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Optimizing Augmented Reality, Brand Image, and Brand Equity on Customer Loyalty for Maybelline Cosmetics on The Shopee Platform

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ARTICLE INFO	ABSTRACT
Paper Type:	The ongoing development of the world of technology has a
Research Paper	considerable impact on the daily use of the Internet in Indonesia,
Keywords: Augmented Reality, Brand Image, Brand Equity, Customer Loyalty.	data based on a survey conducted by the Indonesia Internet Service Providers Association shows that the number of Internet users in Indonesia itself has increased from 132.7 million in 2016 to as many as 143.26 million in 2017, thus there has been an
Article History Received: 4 August 2024 Revised: 4 September 2024 Accepted: 6 December 2024 Available online: 11 December 2024 This is an open access article	increase of 10, 56 million per year. The use of smart devices encourages the emergence of a new dimension in the business view of beauty product marketing activities in Indonesia. The research aims to determine how the enhancement of Augmented Reality, Brand Image, and Brand Equity influences Customer Loyalty towards Maybelline Products on the Shopee Platform. The research focused on all consumers who buy or use Maybelline products. For sampling in this study, nonprobability sampling is applied using the purposive sampling approach, with
under the CC BY-NC-SA license (<u>https://creativecommons.</u> org/licenses/by-nc-sa/4.0/)	sampling is applied using the purposive sampling approach, with a total of 196 respondents. Data collection was performed through questionnaires that were evaluated using the Likert scale. The data analysis for this study employs multiple linear analysis, utilizing Smart PLS 3. 2. 8 software. Findings from this research show that the optimization of Augmented Reality does not impact the customer loyalty of Maybelline New York products in Sidoarjo Regency, while Brand Image and Brand Equity do influence Customer Loyalty for Maybelline Products.

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Introduction

The ongoing advancement of technology has greatly influenced everyday internet use in Indonesia. The amount of mobile phone users has increased by over 3 percent in the last year, with 168 million additional users appearing in the past 12 months (Lusianto, 2024). Data from a survey conducted by the Indonesia Internet Service Providers Association indicates that the total of internet users in Indonesia grew from 132. 7 million in 2016 to 143. 26 million in 2017, representing a yearly increase of 10. 56 million users (Santoso & Kusuma, 2023). The use of smart devices has encouraged the emergence of a new dimension in the business perspective on beauty product marketing in Indonesia (Ghifara et al., 2022). The variety of beauty products is expanding, with options ranging from lipstick, blush, and eyeshadow to eyeliner, eyebrow pencils, powder, and more. Beauty products have become an inseparable part of human life over time. (Purba, 2024) The phenomenon of virtual makeup try-ons using augmented reality media is one example of the evolution of marketplace applications in today's society.

One of the marketplaces that frequently develops technology-related innovations is Shopee. Its new augmented reality feature is known as the Shopee Beauty Camera. Among the many brands that have emerged, one international brand that has become famous and spread worldwide, including in Indonesia, is Maybelline. This brand originated in New York and was created by Thomas Lyle Williams in the United States. As an international brand, Maybelline offers various types of beauty products with the highest quality. According to data from the Top Brand Awards (2023), Maybelline ranked first from 2020 to 2023, with a market share percentage ranging from 35.50% to 44.80% each year (Purba, 2024).

Nama Brand	\$ 2020	\$ 2021	\$ 2022	\$ 2023	\$ 2024	٥
La Tulipe	11.00	11.70	10.60	8.50	14.40	
LOreal	-		-		8.00	
Maybelline	33.50	38.00	43.80	44.80	35.30	
Mirabela	7.30	6.70	5.00	3.10	5.40	
Wardah	12.30	12.60	12.50	11.60	13.30	
ihowing 1 to 5 of 5 entries						

Figure 1. Tabel TOP Brand Award 2023

Source: TOP Brand Award, 2023

The table above shows the results of the 2023 Top Brand Award survey for all Maybelline cosmetic products from 2020 to 2024. It can be seen that Maybelline products consistently have a strong presence in the top 3 of the Top Brands rankings each year. From the data, it can be concluded that Maybelline is a product highly favored by consumers, with a strong brand image and brand equity that attract consumers to make repeat purchases. This demonstrates that Maybelline has earned consumer trust, which positively impacts customer loyalty. In line with current technological developments, Maybelline has enhanced its innovation by introducing an augmented reality-based virtual try-on feature, making it easier for consumers to choose the right cosmetics before making a purchase. However, similar advancements are being made by other cosmetic companies, which may entice consumers to try new products. In times like these, young people, in particular, are easily influenced and curious about trends in society. With the emergence of new developments and competitors driving every cosmetic company to innovate, it remains a challenge for

Maybelline to continue competing and maintaining customer loyalty in the face of fierce competition in the beauty industry.

