The Impact of Product Quality on Purchasing Decisions: A SEM Study

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Article Info	Abstract
	The purpose of this study is to determine the impact of Product Quality on Purchasing Decisions: a SEM Study. The sample of this study is STIE Madani students who have made purchases on the Shopee Application totaling 50 (fifty) people in 2023. This type of research is quantitative research. Data is processed using SEM with SmartPLS. application. Endogenous variable (X) is Purchasing Decision, while Exogenous variable (Y) is Product Quality.
	The results showed that Product Quality had a positive and significant effect on the Purchasing Decisions of STIE Madani Students on the Shopee Application. The variable X has a unidirectional (positive) relationship to Y with a path coefficients value of 0.686.

INTRODUCTION

In the era of globalization like now, the development of technology and communication is growing fast and becoming so important for everyone. Advances in technology have made things easier with the internet. The advantage is that business people can market their products online making it easier and time-

saving, but it can also be a disadvantage for buyers if they are not careful when buying products (Banamtuan &; Suhardi, 2023).

In today's digital era, electronic commerce or e-commerce has experienced rapid growth. E-commerce apps have become one of the most popular ways to make purchases online. One of the popular e-commerce applications in Indonesia is Shopee. Shopee is the marketplace in the first position with the number of people who have visited the web per month around 96,532,300 visits (Marlius & Jovanka, 2023)

Product quality plays an important role in influencing consumer satisfaction. Good product quality will increase consumer satisfaction and encourage them to make purchases. In the context of the Shopee application, sellers who provide products with good quality will be more likely to gain consumer trust and loyalty. Product quality is the condition of goods based on an assessment of the conformity of the given measuring standards. Product quality is a production that has an appeal to encourage consumers to make purchases or carry out purchase decisions. In the online market where competition is getting tighter, product quality is an important factor that influences the purchasing decisions of consumers (Sagita et al., 2023)

Consumer purchasing decisions are activities carried out by consumers before purchasing a product (Dwi et al., 2023). Consumers will usually consider several things before deciding to buy a product. Conversely, product manufacturers will certainly carry out strategies to make consumers make decisions to buy the products sold.

Consumer behavior can affect the decision-making process in making a purchase. In addition, personality traits, including age, occupation, economic circumstances also influence purchasing decisions (Nurhalim, 2022). Kotler and Lane (2019: 9) in (Sagita et al., 2023) stated that purchasing decision indicators consist of 3 (three) things, namely: 1) Information search; 2) Purchase Decision; 3) Post-purchase Behavior.

Tjiptono (2001) in (Amalia & Maskur, 2020) stated that quality is a dynamic condition related to products, people, services, processes and the environment in meeting or exceeding expectations, while what is meant by product, namely all things related to supply by producers to be requested, considered, sought, used, bought or consumed by the market in order to meet the

needs and desires of the market. Kotler (2015: 224) in (Putra &; Abiyoga, 2023) states that a product quality has a value that will provide satisfaction to consumers, both physically and psychologically, showing the attributes or characteristics that exist in an item or result. According to Akbar (2012) in (Sagita et al., 2023) states that the indicators that can be used in measuring the quality of goods, namely: 1) Performance; 2) Conformance To Specifications; 3) Aesthetics.

STIE Madani is a campus located on Captain P. Tendean Street, Sand Mount, Balikpapan, East Kalimantan. STIE Madani students themselves now not only have easy access to various types of products through various marketplaces including the Shopee application, but also have a diverse selection of local and international sellers. STIE Madani students have the freedom to choose products according to their wishes before deciding to make a purchase. Therefore, exploring the influence of product quality on purchasing decisions in the Shopee app in Balikpapan can provide insight into consumer preferences and behavior in this growing market.

Awang (2014) in (Saputra, 2023) states that the Structural Equation Model (SEM) is a tool for analyzing multivariate which was developed in providing perfection to pre-existing analytical tools and is considered to have many limited things. The stages in using SEM to solve a problem begin with describing the model or variable relationship according to the hypothesis and then carry out 2 (two) test stages, namely measurement tests and structural tests. SEM is a multivariate statistical tool, used in solving complex problems consisting of latent variables measured by manifest variables.

