The Influence of Virtual Try-On on Cosmetic Purchasing Decisions in the Shopee Application with Intervening Variable Purchase Interest

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Abstract— The cosmetics industry is an industry that can be said to have good growth and development in Indonesia. Shopping for cosmetics online also has problems, namely consumers cannot have experience in trying colors and textures compared to shopping directly in stores. The presence of the virtual try-on feature based on Augmented Reality (AR) technology provided by Shopee is the solution to this problem. This research aims to determine the effect of virtual try-on on cosmetic purchasing decisions on the Shopee application through purchase intention. The type of research used is quantitative causality research. The population selected in this research is consumers who have purchased cosmetic products on Shopee. The sampling method used in this research was nonprobability sampling using a purposive sampling technique, so 120 research samples were obtained. The data analysis method used in this research is Structural Equation Modeling using the Partial Least Square (PLS) method. The results of the analysis show that the test results show that the purchase interest variable is proven to have a positive and significant influence on cosmetic purchase decisions in the Shopee application. The virtual try-on variable is proven to have a positive and significant effect on cosmetic purchasing decisions on the Shopee application. The virtual try-on variable is proven to have a positive and significant effect on interest in buying cosmetics on the Shopee application. The virtual try-on variable influences the decision to purchase cosmetics in the Shopee application through purchase intention

Keywords— Virtual Try-On, Purchase Decision and Purchase Intention

I. INTRODUCTION

The cosmetics industry is an industry that can be said to have good growth and development in Indonesia. People, especially women, are increasingly realizing the importance of using cosmetics as a daily necessity. Revenue in the cosmetics industry market will reach US$7.23 billion or IDR 111.83 trillion (at a 1 dollar exchange rate of IDR 15,467.5) in 2022. The market is expected to grow annually by 5.81%. The huge potential in the (cosmetics) industry causes competition to become increasingly competitive for both local and foreign products. In 2022, based on a report published by Databoks (2022), 62% of respondents prefer to shop for cosmetics online.

Shopee is the e-commerce with the most visitors in Indonesia. In September 2023, the Shopee site was recorded to have received 237 million visits, an increase of around 38% compared to the position at the beginning of the year. This shows that Shopee is the most visited e-commerce platform. According to databoks (2022), Shopee is the most popular e-commerce for purchasing cosmetics. As many as 98% of respondents said they bought cosmetics through Shopee. Therefore, Shopee is the most promising e-commerce platform for selling cosmetics, because most Indonesians decide to purchase cosmetics at Shopee.

Purchasing decisions are defined as a number of structured consumer decisions regarding product purchasing actions through certain considerations[1]. Consumer decision making to buy a product begins with awareness of the fulfillment of needs and desires[2]. Consumer purchasing decisions are to buy the most preferred brand from various alternative brands, but there are two factors that can be between purchasing intentions and purchasing decisions[3].

Before making a purchasing decision, consumers will go through the attraction stage, namely buying interest which is the consumer's tendency to act before the purchasing decision is actually implemented[4]. Interest is the action of someone buying something to fulfill their desires and in the purchasing process it can influence their actions to make purchases in the future[5]. Purchase interest is a customer's encouragement in making a decision to buy a product in order to fulfill the needs in the consumer's mind[6].

Featuretechnology-based virtual try-onAugmented Reality (AR) which has been provided by Shopee aims to eliminate consumer doubts or confusion when purchasing the desired cosmetics, with virtual try-on consumers can ensure the suitability of the product purchased and reduce errors in purchasing products made online. Virtual try-on is a feature that allows users to see themselves trying out various products without having to physically try the product[7].

There are many advantages that can be taken from shopping for cosmetics online, usually apart from saving time, energy and costs, online prices are usually much cheaper than shopping directly or offline.[8]. Behind the advantages of online shopping, in terms of purchasing

cosmetics there are also challenges, consumers cannot have the experience of trying colors and textures compared to shopping directly in stores. However, the presence of Augmented Reality overcomes this obstacle. The application of Augmented Reality is believed to be able to build a realistic experience with the product[9].

Augmented Reality (AR) is one of the technologies that companies will adopt with a percentage of 59.1% (databoks, 2023). On research[10]More than 84% of online sellers use virtual try-ons to interact with consumers. Virtual try-ons can provide consumers with impersonal interactions with a virtual model of the consumer's own body that replaces the actual try-on, thereby easily providing guidance on product suitability. virtual try-ons can solve the problem of incorrect sizing and fit, which are common reasons for consumer product returns[11]. Technology-based virtual try-onsAugmented Reality (AR)greatly influences consumers' buying interest in a positive way[12]. Technology-based virtual try-onAugmented Reality (AR)has a positive impact on the consumer purchasing decision process[13].