Customer loyalty refers to a person's commitment to a product, whether a good or service, as reflected in their purchasing behavior (Damanik et al., 2023; Loestefani et al., 2022). As a result, customers become loyal to a particular product or service and may reject similar offerings from different companies. To measure customer loyalty among Maybelline consumers in this digital era, it is essential to consider factors related to marketing application updates, such as the use of augmented reality media.

Augmented reality is a virtual medium that combines two elements: the virtual and the real world (Eru et al., 2022). Technology, in this context, is a tool that adds information and digital images to enhance a person's perception of their reality (Safitri & Oktafani, 2022). The application of augmented reality in marketing is particularly appealing to potential consumers, as it allows them to try new things and enhances their experience with a product. Augmented reality also offers a solution to the problem of unavailable samples or testers, making it easier for consumers to find the products they need. This innovation, as implemented by Maybelline, has significantly boosted the brand's image.

Brand image refers to the perception of a brand by consumers and their involvement with it (Qosim et al., 2023). It also encompasses various perceptions and expectations from consumers, reflected in the different associations they have with the brand in their memory (Affandi et al., 2023). A strong brand image contributes to a positive product image and creates favorable memories for consumers (Damanik et al., 2023). Consumer evaluations significantly influence the credibility of a product's brand image, including brand equity. Brand image refers to the views and convictions held by buyers, as shown in the connections kept in their mind (Ryandono et al., 2022).

Brand equity is made up of the assets and debts linked to a brand, name, or logo that impact the worth delivered by a product or service to a business or its customers (Ryandono et al., 2019). It includes elements that either enhance or diminish the product's value (Sari, 2023). Brand equity fosters confidence during the purchasing decision process due to consumer knowledge of the brand or previous satisfying experiences (Zaki et al., 2024a). For beauty product brands like Maybelline, maintaining and increasing brand equity is crucial to mitigate the impact of environmental factors that might affect consumer perceptions.

Previous studies reveal a research gap between variables X and Y. For instance, the relationship between augmented reality (AR) media (X1) and customer loyalty (Y) shows conflicting results. One study found that AR positively affects customer loyalty (Eru et al., 2022). while another reported a negative effect (Prentice et al., 2020). Similarly, research on the effect of brand image (X2) on customer loyalty (Y) also shows varied results. One study indicated that brand image negatively impacts customer loyalty (Suhardi & Carolin, 2019), whereas another study found a positive influence. In the case of brand equity (X3) and customer loyalty (Y), some studies show that brand equity positively affects customer loyalty in mobile operators in Indonesia (N. Setiawan, 2017). while others using SEM (Structural Equation Modeling) analysis found no effect or a negative effect (Alghofari et al., 2009). This discrepancy highlights an evidence gap, where there is a difference between expected phenomena and actual field evidence (Baharuddin, 2023). Recent research introduces augmented reality as a new variable supported by engagement theory, which emphasizes the importance of consumer activities for brands and digital platforms (Fahrurrozi, 2023).

Literature Review Customer Loyalty (Y)

Customer loyalty is described as non-random buying actions that are indicated occasionally by various decision-making groups (Jill Griffin, 2003). *Customer loyalty* is the loyalty of consumers who are presented in a consistent purchase of a product or service over time and there is a good attitude to recommend others to buy the product. (Rifqi Suprapto & M. Zaky Wahyuddin Azzi., 2020) Customer loyalty is the behavior of consumers who use a product or service and showing consistent by selecting, buying and using particular products from any brand or companies (Dellby et al., 2024). The supporting indicators about customer loyalty include (Annisa et al., 2019):

- 1. Repurchase (Is a repurchase of a product or service used).
- 2. Retention (It is a rejection of products and services other than the products or services used).
- 3. Referral (Is the activity of providing information and recommendations to others to use the same product or service).

In the midst of very fierce competition for beauty products, customer loyalty is the key to seeing whether the company can compete and run its products well to consumers (Chandra Warsito, 2021).

Augmented Reality (X1)

Augmented Reality is a medium that mixes actual and virtual items in a true setting, which operates interactively in real-time. There is also a connection between objects in three dimensions, specifically virtual items connected to the actual world (Nurliana Nasution, et al., 2022). Augmented Reality is a way to see the real world (either directly or through devices such as cameras that create real-world visualizations) by adding visuals of the world with input produced by electronic devices such as computers in the form of images, audio, and video (Acmad Udin Zailani, 2021). The indicators of Augmented Reality are (Rengganis & Kusdibyo, 2020):

- 1. Interactivity (This indicator is a merger of the real world with the virtual world).
- 2. Vividness (The visualization of the display image is clear and detailed).
- 3. Novelty (The information provided is different and specific).