Some of the results of previous research that have been done state the following:

1. Research from Sagita (2023) entitled The Influence of Goods Quality on Purchasing Decisions on the Shopee Application states that there is a significant influence between the quality of goods on purchasing decisions on the shoppe application. The object of research is a student of the Communication Science Study Program Class of 2022 at Dehasen University Bengkulu. The application used is SPSS.

2. Research from Banamtuan and Suhardi (2023) entitled The Influence of Goods Quality and Trust on Proleved Purchasing Decisions on Facebook Social Media in Batam states that the quality of goods has a significant

effect on preloved purchase decisions on Facebook social media in Batam. The object of research is preloved buyers in Batam. The application used is SPSS.

3.   Putri & Saragih, (2023) research entitled The Effect of Price and Product Quality on Purchasing Decisions (Case Study on Alfamart Klambir Lima Raya Medan Consumers) states that product quality does not have a positive and significant influence on Purchasing Decisions. The object of research is consumers who shop at Alfamart Kelambir. The application used is SPSS.

In the three studies, it turned out that there were differences in results for the third study from Putri and Saragih where Product Quality had no influence on purchasing decisions, while the similarity was that all three used the SPSS application to measure the relationship between variables.

Several studies that have been conducted previously have shown that product quality has a significant impact on consumer purchasing decisions using SPSS. However, there have not been many studies that examine specifically the influence of product quality on purchasing decisions and the influence of indicators using SEM, especially smartPLS applications. Therefore, this research will make new contributions to the existing literature and provide useful information for the development of marketing strategies, especially on Shopee. The research subjects this time were more specialized, namely STIE Madani students.

Based on searches using the Publish or Perish application using the keyword "purchase decision" starting from 2019 to 2023 for data in Google Scholar, 200 papers were obtained as shown in figure 1.
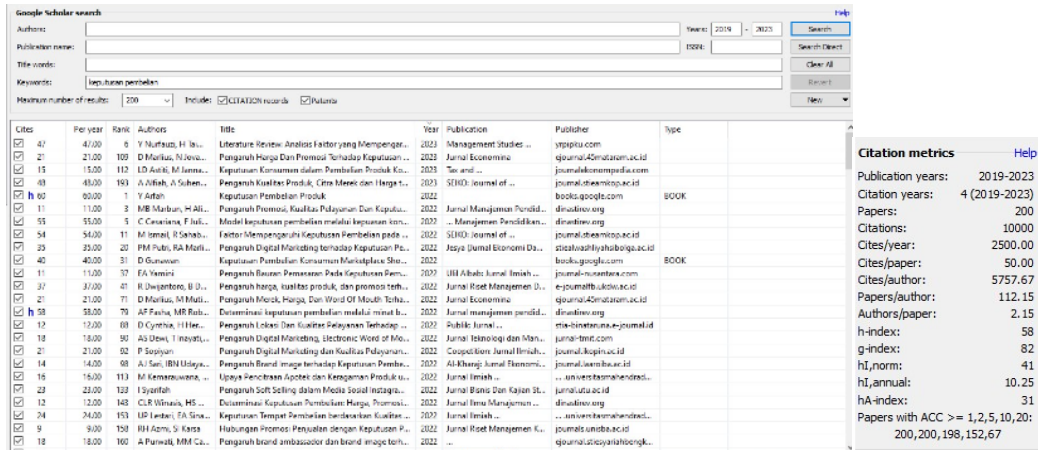
Figure 1. Publish or Perish Data Search Results

