The Influence of Perceived Ease, Perceived Risk, System Security, and Service Quality on Trust in Transactions Using Shopee E-commerce

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Abstract

The rapid development of information technology has an impact on the transaction style of Indonesian society. This has led to the emergence of online transaction activities. This research has the purpose to prove whether there is an influence of perceived ease, perceived risk, system security, and service quality on trust in transacting using Shopee e-commerce. The research sample consists of students at Muhammadiyah University of Purwokerto, with the condition that these students are users of Shopee e-commerce and have transacted at least once. The purpose is to assess the factors of using Shopee e-commerce from the perspective of students. The analysis results indicate that perceived ease, system security, and service quality have a significant positive influence on trust in transacting using Shopee e-commerce. Meanwhile, perceived risk has a significant negative impact on trust in transacting using Shopee e-commerce.

Keywords: Perceived Ease, Perceived Risk, System Security, Service Quality, Trust In Transactions

Introduction

In this era of globalization, the development of technology and information is advancing rapidly. This has a significant impact, especially on transaction speed. Individuals are required to make instant or digital decisions when searching, purchasing, receiving, and using everything for various needs, whether it be goods, services, money, or time Zulfa & Hidayati (2018). Research data from the Central Statistics Agency (CSA) indicates that 68.48% of the Indonesian population accessed the internet in 2022, compared to 62.10% in 2021. The high internet usage reflects information openness and the acceptance of technological advancements by society (Badan Pusat Statistik, 2022).

This development has driven companies to create *online* business ideas by utilizing the now-developed technology. Companies then build an e-commerce platform offering various conveniences, including marketing incentives such as a variety of sellers on the e-commerce platform, the products offered, and the ease of the transaction process (product selection, payment methods, and shipping processes). According to the 2021 report from the Indonesian E-commerce Association (idEA), e-

commerce in Indonesia began to develop in the early 2000s with the emergence of Lippo Shop, Multiply.com in 2003, Tokobagus in 2005, Tokopedia in 2009, Go-Jek, BliBli, and Bukalapak in 2010, Tiket.com in 2011, Traveloka and Lazada Group in 2012, followed by Zalora in 2014. In December 2015, Shopee entered the Indonesian market (Qothrotunnada, 2022).

This phenomenon then demonstrates that e-commerce companies must be capable of competing to dominate the digital market. In online transactions, trust becomes a crucial consideration for companies. Trust can determine the success of an e-commerce system, as it is one of the key factors for consumers to engage in online purchasing activities (Hidayati, 2018). Furthermore, the limitations of e-commerce users, such as not meeting the seller in person, often lead to the phenomenon of fraud in online transactions. Building trust requires assurance of system security and service quality. Research by Putra et al., (2018) titled "Measurement Model of Trust Level towards E-commerce Websites" stated that system security does not have a significant impact. In the research by Putra & Triwardhani (2023)focusing on Shopee e-commerce, the research found that system security does not have a significant influence on trust in transactions. However, in the research by Efendi & Rahmiati, (2020), it was found that system security has a significant positive impact on trust in online transactions. Additionally, the outcomes of the research by Salsabila et al., (2021) indicate that perceived risk has a negative impact on trust in transactions using Shopee e-commerce, while the research by Nursukma et al., (2021) suggests that perceived risk has a positive impact on trust in transactions. On the other hand, the perceived ease of use also influences the use of e-commerce technology. The higher the level of ease, the more it increases trust in transacting using e-commerce (Pautina et al., 2022). Given the research gap mentioned above, the purpose of this research is to examine the influence of perceived ease, perceived risk, system security, and service quality on trust in transactions using Shopee e-commerce.

Technology Acceptance Model (TAM)

The research of Davis, (1986) defined the Technology Acceptance Model as a theoretical model used to explain the factors influencing an individual's acceptance of technology-based information systems. The Technology Acceptance Model is also used as a basis for researching consumer behavior in adopting technology. The main constructs found in the Technology Acceptance Model are perceived usefulness and perceived ease of use, both of which can influence consumer interest in using online-based transactions (Yunita & Canta, 2022). Although the Technology Acceptance Model was initially designed to merely describe and predict individual behavior in using information systems, many researchers have applied this concept, particularly in e-commerce studies. Examples include Nadia et al., (2021) research on Tokopedia e-commerce and Chaniago & Akbar, (2021) research on Shopee e-commerce.