The use of smart applications in the marketing process helps consumers access Augmented reality in various ways based on the category of application features, with so much convenience that consumers get on a product that supports the creation of customer loyalty. Augmented reality media is AR technology that combines virtual objects (3 dimensions) with a real environment. The 3-dimensional object to be displayed can be in the form of an animation or indeed a real object designed to be a 3-dimensional object. (Hermawan et al., 2023), This theory is supported by the results of a study from one expert who said that augmented reality has no effect on customer loyalty (Iman et al., 2022). Another researcher who stated that augmented reality has a positive effect and successfully affects customer loyalty (Chiu et al., 2021), Likewise with one other researcher who stated that AR also has a positive effect on customer loyalty. (Butt et al., 2023).

Brand Image (X2)

Brand image is a perception that consumers have of a brand, characterized by both positive and negative traits (John Budiman Bancin, 2021). Brand Image is often described as a mental imprint or memory

stored in the minds of consumers (Mendo et al., 2023). A brand image is defined by specific indicators that characterize its unique identity (Dicky Wisnu & Gilang Permana, 2022):

- 1. Recognition, refers to a consumer's ability to identify a product or company through its distinctive logos, taglines, and product designs.
- 2. Reputation, Reputation is the level of esteem or standing that consumers associate with a brand. Brands often strive for strong reputations due to their historical value, as a positive reputation can enhance product sales.
- 3. Affinity, refers to the emotional connection between a company or brand and its consumers. It can be measured by factors such as price, consumer satisfaction, and how consumers incorporate the brand into their lives.
- 4. Loyalty, is an indicator of the degree to which consumers are committed to a particular brand and its products.

A good brand image enhances consumer perception of a product, whether positive or negative. In it is essential for fostering consumer loyalty. Brand image is a concept that suggests the creation of a positive brand image through marketing program, establishing a strong, profitable, and unique connection within the consumer's brand memory (Ibnu et al., 2021) This is supported by the findings of several studies that have demonstrated a strong correlation between brand image and customer loyalty. (Damanik et al., 2023) Similarly, one researcher has reported the same conclusion. (Affandi et al., 2023). The next research show that brand image has a significant relationship with customer loyalty (Ma'azah & Prasetyo, 2023). However, some research suggests that brand image may not always directly impact customer loyalty (R. Setiawan et al., 2020).

Brand Equity (X3)

Brand equity refers to a collection of brand resources and disadvantages connected to a brand, label, or emblem that can either enhance or diminish the worth provided by a product or service to both the business and its customers (Darmadi Durianto, Sugiarto, 2004). Brand Equity is also described as a collection of brand advantages and disadvantages linked to a brand, name, and sign, which either raises or lowers the worth offered by a product or service to a business or customer (Maulana At Thaariq et al., 2023). The indicators of brand equity, as referred to in "The Brand Equity Ten" (Zaid, 2021) are:

- 1. Brand Loyalty, a key component of brand equity, is often measured by consumers' willingness to pay a premium price and their overall satisfaction with the brand.
- 2. Perceived Quality, is a crucial dimension of brand equity. Positive perceptions of quality can enhance brand sustainability and encourage customer purchases and usage.
- 3. Association/Size of Differentiation
 - a. Value perception: A strong brand identity is essential for creating a compelling value proposition. This proposition, often centered around functional benefits, is a core element of most brands in the marketplace.
 - b. Brand personality: another key component of brand differentiation, can evoke emotional and positive benefits for consumers. It also serves as a foundation for building strong brand-customer relationships.
 - c. Another dimension of brand identity is the brand as an organization which can also be a driver of differentiation.

- 4. Brand Awareness, is defined as the ability of customers to recognize or recall a brand and associate it with a specific product category.
- 5. A measure of market behavior.
 - a. Market share: Market share and sales are common metrics for assessing brand performance and customer perception.
 - b. Market price and distribution reviews : Market share can be a very deceptive measure of brand equity when it increases as a result of a decrease in promotional prices.

Good brand equity in the eyes of consumers helps them determine whether a product holds strong equity. The importance of brand equity is supported by research showing that it can positively affect customer loyalty among mobile operators in Indonesia (N. Setiawan, 2017).

The conceptual framework and hypothesis of this research can be seen in the figure below:



Figure 2. Conceptual Framework

Source: Author, 2024

Based on the formulation of the problem and the main topic above, the following hypothesis is proposed:

H1: Augmented Reality media has an effect on customer loyalty of Maybelline products on the Shopee platform.

H2: Brand Image has an effect on the customer loyalty of Maybelline products on the Shopee platform.

H3: Brand Equity affects customer loyalty of Maybelline products on the Shopee platform.