Source : data processed, 2023

The data obtained from Publih or Perish above is then processed into the VOSviewer 1.6.19 for Windows application so that image 2 is obtained, where there are 5 interconnected word clusters. The words "decision" and "consumer purchase" are in the green cluster which is not directly connected with the word "effect of product quality" in the blue cluster. This means that there is still a lack of research that uses keywords of purchasing decisions and product quality. These two words are still rarely used as research variables, where their studies were mostly used in the 2020s.
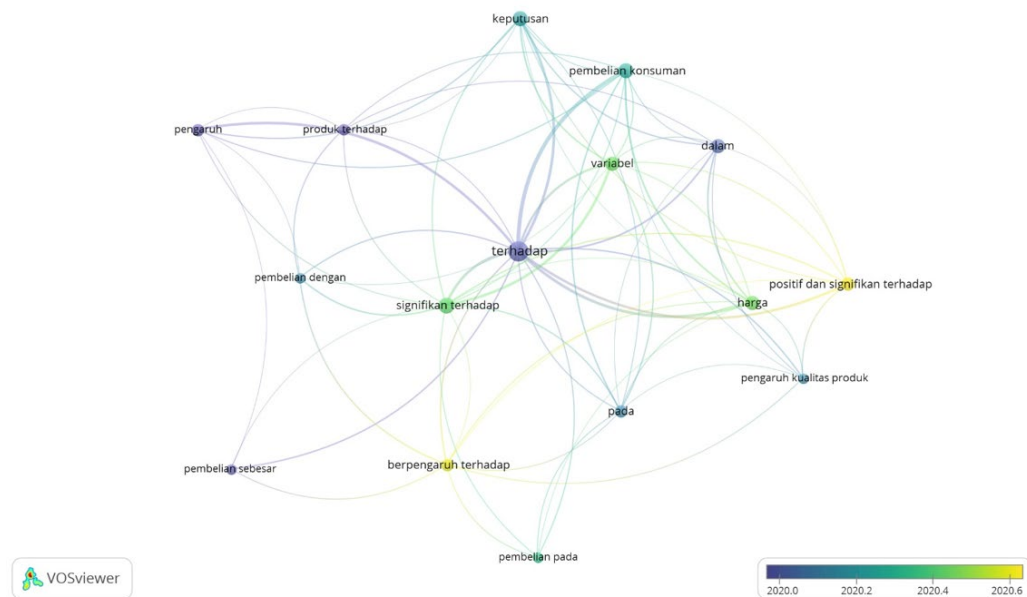

Figure 2. Network Visualization with VOSviewer

Source : data processed, 2023

This data is reinforced by the display in Density Visualization. The two words are still not very bright in color, meaning that they are still not widely used.
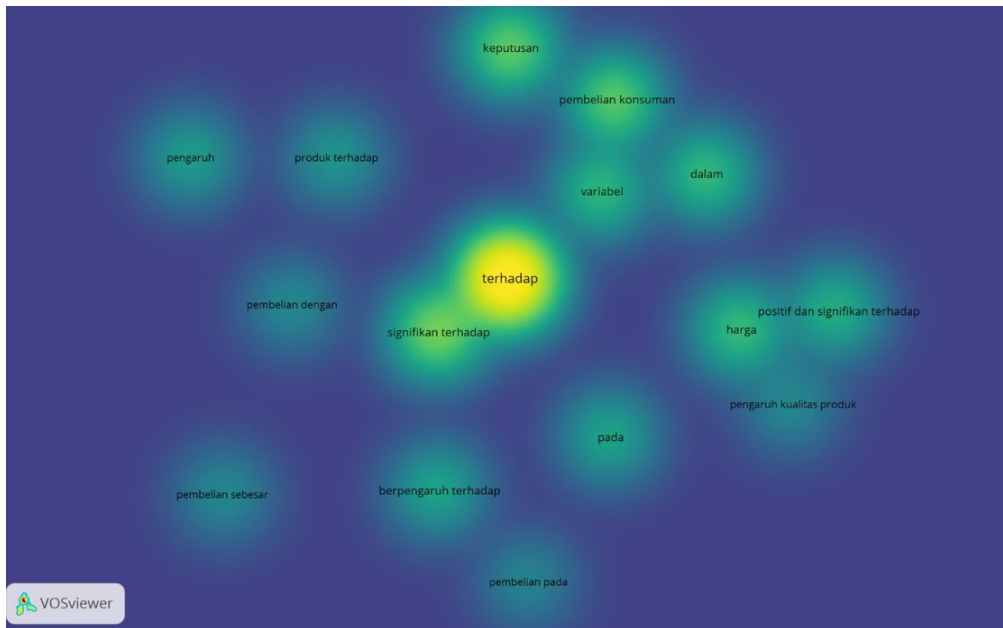