Accounting Information System

Ardianto et al., (2023) argue that an accounting information system involves collecting transactions, recording and storing them in a system, and then processing them to generate informative data used by decision-makers. This aligns with the discussion by (Turner et al., 2017) that an accounting information system is a systematic procedure that captures accounting data from business processes, records it in appropriate records, processes it by consolidating and reporting concise yet detailed accounting data to both internal and external stakeholders.

E-commerce

Harmayani et al., (2020) define e-commerce as a platform for distributing, promoting, buying, and selling goods or services using electronic means such as the internet and computers. Mechanically, e-commerce involves electronic fund transfers, inventory management systems, data exchange, and data collection. Meanwhile, Riswandi, (2019) reveals that e-commerce is a dynamic economic unit, an application, and a business process that intermediates relationships between a company, consumers, sellers, and buyers through electronic transactions, the trade of goods or services, and the exchange of information conducted via the internet.

Perceived Ease of Use

The research by Ernawati & Noersanti, (2020) defines perceived ease of use as a person's belief that using technology can save time and effort. In line with this, research Davis, (1989) describes ease of use as the level of effort expected from users when using a system. Supported by Damayanti, (2019)

the assessment of perceived ease of use is the user's perception of how easy it is to use and operate the designed application system when shopping online. According to Davis, (1989) the measurement indicators for this include ease of use, ease of learning, flexibility, ease of becoming proficient, and ease of understanding.

Perceived Risk

The research by Zulfa & Hidayati, (2018) states that perceived risk is the buyer's thoughts on the uncertainty they face when they cannot predict the future consequences of their online transactions. Consumers who engage in online transactions typically have limitations in physically inspecting the products they intend to purchase or meeting the sellers in person. This leads to the emergence of perceived risk in consumers' minds when they decide to transact online. Measurement indicators, using Davis, (1989) modified in Pavlou, (2003) include financial risk, product risk, privacy risk, and security risk.

System Security

System security refers to all actions taken to ensure that data within a system is protected from threats. Basyarahil et al., (2017) state that information system security is a crucial aspect of safeguarding an organization's information assets. Meanwhile, Lim et al., (2019) define security as a risk-free, hazard-free, doubt-free, and loss-free service. Generally, if security is perceived as too weak, users tend to refrain from using an online transaction system (Desky et al., 2022). Measurement indicators for system security according to the research by Mutiara & Wibowo, (2020) include security assurance during transactions, the security guarantee of cash on delivery, ability, and integrity.

Service Quality

The research by Purba et al., (2023) define service quality as the actions taken by individuals or organizations with the aim of satisfying customers, in this case, e-commerce users. On the other hand, Yosepha & Darno, (2022) interprets service quality as the ability of an e-commerce company to provide services (assurance, timeliness, responsiveness or readiness, reliability, and tangible evidence) to users. The measurement indicators for service quality use the e-servqual method with 7 dimensions, namely efficiency, responsiveness, assurance, reliability, privacy, fulfillment, and contact. However, the measurement indicators in this research refer to the research by Billyarta & Sudarusman, (2021), which include responsiveness, privacy, reliability, fulfillment, and compensation.

Trust in Transactions

The research by Polii et al. (2023)elaborates trust in transactions as the result of an individual's willingness to engage in transactions with another party to form a mutually beneficial long-term relationship. Meanwhile, the research by Imanda & Nuridin, (2018) interprets trust as one party's willingness to accept risk from another party based on belief and expectation, even though both parties may not know each other. Measurement indicators for trust in transactions from the research by Piarna & Fathurohman (2019) include reliability, conformity to expectations, intention to revisit, intention to recommend, and the user's willingness to accept risk.