II. FOUNDATION AND THEORY

Purchasing decisions are defined as a number of structured consumer decisions regarding product purchasing actions through certain considerations[1]. Consumer decision making to buy a product begins with awareness of the fulfillment of needs and desires[2]. Consumer purchasing decisions are to buy the most preferred brand from various alternative brands, but there are two factors that can be between purchasing intentions and purchasing decisions[3]. Indicators used: Product selection, stability in purchasing products, buying habits, giving recommendations to others, and making repeat purchases,

Interest is the action of someone buying something to fulfill their desires and in the purchasing process it can influence their actions to make purchases in the future[5]. Purchase Intention is a consumer's tendency to buy something or take action related to buying and is measured by the level of probability that the consumer makes a purchase[14]. Purchase interest is a customer's encouragement in making a decision to buy a product in order to fulfill the needs in the consumer's mind[6]. The indicators used measure buying interest, transactional interest, referential interest, preferential interest and exploratory interest.

Virtual try-on is a technology that adds digital information and images to a person's view of their reality. This creates the appearance of a semi-virtual world, blending the real world with the virtual world[9]. A virtual try-on is a website or application feature that allows the creation and manipulation of images of a product or environment to simulate (or surpass) an actual experience with the product or environment[15]. Virtual try-on is a new technology used to help customers try and mix and match products online[11]. Indicators of Perceived usefulness, Perceived ease of use, and Perceived enjoyment.

III. RESEARCH METHODS

This research uses a casual quantitative type of research. Casualty quantitative research is an approach to research that looks for relationships between one variable and other variables that have cause and effect and to test established hypotheses. The data source used is primary data. Primary data is data obtained or collected directly in the field by researchers, namely consumers who have purchased cosmetic products on Shopee through distributing questionnaires online. The population in this research is consumers who have purchased cosmetic products on Shopee, the exact number of which is not yet known. The sampling method used is non-probability sampling through purposive sampling technique. The number of samples used in this research was 120 respondents.

In this research, the Partial Least Square (PLS) method was used to process the data. PLS is often referred to as an alternative method of Structural Equation Modeling (SEM) which can solve many response variables. Partial Least Square (PLS) consists of two sub models, namely the measurement model (outer model) and the structural model (inner model). At the outer model stage, validity and reliability tests are carried out to test each indicator, the inner model stage functions to ensure whether or not there is an influence or relationship between variables.[16].

Measurement Model or Outer Model

The validity test on the outer model consists of a convergent validity test and a discriminant validity test. The convergent validity test has the principle that the manifest variables of a construct should be highly correlated and have sufficient loading scores. The loading value criteria are considered ideal with a minimum requirement of 0.7. The validity test uses average variant extracted (ave) and is declared valid if the value is at least 0.5 for each variable. The discriminant validity test is a validity test related to the principle that different construct measures should not be highly correlated. Discriminant validity is assessed from cross loading and latent variable correlations on each construct which must have a value greater than the other constructs, so it can be concluded that the indicators used are better than the indicators on the other constructs.

The reliability test functions to test the consistency of the research construct. Reliability uses composite reliability and Cronbach alpha. The reliability test is said to be good if it has a minimum value of 0.7 or above.

Structural Model (Inner Model)

The inner model test in research functions to ensure that the structural model that has been built is accurate. Test the inner model by looking at the value of the coefficient of determination or R-square which is used for coefficients on endogenous or influenced constructs. The proposed research model is said to be good if the R-square value is high. The R2 value shows the percentage of endogenous variables that can be explained by exogenous variables. The R2 value is classified into three, namely 0.25 – 0.50 (weak), 0.50 – 0.75 (moderate), and more than 0.75 (substantial)[16]

IV. ANALYSIS RESULTS

This research aims to see whether virtual try-on influences cosmetic purchase decisions on the Shopee application through purchase intention. The first step taken before testing the hypothesis using Smart Partial Least Square (PLS), namely testing the measurement model (outer model) is used to determine the specifications of the relationship between the latent variable and the manifest variable. This test includes convergent validity, discriminant validity and reliability. Convergent validity of the

measurement model with reflexive indicators can be seen from the correlation between the item/indicator scores and the construct scores

Table 1. Loading Factor Results (Stage 1)

Indicator	Decision Purchase	Interest Buy	Virtual Try On
KP1	0.591		
KP2	0.869		
KP3	0.778		
KP4	0.851		
KP5	0.860		
MB1		0.887	
MB2		0.810	
MB3		0.896	
MB4		0.893	
VT1			0.904
VT2			0.913
VT3			0.914