Figure 3. Density Visualization Results with VOSviewer

Source : data processed, 2023

By understanding the influence of product quality on the purchasing decisions of STIE Madani Students in the Shopee application, sellers and managers of the Shopee application can improve the consumer buying experience, improve the quality of the products offered and optimize their marketing strategies to achieve higher consumer satisfaction and increase market share. Based on the things that have been conveyed above, this study is entitled **"The Impact of Product Quality on Purchasing Decisions: A SEM Study.**

Based on the theories mentioned above and previous studies, the hypotheses for this study are as follows:

H : Product Quality has a significant effect on the Purchasing Decisions of STIE Madani Students on the Shopee Application.

METHODS

The research was conducted quantitatively by focusing on Product Quality as an exogenous variable and Purchasing Decision as an endogenous variable. Product quality (X) is measured by several indicators, namely:

X1.1 :   Wide variety of products

X1.2 :   The quality of the products offered is what I want

X1.3 :   Reasonable prices compared to purchases in stores with similar products

X1.4 :   The products received are in accordance with those offered by the seller

X1.5 :   Products received according to specifications

X1.6 :   The products offered are interesting

X1.7 :   Good product

X1.8 :   Easy and nice app design.

Purchase Decision (Y) is measured by several indicators, namely :

Y1.1 :   Find information about the advantages of the Shopee application through family, friends and social media

Y1.2 :   Get information about the shopee application from social media, namely advertisements on television

Y1.3 :   Obtain information about Shopee from family, friends or other people who have shopped using the Shopee application.

Y1.4 :   Decide to Buy at Shopee Because Shopee sells products according to your needs

Y1.5 :   Decide to buy at Shopee because the price is cheaper

Y1.6 :   Decide to buy Shopee products based on advertisements that have been aired on television

Y1.7 :   Feel satisfied choosing the Shopee application as a place to shop online

Y1.8 :   Will make a purchase again on the Shopee application.

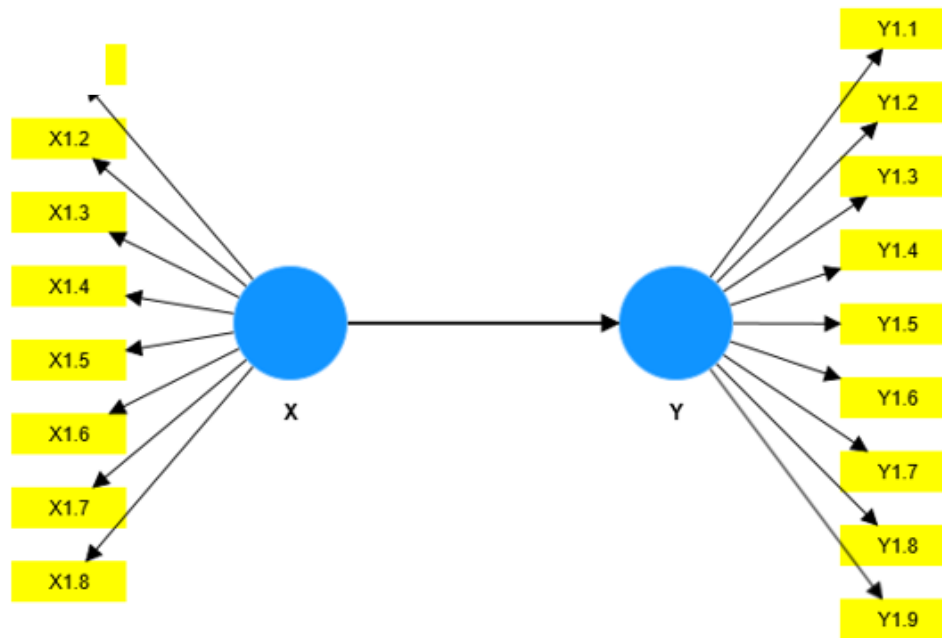Y1.9 :   Will recommend Shopee to other parties who are looking for online shopping applications

Figure 4. Research Framework

The type and source of data used in this study were primary data through questionnaires distributed to 50 students of STIE Madani Balikpapan as respondents.