Methods

This research is a descriptive quantitative research with the data source being primary data (Balaka & Abyan, 2022). The data collection method involves distributing questionnaires using google forms with a Likert scale research instrument to all students of Muhammadiyah University of Purwokerto who are users of Shopee e-commerce and have transacted at least once. The total population is known to be 15,373 students. Subsequently, based on the Slovin's formula, a sample size of 390 respondents is considered to represent the entire population. The sampling technique used in this research is accidental sampling. The data analysis method employed includes descriptive analysis and Structural Equation Modeling-Partial Least Square (SEM-PLS), which comprises measurement model (Outer Model) and structural model (Inner Model) with the analysis procedure as follows:

1. Measurement Model (Outer Model)

   The data obtained from the questionnaire is then processed using the smart PLS 4 application, resulting in a research model. Furthermore, the author conducts an outer model test by

examining the cross-loading values and the average variance extracted (AVE) values to assess whether the data meets the criteria for analysis.

2. Validation and Reliability Testing

The next step in the outer model is to conduct validity and reliability testing by examining the construct validity and reliability values, including Cronbach's alpha, convergent reliability, and average variance extracted (AVE). This step is carried out to assess whether the variables are valid and reliable for analysis.

3. Discriminant Validity Test

This test is conducted to examine the differences between each construct and the other constructs. This research employs the Fornell-Larcker method by observing that the square root of the average variance extracted (AVE) is greater than the correlations between variables.

4. Structural Model (Inner Model)

The testing conducted aims to depict the relationships between latent variables, which are evaluated using hypothesis testing (bootstrapping), R-squared value, F-squared value, and goodness of fit.

5. Data Interpretation

The processed data is then interpreted. This step also involves interpreting the results of the obtained data, whether the hypotheses are rejected or accepted, and explaining the influence of variables such as ease of perception (X1), risk perception (X2), system security (X3), service quality (X4) on the variable of trust in transacting using the Shopee e-commerce platform (Y).

Results and Discussion

Based on the data obtained by the author, female respondents accounted for a higher percentage, 80%, compared to male respondents, who made up 20% of the total. The number of participants in the research came from all academic programs at Muhammadiyah University Purwokerto, totaling 390 students. Regarding transaction frequency, 40% of the respondents reported transacting 15-30 times a year, 24% reported 20-40 times, 19% reported 6-10 times, 10% reported 50-100 times, and 7% reported 1-5 times. This means that all respondents met the predefined criteria, and the existence of transaction screenshots was proven.

Descriptive Analysis Test

The testing is conducted to measure the average values and the lowest to highest values of an indicator variable. In this research, a minimum value of 1 and a maximum value of 5 were established.

Table 1. Descriptive Statistics

	Mean	Scale min	Scale max	Deviation
PU1	3,877	1,000	5,000	0,990
PU2	4,051	1,000	5,000	0,949
PU3	4,162	1,000	5,000	0,846
PU4	3,921	1,000	5,000	0,985
PU5	4,085	1,000	5,000	0,920
PR1	2,110	1,000	5,000	0,906
PR2	2,118	1,000	5,000	0,851
PR3	2,121	1,000	5,000	0,873
PR4	2,041	1,000	5,000	1,037
PR5	2,028	1,000	5,000	1,089
PS1	3,995	1,000	5,000	0,939
PS2	3,895	1,000	5,000	0,964
PS3	3,895	1,000	5,000	0,975
PS4	3,938	1,000	5,000	0,953
PS5	3,921	1,000	5,000	0,961
SQ1	4,069	2,000	5,000	0,899
SQ2	3,887	1,000	5,000	0,965
SQ3	4,054	1,000	5,000	0,942
SQ4	4,056	1,000	5,000	0,926
SQ5	3,931	1,000	5,000	0,991

T1	3,982	1,000	5,000	0,951
T2	3,928	1,000	5,000	0,992
T3	4,000	1,000	5,000	0,945
T4	4,054	1,000	5,000	0,942
T5	3,844	1,000	5,000	1,017

Source: Data processed by the Author (2023)