Source: Smart PLS Program Output, 2023

Based on the results of processing with the Smart PLS Program, in Table 1 the Loading Factor Results (first stage), explains that the purchasing decision variable indicator (KP1), has a loading factor value of <0.70. Thus, this indicator is an invalid indicator for measuring the construct and must be deleted. After recalculating the Smart Partial Least Square (PLS) it shows the following results

Table 2. Loading Factor Results (Stage 2)

Indicator	Decision Purchase	Interest Buy	Virtual Try On
KP2	0.854		
KP3	0.812		
KP4	0.900		
KP5	0.858		
MB1		0.885	
MB2		0.814	
MB3		0.895	
MB4		0.892	
VT1			0.903
VT2			0.913
VT3			0.915

Source: Smart PLS Program Output, 2023

Based on the results of processing with the Smart PLS Program, in Table 2 the Loading Factor Results (second stage), explains that under the virtual try-on variable indicator, buying interest and purchasing decisions have a loading factor value of > 0.70. Thus, all indicators of the virtual try-on variables, purchase interest and purchase decision are declared valid for measuring the construct.

Validity and reliability criteria can also be seen from the average variance extracted (AVE) and composite reliability values. A construct is said to have good discriminant validity if the square root of average variance extracted (AVE) value is > 0.5, while for composite reliability indicators that measure the construct, a construct is said to be reliable if the composite reliability value is > 0.60 or can be seen by looking at the reliability of the construct or latent variable that is measured by looking at the Cronbach's alpha value of the indicator that measures the construct, a construct is declared reliable if the Cronbach's alpha value is > 0.7.

Table 3. Construct Reliability And Validity

Variable	Composite Reliability	Average Variance Extracted (AVE)
Buying decision	0.917	0.734
Purchase Interest	0.927	0.760
Virtual Try On	0.936	0.829

Source: Smart PLS Program Output, 2023

1. Based on the results of processing with the Smart PLS Program in table 2, the virtual try-on variables, purchase interest and purchase decision, have an AVE value > 0.5. Thus, all virtual try-on variables, purchase interest and purchase decisions, have good discriminant validity.
2. Based on the results of processing with the Smart PLS Program, in table 2, the virtual try-on variables, purchase interest and purchase decision, have a composite reliability value of > 0.6. Thus, all virtual try-on variables, purchase interest and purchase decisions have good reliability.

After carrying out all the testing stages, the next step in this research is an assessment of the measurement results from the structural model (inner model). The research carried out two measurements which became the first research stage, namely measuring the magnitude of the influence of R Square and testing the hypothesis with an alpha value of 5% (0.05). The following are the test results with bootstrapping from PLS analysis as follows:
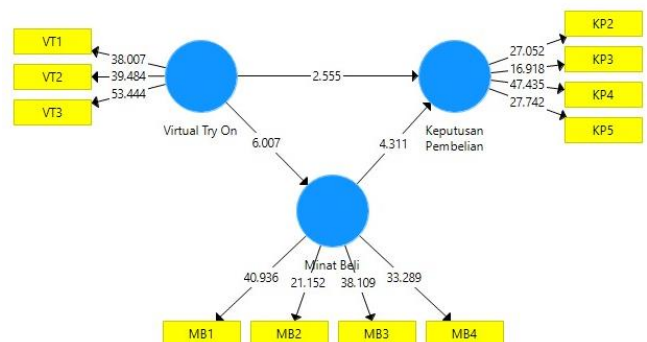
Source: Smart PLS Program Output, 2023

Fig 1. Bootstrapping Model Results

Inner model or structural model testing is carried out to see the relationship between constructs, significance values and R-square of the research model. The structural model was evaluated using R-square for the t-test dependent construct as well as the significance of the structural path parameter coefficients. In assessing the model with the Smart PLS Program, start by looking at the R-square for each dependent latent variable.

Table 4. R-Square Test Results

Variable	R Square	R Square Adjusted
Buying decision	0.573	0.565
Purchase Interest	0.263	0.256

Source: Smart PLS Program Output, 2023

Based on the results of processing with the Smart PLS Program in table 4, it explains that the purchase interest variable has an R-square value of 0.263, meaning that the virtual try-on variable can explain 26.3% of purchase interest, and the remaining 74.7% is explained by other variables, while the purchase decision variable has an R-

square value of 0.573, meaning that the virtual try-on and purchase interest variables can explain 57.3% of the purchase decision, and the remaining 42.7% is explained by other variables.