Analysis uses SEM through 2 (two) test stages, namely measurement model test (outer model / measurement model) and structural test (inner model / structural model). Test measurement models have the purpose of testing indicators (manifest variables) on latent variables. Validity and reliability tests are obtained from the output of the measurement model to ensure that the indicators are valid and reliable in measuring latent variables. This validity test consists of convergent validity (according to Hair et al., (2019) in (Saputra, 2023) that the indicator is called converging valid if the loading factor > of 0.7 and the value of Average Variance Extracted (AVE) > of 0.5 and the validity of the discriminant (according to Hair et al., (2019) in (Saputra, 2023) that the indicator is called valid discriminant if the value of Heterotrait-Monotrait (HTMT) The ratio of correlation < 0.85 and the cross loading value shows the loading factor of the indicator on the latent variable > the loading factor of the indicator against other latent variables. The reliability test according to Hair et al., (2019) in (Saputra, 2023) uses internal consistency reliability based on Cronbach's Alpha (CA), Composite

Reliability (CR) values of > 0.7 each.

The structural model test according to Adedeji et al., (2016) in (Saputra, 2023) has the aim of testing the hypothesized variable relationships. In this test, testing the influence between latent variables according to the hypothesis. The stages begin with a collinearity test that ensures that the results of the regression are unbiased. According to Hair et al., (2019) in (Saputra, 2023) states that if the VIF value < 4, it is declared collinearity-free. Then next is the coefficient of determination test which checks the strength of the sample in explaining the model. Garson, (2016) in (Saputra, 2023) states that the sample is considered capable of explaining the model if the R Square value > 0.19.

After the model is appropriate, the next step is to test the hypothesis to ensure the relationship of the hypothesized variables is accepted or rejected. To assess the significance of the influence that occurs between variables, bootstrapping can be used. If the value of the p- value shows a number less than 0.05 then the influence of the variable is significant. In SEM, we can also see the direct influence, indirect influence, and total influence of one variable to another (Saputra, 2023).

RESULTS AND DISCUSSION

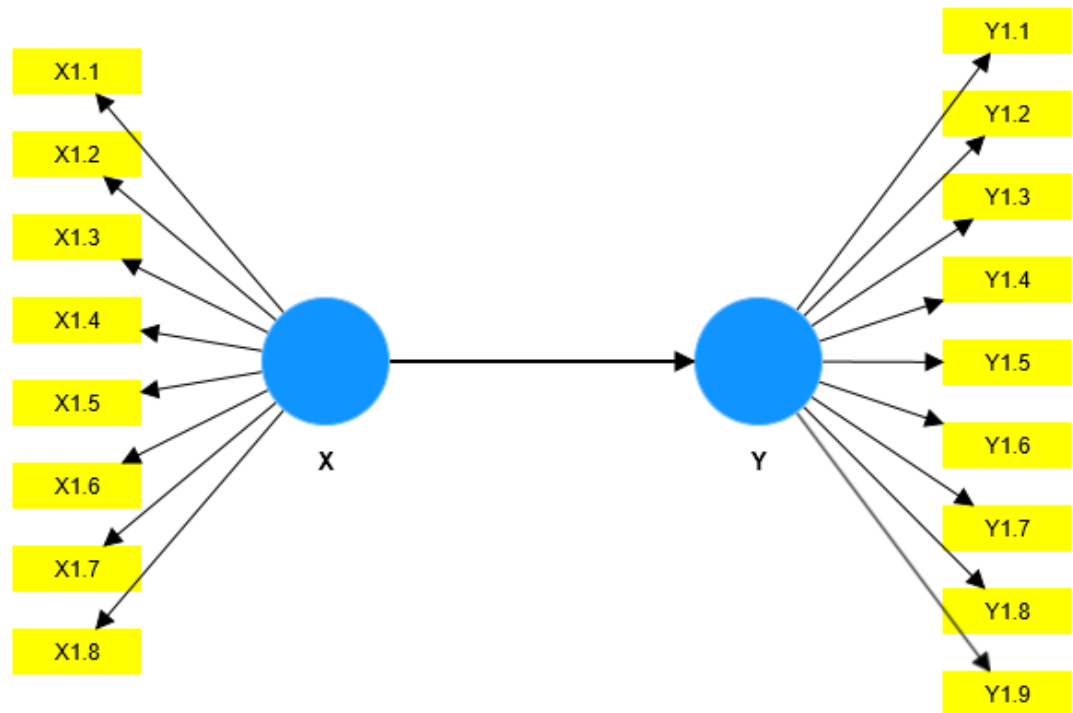Working on SEM with smartPLS begins with drawing a model based on the hypothesis:

