, and transparent product information. This proves that customers' perceived security on Shopee does influence their e-loyalty, as proven by the research of Ghali (2021) and Chandra & Tan (2022).

The second hypothesis stated that perceived security significantly affects platform functionality. Features of Shopee, such as secure payment gateways that allow payment through various methods, i.e., credit/debit cards, digital wallets, and online banking, make it easier to access and modify as their preferences. This finding aligns with previous research by Yaokumah, Adjie, and Kumah (2016).

The third hypothesis states that perceived security significantly impacts loyalty through the platform functionality of Shopee. The results of the research carried out are in line with the previous research by Barusman (2019) concerning the role of perceived security in influencing e-loyalty, research (Cui et al., 2018) about the significant effect that perceived security has on platform functionality, and a study by (Pham & Ahammad, 2017) that found platform functionality has a significant effect on e-loyalty. It can be seen that platform functionality is a connecting variable between perceived security and e-loyalty, which means that the higher the level of perceived security with experience with platform functionality, the higher the customer's e-loyalty.

The fourth hypothesis stated that customer literacy does not significantly affect e-loyalty. It is due to the awareness of data security where customers can identify identity theft, the awareness of phishing techniques that may also damage the platform's reputation, and the lack of confidence in Shopee's ability to protect personal information. This finding differs from previous studies (Aslam et al., 2019).

The fifth hypothesis stated that customer literacy significantly affects platform functionality. It is because the more literate customers are, the more likely they are to understand account security settings and secure checkout options, thus leading to ease in using the platform Shopee and the capability of customizing their privacy settings. This finding aligns with previous studies (Farooq et al., 2020).

The sixth hypothesis states that customer literacy significantly affects e-loyalty mediated by the platform functionality. The result of the research carried out is in line with previous research (Perera et al., 2019) concerning the effect of customer literacy on e-loyalty, research by (Farooq et al., 2020) about customer literacy's significant effect on platform functionality, and study (Pham & Ahammad, 2017) that found the effect platform functionality has on e-loyalty. It can be seen that platform functionality is a connecting variable between customer

literacy and e-loyalty, which means that the higher the level of customer literacy with platform functionality, the higher the customers' e-loyalty.

The seventh hypothesis stated that platform functionality significantly affects loyalty. A user-friendly platform with seamless access and robust customization options enhances customer satisfaction, fostering positive experiences that build trust and e-loyalty, encouraging users to engage actively, return for future interactions, and recommend the platform to others. The result of this study supports the findings of Pham and Ahammad (2017).

### CONCLUSION AND RECOMMENDATION

The results reveal that platform functionality, in this case, ease of use, customization, and access, are important in the relationship between perceived security and e-loyalty. Similarly, platform functionality also significantly influences the relationship between customer literacy and e-loyalty. Between these two variables, customer literacy is the most influential on e-loyalty through the mediation of the platform functionality of Shopee. This is realized by how Shopee provides educational resources such as FAQs, guides, payment tutorials, and a section to have conversations with Shopee. In addition, Shopee provides a user-friendly interface that makes it easy for customers to navigate through the platform, allowing customers to customize as they like, which ultimately results in customer loyalty.

The practical implication involves creating more events and clear options that support increased customer literacy on Shopee's security excellence. One limitation of this study is that there can be more respondent criteria in data collection. The recommendation for future research is to try other aspects of platform functionality that can mediate PS and CL on EL.

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