After assessing the inner model, the next thing is to evaluate the relationship between latent constructs as hypothesized in this research. Hypothesis testing in this research was carried out by looking at T-Statistics and P-Values. The hypothesis is declared accepted if the T-Statistics value is > 1.96 and P-Values < 0.05.

Table 5
Path Coefficients Test Results (Direct Effect)

Variable	Original Samples (O)	Q Statistics (|O/STDEV|)	P Values
Purchase Interest -> Buying decision	0.531	4,311	**0,000**
Virtual Try On -> Buying decision	0.332	2,555	**0.011**
Virtual Try On -> Purchase Interest	0.512	6,007	**0,000**

Source: Smart PLS Program Output, 2023

Based on the results of processing with the Smart PLS Program in table 5, it explains that buying interest influences the decision to buy cosmetics in the Shopee application, virtual try-on influences the decision to buy cosmetics in the Shopee application and virtual try-on influences the interest in buying cosmetics in the Shopee application.

Table 4.6
Path Coefficients Test Results ((Inirect Effect)

Variable	Original Samples (O)	Q Statistics (|O/STDEV|)	P Values
Virtual Try On -> Purchase Interest -> Buying decision	0.272	3,069	**0.002**

Source: Smart PLS Program Output, 2023

Based on the results of processing with the Smart PLS Program in table 5, it explains that virtual try-on influences cosmetic purchase decisions in the Shopee application through purchase interest.

Discussion of Purchase Interest on Purchase Decisions

The test results found that buying interest was proven to have a positive and significant influence on cosmetic purchasing decisions on the Shopee application. The results of this research are in line with the results of previous research which stated that buying interest has a positive and significant influence on consumer purchasing decisions[17], meaning that as buying interest increases, purchasing decisions will increase. Purchase Intention is a consumer's tendency to buy something or take action related to buying and is measured by the level of probability that the consumer makes a purchase[14]

Discussion of Virtual Try-On on Purchasing Decisions

The test results found that virtual try-on was proven to have a positive and significant effect on cosmetic purchasing decisions on the Shopee application. The results of this research are in line with the results of previous research which stated that technology-based virtual try-onsAugmented Reality (AR)greatly influences consumers' buying interest in a positive way[12], meaning that if virtual try-ons are further improved, consumer purchasing decisions

will increase. Virtual try-on can provide impersonal interaction to consumers with a virtual model of the consumer's own body that replaces the actual trial, so that it can easily provide guidance on product suitability so that consumers are interested in buying the product.[11]

Discussion of Virtual Try-On on Purchase Interest

The test results found that virtual try-on was proven to have a positive and significant effect on interest in buying cosmetics on the Shopee application. The results of this research are in line with the results of previous research which stated that technology-based virtual try-on technologyAugmented Reality (AR)has a positive impact on consumer purchasing decisions[13], meaning that if virtual try-ons are further improved, consumer buying interest will increase.With virtual try-on, consumers can ensure the suitability of the product purchased and reduce errors in purchasing products made online. Virtual try-on is a feature that allows users to see themselves trying various products without having to try the product physically, thereby allowing consumers to be interested in making a purchase.[7]

Virtual Try-On Discussion of Purchasing Decisions Through Purchase Intention

The test results stated that the virtual try-on influenced the decision to purchase cosmetics on the Shopee application through purchase intention. These results are supported by previous research which states that online buyers' purchasing decisions can be influenced by their attitudes towards virtual try-on technology[10]. Online consumers' usage experiences and attitudes toward virtual try-on technologies play an important role in their online purchasing decision intentions[15]. Interest is the action of someone buying something to fulfill their desires and in the purchasing process it can influence their actions to make purchases in the future[5]. Purchasing decisions are defined as a number of structured consumer decisions regarding product purchasing actions through certain considerations[1]

V. CONCLUSION

The conclusion of the test results shows that the purchase interest variable is proven to have a positive and significant effect on cosmetic purchase decisions in the Shopee application. The virtual try-on variable is proven to have a positive and significant effect on cosmetic purchasing decisions on the Shopee application. The virtual try-on variable is proven to have a positive and significant effect on interest in buying cosmetics on the Shopee application. The virtual try-on variable influences the decision to purchase cosmetics in the Shopee application through purchase intention

Based on these conclusions, it is recommended that business players in the cosmetics sector apply virtual try-on technology to every cosmetic product they buy and sell and provide guidelines for using virtual try-ons to consumers, to make it easier for consumers who want to buy products online. This research has limitations, namely that this research only focuses on one independent variable, while the results of the coefficient of determination test show that there are still other independent variables which are seen to have an influence on interest and purchasing decisions. Therefore,

it is necessary to develop research by exploring other variables outside the research so as to strengthen the research results.

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