Methodology

This type of research is a form of research that adopts a quantitative method. The quantitative method is essentially a structured examination of an occurrence by gathering information that can be assessed using statistical, mathematical, or computational methods (Sidik Priadana & Denok Sunarsi, 2021). The strategy used is an associative method where associative (relationship) is a research directed to find out the relationship between two or more variables (Mudrajad Kuncoro, 2004). This research explores the impact of enhanced reality media, brand perception, brand value on the loyalty of customers towards Maybelline products on the Shopee platform.

A population is a group of people (as well as institutions, events, or other study subjects) that they want to describe or generalize (Swarjana, 2022). Population is the overall value derived from the results of calculations or measurements, quantitative, and qualitative of certain characteristics regarding a complete set of objects whose properties will be studied (Gusman Lesmana, 2021). The population that will be used in this study is all consumers who make purchases or use Maybelline products on the Shopee platform.

The sample is the taking of a part of the number of individuals in the population as representative of the population (Raihan et al., 2015). The sample in this study is all consumers who make purchases or use Maybelline products on the Shopee platform. This study uses a non-probability sampling technique because the population is not known and uses a purposive sampling method, where the sample is determined based on certain criteria, including 1) Women aged at least 17 years - 50 years. 2) Use Maybelline products at least 2x. 3) Use the Shopee Platform and try the augmented reality features provided when purchasing Maybelline products. In this study, the Lemeshow formula is used because the population of Maybelline product users is unknown, which is as follows:

$$n = \frac{Z_{1-a/2}^{2} P(1-P)}{d^{2}}$$

Information:

n: Number of samplesz: z score on 95% confidence = 1.96p: Maximum estimate 50%d: Error rate 7%

$$n = \frac{1.96^2 \times 0.5 (1 - 0.5)}{0.7^2}$$
$$n = \frac{3.8416 \times 0.025}{0.0049}$$
$$n = \frac{0.9604}{0.0049}$$
$$n = 196$$

From the calculation above, a sample of 196 people was obtained.

Data Analysis

The data analysis technique in this study was carried out by PLS-SEM (Partial Lest Square Structural Equation Modeling) analysis with the help of Smart PLS 3.0 Software which is a tool to analyze the primary data that has been obtained. This PLS-SEM analysis is used because data analysis is concerned with testing theoretical frameworks with complex structural models and includes indicators or relationship models. Smart-PLS analysis starts with describing the variable relationship as hypothesized. The stages in using Smart-PLS are carried out with two stages of testing, namely the measurement model test (Outer Model Measurements Model) and the structural test (Inner Model/Structural Model).

Results and Discussion

Results.

Based on the results of the dissemination of research through the distribution of questionnaires carried out in the vulnerable period of May 20, 2024 – June 25, 2024, the total number of respondents

obtained is 196 respondents. From the number obtained, the researcher classified the respondents into several criteria as previously listed such as female gender, minimum age 17 - 50 years, with vulnerable age 17 - 20 years old as much as 31%, age 21 - 25 years old 62% and the remaining percentage of 7% came from respondents over 25 - 50 years old. Respondents were taken from different domiciles throughout Indonesia with the highest percentage being in the Sidoarjo and Surabaya areas of 51%, the remaining percentage of 49% came from various domiciles outside the Sidoarjo and Surabaya areas. Taking this questionnaire also involves consumers who are tired of using Maybelline products at least 2 times, where the percentage obtained is 100%.

Outer Model Analysis

The purpose of testing the measurement model is to find out the relationship between the validity and reliability of each variable to the research indicators. This test uses a loading factor value where this value shows how much correlation there is between the variable and the indicator. The value of the loading factor is said to be reliable if the correlation value is > 0.7, then the data can be valid.



Figure 3. Graph of Purchasing Units in Period

Source: SmartPLS data processing 3.2.8, 2024

Based on Figure 2, it can be seen that the value of each indicator on each variable has a > value of 0.7. Therefore, each indicator can be said to be reliable and valid, in other words, the relationship between variables meets the correlation value. In addition to using the loading factor value in the validity test, the convergence validity value (Average Variance Extracted) can also be used. The following is attached the convergence value of validity in this study:

Table 1. Average Variance Extracted (AVE)				
Variable	Average Variance Extracted (AVE)			
Augmented Reality (X1)	0.603			

<u> </u>			
	Customer Loyalty (Y)	0.767	
	Brand Equity (X3)	0.633	
	Brand Image (X2)	0.729	

Source: SmartPLS data processing 3.2.8, 2024

Based on table 1 regarding the results of the convergence validity value or AVE, it shows that the value of each variable meets the conditions. Judging from the Augmented Reality variable which has a value (0.603), the Brand Image variable (0.767), the Brand Equity variable (0.633) and the Customer Loyalty variable (0.767). that means that each variable has a > value of 0.5 so it can be said that AVE has a good validity convergence value. Furthermore, the value that must be calculated is a reliability test by looking \Box

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Results
Augmented Reality (X1)	0.671	0.673	0.820	Reliable
Brand Image (X2)	0.930	0.964	0.941	Reliable
Brand Equity (X3)	0.918	0.929	0.932	Reliable

Cronbach's Alpha, rho_A, and Composite Reliability values.