Based on the data above, the average values of the ease of perception variable (X1) are 4.019, risk perception (X2) is 2.084, system security (X3) is 3.929, service quality (X4) is 3.999, and trust in transactions (Y) is 3.962.
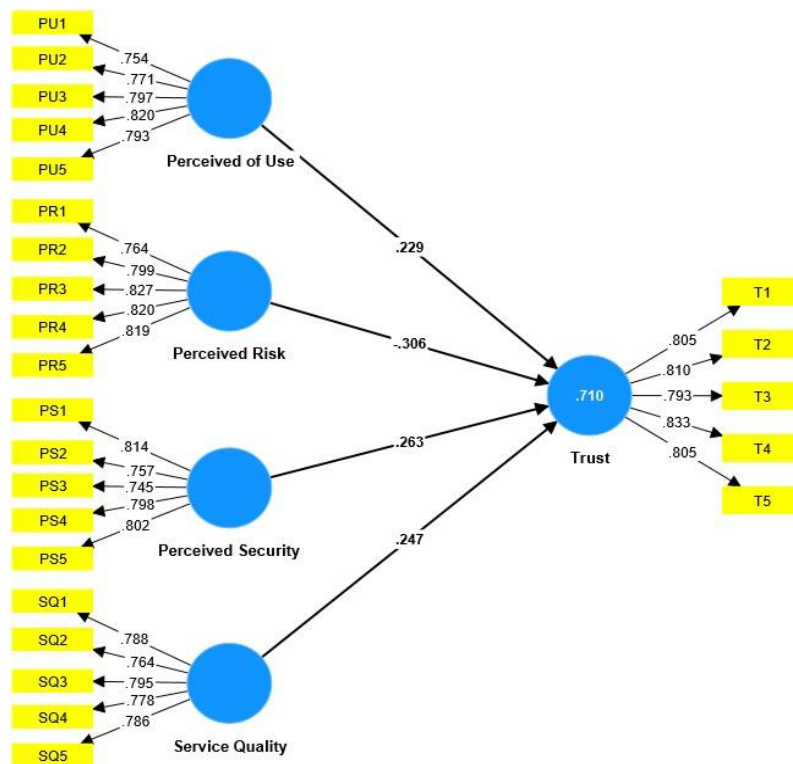
a. Measurement Model (Outer Model)

Figure 1. Research Model or Path Diagram
Source: Data Processed (2023)

Outer loading

Cross-loading values are used to measure whether measurement indicators are capable of representing their respective variables.

Table 2. Cross-loading values

Variable	Indicator	Cross-Loading Values	Description
Perceived Ease	PU.1	0.754	Valid
	PU.2	0.771	Valid
	PU.3	0.797	Valid
	PU.4	0.820	Valid
	PU.5	0.793	Valid
Perceived Risk	PR.1	0.764	Valid
	PR.2	0.799	Valid
	PR.3	0.827	Valid
	PR.4	0.820	Valid
	PR.5	0.819	Valid
System Security	PS.1	0.814	Valid
	PS.2	0.757	Valid

		PS.3	0.745	Valid
		PS.4	0.798	Valid
		PS.5	0.802	Valid
Service Quality		SQ.1	0.788	Valid
		SQ.2	0.764	Valid
		SQ.3	0.795	Valid
		SQ.4	0.778	Valid
		SQ.5	0.786	Valid
Trust in Transactions		T1	0.805	Valid
		T2	0.810	Valid
		T3	0.793	Valid
		T4	0.833	Valid
		T5	0.805	Valid

Source: Data Processed (2023)

Cross-loading values are considered to meet or represent their respective variables if >0.70 (Hair et al., 2019). Therefore, in Table 1, all measurement indicators for the variables of ease perception, risk perception, system security, and service quality towards trust in transacting using Shopee e-commerce have been proven to be valid and capable of representing their variables because all cross-loading values of the measurement indicators are >0.70.

Validation and Reliability Test

This testing is conducted to measure the level of validity and reliability of data variables obtained from a questionnaire. Data is considered valid and reliable if Cronbach's Alpha >0.7, composite reliability >0.7, and average variance extracted (AVE) >0.5 (Hair et al., 2019).