Figure 5. Early Model

Source : data processed, 2023

The initial model consisted of 1 exogenous variable connected to several indicators X1.1 to X1.8, while endogenous variability was connected to indicators Y1.1 to Y1.9.

After that, a Convergent Validity Test is carried out where the Loading Factor must be greater than 0.7 and the Average Variance Extracted (AVE) value > from 0.5. In figure 6, it can be seen that there are several indicators that < 0.7. Indicators that are lower than 0.7 are colored red and should be omitted so that all indicators should > 0.7.
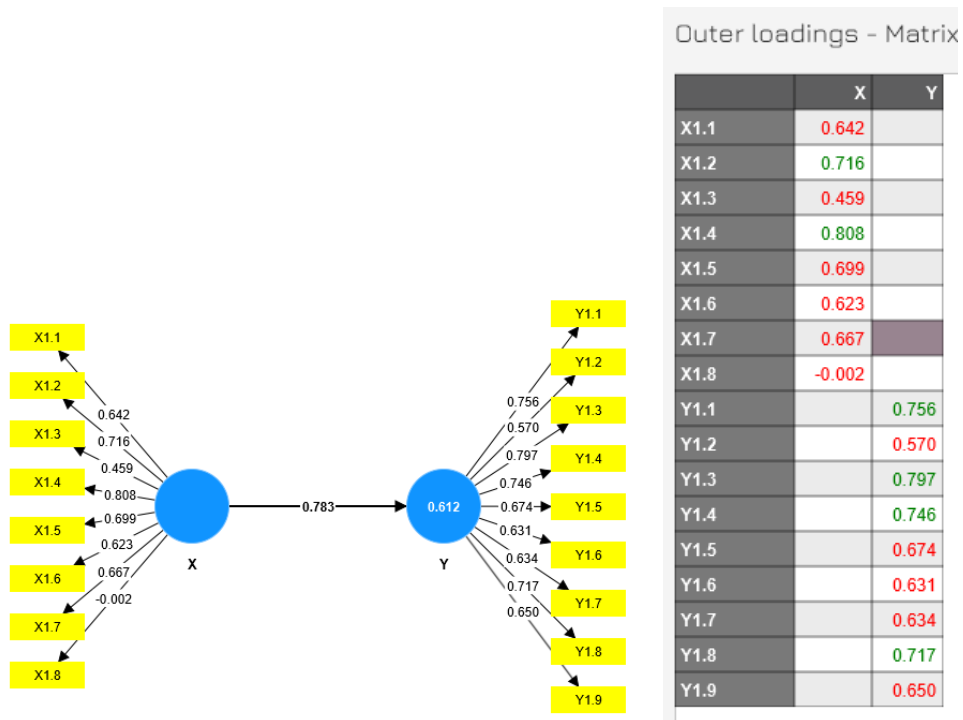
Figure 6. Model After Calculating PLS-SEM Algorithm