Table 2. Composite Reliability Test Results and Cronbach's Alpha

Source: SmartPLS data processing 3.2.8, 2024

Based on Table 2 which shows the results of the reliability test of each variable, the values of Cronbach's Alpha, rho_A, and Composite Reliability shown by the Augmented Reality variables are (0.671), (0.673), and (0.820). For the Brand Image variables in the test results, Cronbach's Alpha, rho_A, and Composite Reliability values were shown as (0.930), (0.964), and (0.941). The next variable, namely Brand Equity, shows the values of Cronbach's Alpha, rho_A, and Composite Reliability of (0.918), (0.929), and (0.932). and the last variable, namely the Customer Loyalty variable, shows the values of Cronbach's Alpha, rho_A, and (0.907). So, it can be seen that all variables have a reliable value because each value is> 0.6. In other words, all variables meet the requirements of the reliability composite test and Cronbach's Alpha.

Inner Model Analysis

The structural model test (Inner Model) is a test conducted to see the causal relationship between each latent variable. Using the Bootstrapping test process, then the T-Statistic parameter was obtained to estimate the relationship between variables. The Inner Model test is useful for showing the strength of estimation between latent variables or constructs. The first test conducted for the inner model test was the R-Square test.

R-Square Test

The determination coefficient (R-Square) is interpreted as a way to assess how much endogenous construct in the dependent variable (Y) can be explained by exogenous constructs. The value of the determination coefficient (R-Square) is expected to be between 0 and 1 (Febriyanti et al., 2022). The first step for the structural test of the model is to start by looking at the R-squared value of each endogenous latent variable as the predictive power of the structural model. An R-Square value of (0.67) indicates a good weight (Strong), an R-Square value of (0.33) indicates a moderate weight (Moderate), and an R-Square value of (0.19) indicates a weak weight. The following are the results of the R-Square test.

 Table 3. R-Square Test Results

Variable	R Square	R Square Adjusted
Customer Loyalty (Y)	0.853	0.851
1-1		

Source: SmartPLS data processing 3.2.8, 2024

Based on Table 3 of the R-Square test results above, it is shown that the value of the determination coefficient (R-Square) of the Customer Loyalty variable is (0.853) or (85.3%) which means that the ability of independent variables, namely Augmented Reality, Brand Image, and Brand Equity in explaining the Customer Loyalty variable is (85.3%), and (14.7%) is explained by other variables outside the variables in this research hypothesis.

Significance of the Coefficient Path in the Structural Model (Hypothesis Test)

In this hypothesis test, the aim is to test the hypothesis between the X and Y variables. A hypothesis can be said to be accepted if the result values in the table follow the initial hypothesis, by looking at the Static, Original Sample (O), and P-Values t values. The variable can be said to be influential if the t-value of the statistic is greater than the t-value of the table (1.96) (Wardhana & Ratnasari, 2022), while if it is smaller than the t-value of the table, it is said that the variable X to Y has no effect. If the value of P-Values is <0.05, then the hypothesis between the X variable and Y can be said to be significant (Pratiwi et al., 2022). On the other hand, if the P-Values value is >0.05, then the hypothesis of the X variable to Y is said to be insignificant (Fauziana et al., 2022). To find out whether the hypothesis of the X variables X to Y has a negative or positive effect, it can be seen in the value of the Original Sample (O), the value of the Original Sample (O) which shows a positive number (+), then it can be said that the hypothesis between variables X and Y has a negative effect, while if the value of the Original Sample (O) shows a negative number (-), it can be said that the hypothesis between variables X and Y has a negative effect.

		Ta	able 4. Hypo	thesis Test	Result		
Variable	Original Sample(O)	Sample Mean (M)		T Statistic (\O/ STEDV	P Values	Result	Hypothesis

Augmented Reality -> Customer Loyalty (H1)	-0.02	-0.02	0.04	0.56	0.57	It has no effect and is insignificant.	Not accepted.
Brand Image -> Customer Loyalty (H2)	0.32	0.32	0.09	3.73	0.00	It has a positive and significant effect.	Accepted
Brand Equity -> Customer Loyalty (H3)	0.64	0.64	0.08	7.78	0.00	It has a positive and significant effect.	Accepted

Source: SmartPLS data processing 3.2.8, 2024

Based on the table of hypothesis test results above, it can be seen that the Augmented Reality variable (X1) for the Customer Loyalty (Y) variable has an Original Sample (O) value of (-0.02) with a statistical t value smaller than the table t (1.96) which is (0.56) and for the P-Values value which is (0.57) which means >0.05. Thus, it can be said that the **Augmented Reality variable has no effect and is not significant to the Customer Loyalty** variable, so the H1 hypothesis is unacceptable.