Table 3. Validation and Reliability Testing

	Cronbach's Alpha	Composite Reability (rho_c)	AverageVariance Extracted (AVE)
Ease of Perception	0.847	0.891	0.620
Risk Perception	0.865	0.903	0.650
System Security	0.842	0.888	0.614
Service Quality	0.842	0.887	0.612
Trust in Transactions	0.868	0.905	0.655

Source: Data Processed (2023)

In Table 2, all exogenous and endogenous variable data have Cronbach's alpha values >0.7, composite reliability values >0.7, and average variance extracted (AVE) values >0.5. This indicates that all variable data have passed the validity and reliability tests.

Discriminant Validity Test

This test is conducted to ensure that each construct is distinct from the others, measured by the values on the diagonal axis or the square root of the average variance extracted (AVE) >0.5 with inter-variable correlations. Thus, discriminant validity is satisfied (Junianto et al., 2020).

Table 4. Discriminant Validity Test (Fornell-Larcker)

	Risk Perception	System Security	Ease Perception	Service Quality	Trust in Transactions	Description
Risk Perception	**0.806**					Valid
Transaction Security	-0.535	**0.784**				Valid
Ease Perception	-0.454	0.417	**0.787**			Valid
Service Quality	-0.601	0.609	0.563	**0.782**		Valid
Trust in Transactions	-0.699	0.673	0.617	0.720	**0.809**	Valid

Source: Data Processed (2023)

Based on the table above, the discriminant validity of the variables in this research is satisfied. This means that each construct is distinct from the others.

b. Model Structural (Inner Model)

Hypothesis Testing (Bootstrapping)

This testing is conducted to measure the level of significance between variables, determine regression coefficients, and to prove whether the predetermined hypotheses are accepted or rejected with the criteria of a P value <0.05 and a T statistic >1.96.

Table 5. Path Coefficient Values

	Original Sample	T statistic	P values
Ease Perception -> Trust	0.229	4.035	0.000
Risk Perception -> Trust	-0.306	4.927	0.000
System Security -> Trust	0.263	7.183	0.000
Service Quality -> Trust	0.247	4.775	0.000

Source: Data Processed (2023)

Based on Table 3, the path coefficient values indicate that:

H1 = Ease Perception has a positive influence on trust in transacting using Shopee e-commerce.

Hypothesis 1 is accepted with a P value of 0.000 < 0.05, a t statistic of 4.035 > 1.96, and an original sample value of 0.229, indicating a significant positive influence between ease perception and trust in transacting using Shopee e-commerce. Therefore, the higher the ease perceived by users when transacting using Shopee e-commerce, the higher the level of trust in transacting using Shopee. Supported by the research outcomes of Hasdani & Nasir, (2021); Prayuda & Anwar, (2023); Romla & Ratnawati, (2018) result, which concluded that ease perception has a positive influence on trust in transacting using Shopee e-commerce. These results align with the Technology Acceptance Model (TAM) theory, which suggests that individuals use technology because they believe that its use is easy.

H2= Risk Perception has a negative influence on trust in transacting using Shopee e-commerce.

Hypothesis 2 is accepted with a P value of 0.000 < 0.05, a t statistic of 4.927 > 1.96, and an original sample value of -0.306, indicating a significant negative influence between risk perception and trust in transacting using Shopee e-commerce. Based on the research outcomes conducted by Setiobudi et al., (2023); Salsabila et al., (2021) it is suggested that the perception of risk has a negative impact on trust in transacting using Shopee e-commerce. Therefore, the lower the level of risk perceived by users when conducting transactions through the Shopee e-commerce platform, the higher the trust in transacting using Shopee e-commerce. The analysis results support the Technology Acceptance Model (TAM) theory, which examines the use of technology and information, taking into consideration the risk factor that users will accept when using a technology.

H3= System Security has a positive influence on trust in transacting using Shopee e-commerce.