Source : data processed, 2023

After elimination one by one, it is produced as figure 7. Only X1.2, X1.4, X1.5, Y1.1, Y1.3 and Y1.4 indicators remain, each of which has > 0.7. Thus the convergent validity test for Loading Factor is valid.
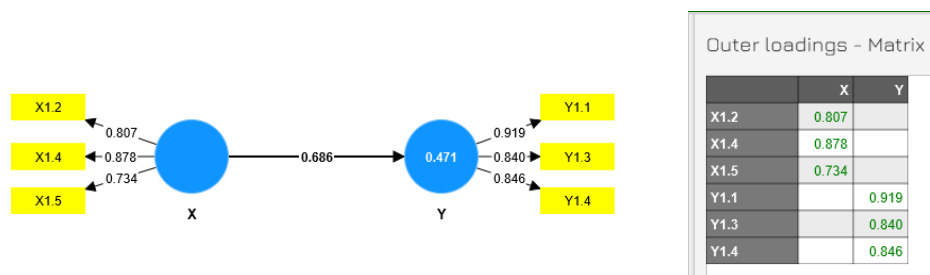

Figure 7. Model after indicators less than 0.7 are eliminated

Source : data processed, 2023

In figure 8 it is also seen that the X and Y variables of Average Variance Extracted (AVE) values > of 0.5. Thus the convergent validity test for AVE has also been fulfilled (valid). Next is checking the Discriminant Validity, where HTMT < 0.85.

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
X	0.769	0.936	0.849	0.654
Y	0.838	0.847	0.903	0.756

Figure 8. Cronbach's Alpha Grade, Compositer Reliability (rho_a and rho_c) and AVE

Source : data processed, 2023

In figure 9, the value of Discriminant Validity is 0.739 < 0.85 so that the discriminant validity test has been met (valid).

Discriminant validity

	X	Y
X		
Y	0.739	

Gambar 9. Discriminant Validity

Source : data processed, 2023

After all validity tests have been met, reliability tests are checked. The reliability test requirements are Cronbach's alpha and composite reliability (rho_c) values > 0.7. In figure 8 it can be seen that Cronbach's alpha and composite reliability (rho_a and rho_c) values are all greater than 0.7 so that the reliability test has been met.

The validity and reliability tests have all been fulfilled, so the model test has been completed and continued with structural tests. In the collinearity test in figure 10, it is found that all VIF values < 4 are declared collinearity-free.

Collinearity statistics (VIF) – Outer model

	VIF
X1.2	2.330
X1.4	1.314
X1.5	2.066
Y1.1	2.610
Y1.3	1.949
Y1.4	1.870

Figure 10. VIF value

In the inner model test, the value of R Square is 0.471 or which means that the influence of variable X on variable Y is 47.1% and the rest is influenced by other variables that are not included in the model. R Square > 0.19 or considered to be able to explain the model.

Figure 10. R Square value

The value of Path Coefficients as per figure 11 is 0.686 which means the relationship of X and Y is positive (unidirectional).

Figure 11. Value *Path Coefficients*

The value of T statistics in figure 12 has a value of 8.081 > 1.96 means that X has a significant effect on Y.

Path coefficients - Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
X -> Y	0.686	0.690	0.085	8.081	0.000

Gambar 12. Nilai T *statistics*

Based on the data processing that has been done with smartPLS above, it can be seen that the variable X has a unidirectional (positive) relationship to Y with a *path coefficients value of* 0.686. In addition, it can also be stated that the variable X has a significant effect on Y or in other words the hypothesis is fulfilled.

CONCLUSION

Based on the things that have been conveyed above, the following conclusions can be drawn: "The quality of goods (X) has a positive and significant effect on the Purchase Decision (Y) of STIE Madani Students on the Shopee Application with *path coefficients* variable X to Y of 0.686.

Based on the research that has been done, of course there are still many things that can still be developed again, namely:

1. Add other indicators to the variables that have currently been researched.
2. Adding other exogenous variables that have not been included in this study.
3. Add moderation or intervening variables.

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