The Variable Brand Image (X2) for Customer Loyalty (Y) has an Original Sample (O) value of (0.32) with a Statistical t value greater than the Table t, which is (3.37), and for a P-Values value of (0.00). Thus, it can be said that the **Brand Image variable has a positive and significant effect on the Customer Loyalty** variable, so the H2 hypothesis can be accepted.

The third variable, namely, Brand Equity (X3) to Customer Loyalty (Y) has an Original Sample (O) value of (0.64) with a statistical t value greater than the table t, which is (7.78) and for a P-Values value of (0.00). Thus, it can be said that the **Brand Equity variable has a positive and significant effect on the Customer Loyalty variable**, so it can be stated that the H3 hypothesis is acceptable.



Figure 4. Bootsraping Test Results

Source : SmartPLS data processing 3.2.8, 2024

Discussion

Hypothesis 1: Augmented Reality Media affects customer loyalty to Maybelline products on the Shopee platform.

Based on the results of the analysis of the above research, proving that Augmented Reality has no effect and is not significant on Customer Loyalty to Maybelline products on the Shopee Platform, the hypothesis is rejected. The majority of consumers feel that the augmented reality feature provided by Maybelline products provides a specific shade difference display that makes it easier for consumers to choose the product to buy. This is one of the positive sides shown by the augmented reality feature. Furthermore, consumers of Maybelline products love the display presented by the augmented reality feature because the products are displayed in detail and clearly. Like when consumers with different skin tones can see the appearance that matches the original product through augmented reality fit (Zaki et al., 2024b).

However, the thing that causes augmented reality to have no effect on customer loyalty is that consumers have used augmented reality features but do not always use them again. This is because there are still things that consumers are considering to return to using augmented reality features. For example, this new feature is sometimes incompatible with some devices which results in features that are more difficult for consumers to access, or this feature can be used but the response is quite slow so it is difficult for consumers to use it, besides that the majority of Indonesia people are still unfamiliar with augmented reality features as a marketing world. This is evidenced by the lack of research that discusses augmented reality feature used in learning media, so consumers feel less satisfied with the augmented reality feature used in the world of beauty product marketing. On the other hand, consumers will still buy Maybelline products either because they use the augmented reality features available on the platform or because of their interest in the product. That way, augmented reality features have no effect and are not significant to customer loyalty (Zakik et al., 2022).

The results of this study are in line with the theory that augmented reality experiences are interpreted as an element of experimental marketing. Where this is one of the ways marketing increases the interaction and different experiences of their products to consumers, whether marketing is successful or not can be known through consumer responses about the marketing efforts (ERU et al., 2022). The results of this study are also in line with previous research that augmented reality does not affect customer loyalty (Prentice et al., 2020) Furthermore, other studies prove that augmented reality does not affect customer loyalty. (Akash & Tajamul, 2022). Other studies have also shown that augmented reality has no positive effect on customer loyalty (Butt et al., 2023)

Hypothesis 2: Brand Image affects customer loyalty to Maybelline products on the Shopee platform.

Based on the results of the analysis of the above research, it can be proven that brand image has a positive and significant effect on customer loyalty. It can be said that brand image has an influence that can increase customer loyalty, this is because Maybelline's products themselves have a logo that is easily recognizable by consumers. Maybelline's product logo has characteristics that are not easy to imitate by other products, Maybelline also has special features such as its tagline which reads "Maybe She Born with It" From the time Maybelline appeared on the surface of the tagline still survives to this day. To build people's views on a product, consistency is needed that will arouse consumer perception and can affect their loyalty to a product.

In addition, Maybelline also has a fairly good historical record so far that the wider community and consumers can believe in Maybelline's consistency in each of its products. That way, the brand image owned by Maybelline can bring a positive influence in the market. A trust supported by other positive factors as mentioned above will give rise to a sense of consumer loyalty to Maybelline products, this can be proven by the repurchase activities by consumers both in the context of the same type of product or a different type of product. This is in line with the theory that brand image affects the perception of the quality of a company's products and services, as well as estimating the value and loyalty of consumers. The importance of managing the brand image aspect will have a good impact on the company. However, brand image development needs to be balanced with several other factors (Mark S. Glynn, 2009)(Ryandono et al., 2022).