Hypothesis 3 is accepted with a P value of 0.000 < 0.05, a t statistic of 7.183 > 1.96, and an original sample value of 0.263, indicating a significant positive influence between system security and trust in transacting using e-commerce. Therefore, the higher the level of system security in Shopee e-commerce, the more it can enhance trust in transacting using Shopee e-commerce. This is supported by the research outcomes of Afiah, (2018) ; Efendi & Rahmiati, (2020) which suggest that system security has a positive influence on trust in transacting using Shopee e-commerce. The research results align with the Technology Acceptance Model (TAM) theory, which highlights that system security is a determinant factor in individuals conducting online transactions related to perceived ease and acceptable risks.

H4= Service Quality has a positive influence on trust in transacting using Shopee e-commerce.

Hypothesis 4 is accepted with a P value of 0.000 < 0.05, a t statistic of 4.775 > 1.96, and an original sample value of 0.247, indicating a significant positive influence between service quality and trust in transacting using Shopee e-commerce. Therefore, the higher the perceived service quality provided by Shopee e-commerce users, the higher their trust in transacting using Shopee e-commerce. This is in

line with the research by Mambu et.al., (2021) ; Nugroho et al., (2022) which states that service quality has a positive influence on trust in transacting using Shopee e-commerce. The research's results support the Technology Acceptance Model (TAM) theory, which suggests that individuals will stop using technology if they feel that the quality of service provided does not meet their expectations.

Goodness of Fit Evaluation

This testing is conducted to measure the level of influence of exogenous variables on endogenous variables using the values of R-squared, adjusted R-squared, and F-square, with the criteria of R-squared values being 0.75 (strong), 0.50 (moderate), 0.25 (weak), and F-square values being 0.02 (low), 0.15 (moderate), and 0.35 (high) (Sarstedt et al., 2017).

Table 6. R-squared Value and Adjusted R-squared Value

	R square	R square adjusted
Trust in Transactions	0.710	0.707

Source: Data processed (2023)

Based on Table 4, the R-squared value is 0.710, and the adjusted R-squared value is 0.707. This means that there is a strong influence of 70.7% from the variables of ease perception, risk perception, system security, and service quality on trust in transacting using Shopee e-commerce. The remaining 29.3% is influenced by other variables not included in the research.

Table 7. F-Square Values

	Trust in Transactions
Ease Perception	0.119
Risk Perception	0.187
System Security	0.138
Service Quality	0.097

Source: Data Processed (2023)

Based on Table 5, all the f-square values of the variables in the research, namely ease perception, system security, risk perception, have a moderate impact, while service quality has a low impact on the variable of trust in transacting using Shopee e-commerce.

Conclusion

Based on the results of the discussion in this research, it can be concluded that ease perception has a positive influence on trust in transacting using Shopee. This means that the higher users perceive the ease of using Shopee e-commerce, the higher their trust in transacting. Furthermore, risk perception has a negative influence on trust in transacting using Shopee e-commerce. This means that higher perceived risks in using Shopee e-commerce lead to lower trust in transacting. System security has a positive influence on trust in transacting using Shopee e-commerce. This means that a secure system in Shopee e-commerce can enhance trust in transacting. Service quality has a positive influence on trust in transacting using Shopee e-commerce. This means that higher service quality provided by Shopee e-commerce leads to higher trust in transacting. All the results indicate that the variables of ease perception (X1), risk perception (X2), system security (X3), and service quality (X4) significantly influence trust in transacting (Y) using Shopee e-commerce.

The limitations of this research include the use of a google form questionnaire to obtain data. Data generated by the Google Form questionnaire may introduce the possibility of misunderstandings or biases due to differences in perception between the researcher and respondents regarding the statements presented. Furthermore, the respondents are only students from Muhammadiyah University Purwokerto, which means that the collected data only represent the opinions of students, potentially limiting the generalizability of the research outcomes. Additionally, this research focuses on only four variables: ease perception, risk perception, system security, and service quality in relation to trust in transacting. There are other variables not included in this research that could influence trust in transacting using the Shopee e-commerce platform, such as perceived usefulness, privacy perception, information quality, and customer satisfaction.

It is recommended that future researchers broaden the scope of their studies by including different samples or respondents to improve the generalizability of the results. They can also consider using direct questionnaires to control respondent answers and minimize data bias. Furthermore, adding additional variables to expand the research is advisable.

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