This is also in line with research that says that brand image has a positive and significant effect on customer loyalty (Damanik et al., 2023) It was said in another study about the positive and significant influence of brand image on customer loyalty (Purba, 2024) stated that brand image has a positive and significant effect on customer loyalty (Suhardi & Carolin, 2019) Further research indicates that brand image has a significant influence on customer loyalty (Dam & Dam, 2021). This is supported by other studies that reach the same conclusion (Chao et al., 2015), Additional research also shows that brand image has a significant impact on customer loyalty (Rahi, 2016). Other research also suggests that brand image affects customer loyalty (Syahfudin & Ruswanti, 2015).

Hypothesis 3: Brand Equity Affects Customer Loyalty of Maybelline products on the Shopee platform.

Brand equity has a positive and significant effect on customer loyalty. This is evident from consumers who perceive Maybelline products as worth their price, meaning that the price of each product aligns with its quality. When consumers recognize that the products they purchase have strong brand equity, customer loyalty is established. Loyal customers provide positive feedback regarding the availability of Maybelline products in the market. Feedback from consumers remains a crucial component in product development. Consumers also evaluate the value of a product based on their experiences with Maybelline products, supported by product quality that is notably superior compared to other beauty products.

Consumers compare Maybelline products with similar offerings from different brands, indicating their awareness of the Maybelline brand. Thus, consumer perceptions of Maybelline significantly influence opinions and impact reviews, which, in turn, affects market share. Such strategies are essential for consumers to evaluate the consistency of Maybelline products amid the emergence of numerous similar products. This aligns with the theory that brand equity comprises a set of brand assets and liabilities related to a brand, whether in the form of a name, symbol, or other elements. Brand equity can either enhance or diminish the value provided by a product or service to both the company and its customers (Darmadi Durianto, Sugiarto, 2004).

This is also supported by previous research, which indicates that brand equity affects customer loyalty (N. Setiawan, 2017). Other studies have confirmed that brand equity has a positive and significant effect on customer loyalty (Firdaus & Yamini, 2023). Additional research also suggests that brand equity influences customer loyalty (Lesmana et al., 2020). Further research also supports the idea that brand equity influences customer loyalty (Ayesh et al., 2021).

Conclusion

Based on the findings, it can be concluded that the hypothesis of the augmented reality variable has no effect and is not significant on customer loyalty to Maybelline products on the Shopee platform. This is because there are still obstacles that are the reason why consumers use this latest feature, Then, on the hypothesis that the brand image variable on customer loyalty has a positive and significant influence on Maybelline products which can be seen by the consistency of the logo, tagline, and quality image of Maybelline products that can influence consumers.

The findings of this study have several important implications, the first is that the use of media or augmented reality features in product marketing efforts on digital platforms needs to be improved to make it easier for the wider community to use and maintain consumer loyalty. Second, the company's role in building a good brand image by creating its characteristics for a product is important so that consumers continue to give a good assessment of Maybelline products on the Shopee platform. Third, it is known that the role of consumers in creating brand equity from Maybelline products is also one of the important things that must be maintained and developed.

However, this study also has limitations where this study only examines Augmented reality, Brand Image, and Brand Equity on Customer Loyalty on Maybelline products on the Shopee platform. There are several suggestions for the next researcher, namely using the same augmented reality variable but with a narrower context so that the respondents to be researched better understand the purpose and purpose of this research. And it can also expand the range of variables to support existing hypotheses. Exploring more information is also necessary in this era of rapidly developing beauty so that research can get the latest and better results.

Author's Contribution

The final manuscript has been prepared with contributions from all writers. Ayu is in charge of gathering information, writing the manuscript, making the illustrations, and developing the main themes. Dewi Komala Sari revised the article and offered direction and advice

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The author declares that they have no commercial or financial relationships that could be construed as a potential conflict of interest.

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Reference

- Acmad Udin Zailani. (2021). Pengenalan Augmented Reality Untuk Pemula (M. P. Tri Handayani (ed.); 1st ed.). Pascal Books.
- Affandi, M., Suherman, S., & Aditya, S. (2023). Efek Mediasi Brand Trust dalam Pengaruh Brand Image dan E–Service Quality Terhadap Customer Loyalty Bukalapak. SINOMIKA Journal: Publikasi Ilmiah Bidang Ekonomi Dan Akuntansi, 1(6), 1499–1516. https://doi.org/10.54443/sinomika.v1i6.731
- Akash, B., & Tajamul, I. (2022). Impact of augmented reality marketing on customer engagement, behavior, loyalty, and buying decisions. *Cardiometry*, 23, 545–553. https://doi.org/10.18137/cardiometry.2022.23.545-553
- Alghofari, A. K., Pratiwi, I., & Astuti, P. Y. (2009). Analisis Pengaruh Brand Equity Terhadap Pembentukan Customer Loyalty Pada Jenis Merek Pasta Gigi Dengan Analisis SEM (Structural Equation Modelling) (Studi Kasus : Mahasiswa UMS). *Simposium Nasional RAPI VIII 2009*, 58–65.
- Annisa, Y. N., Nurhasan, R., & Setiawan, R. (2019). Pengaruh brand credibility terhadap brand image dan dampaknya pada customer loyalty pada aplikasi Go-Jek di kabupaten Garut. *Journal of Knowledge*

Management, 13(1), 82-86.

- Ayesh, L., Abu-Ghazaleh, T., & Al Zyoud, M. F. (2021). The Influence of Brand Equity on Customer Loyalty in Starbucks Chain in Jordan Lina Ayesh Tala Abu-Ghazaleh University, College for Innovation Mohammad Fahmi Al-Zyoud Al-Ahliyya Amman University – Jordan. *International Journal of Business and Social Science*, 12(2), 56–69. https://doi.org/10.30845/ijbss.v12n2p5
- Baharuddin. (2023). Cara Mudah Menemukan STATE OF THE ART, RESEARCH GAP, NOVELTY, & KNOWLEDGE CONTRIBUTION dalam Penelitian.
- Butt, A., Ahmad, H., Ali, F., Muzaffar, A., & Shafique, M. N. (2023). Engaging the customer with augmented reality and employee services to enhance equity and loyalty. *International Journal of Retail and Distribution Management*, 51(5), 629–652. https://doi.org/10.1108/IJRDM-04-2021-0165
- Chao, R., Wu, T.-C., & Yen, W.-T. (2015). The Influence of Service Quality, Brand Image, and Customer Satisfaction on Customer Loyalty for Private Karaoke Roomsin Taiwan. *The Journal of Global Business Management*, 11(1), 59–67.
- Chiu, C. L., Ho, H. C., Yu, T., Liu, Y., & Mo, Y. (2021). Exploring information technology success of Augmented Reality Retail Applications in retail food chain. *Journal of Retailing and Consumer Services*, 61(April), 102561. https://doi.org/10.1016/j.jretconser.2021.102561
- Dam, S. M., & Dam, T. C. (2021). Relationships between Service Quality, Brand Image, Customer Satisfaction, and Customer Loyalty. *Journal of Asian Finance, Economics and Business*, 8(3), 585– 593. https://doi.org/10.13106/jafeb.2021.vol8.no3.0585
- Damanik, M., Sembiring, B. K. F., Rini, E. S., & Hutagalung, A. Q. (2023). Pengaruh Brand Image, Expertiential Marketing, Dan Product QualityTerhadap Customer Loyalty Merek Tropicana Slim Pada PremiumCommunity. *Maeswara: Jurnal Riset Ilmu Manajemen Dan Kewirausahaan*, 1(6), 104.
- Darmadi Durianto, Sugiarto, T. S. (2004). *Strategi Menaklukan Pasar Melalui Riset Ekuitas dan Perilaku Merek* (3rd ed.).
- Dellby, C., Aam, I., & Rusydiana, S. (2024). Understanding the Drivers of Consumer Loyalty Among Millennials Towards Halal Restaurants in Indonesia : SEM PLS Analysis. 5(3), 379–395.
- Dr. H. Chandra Warsito, S.T.P., S.E., M. S. (2021). Loyalitas Pelanggan Terhadap Merek Toko Islami (M. S. Rahmini Hadi, S.E. & M. S. Wahyu Budiantoro (eds.); 1st ed.). STAIN Press.
- Dr. Nurliana Nasution, ST., M.Kom. MTA., M., Yuvi Darmayunata, M. Kom., M., & Sri Wahyuni, M.Pd, Ch., C. (2022). Augmented Reality dan pembelajaran di Era Digital (M. P. Dr. Adolf Bastian (ed.); 1st ed.). Penerbit Adab.
- Drs. Dicky Wisnu Usdek Riyanto, M. ., & Gilang Indra Permana. (2022). *Dampak Pemasaran Sosial Media dan Citra Merek Terhadap Minat Beli* (1st ed.). Pustaka Peradaban.
- Durmaz, Y., Cavusoglu, S., & Ozer, O. (2018). The Effect of Brand Image and Brand Benefit on Customer Loyalty: The Case of Turkey. *International Journal of Academic Research in Business and Social Sciences*, 8(5), 528–540. https://doi.org/10.6007/ijarbss/v8-i5/4140
- ERU, O., TOPUZ, Y. V., & COP, R. (2022). The Effect of Augmented Reality Experience on Loyalty and Purchasing Intent: An Application on the Retail Sector. *Sosyoekonomi*, 30(52), 129–155. https://doi.org/10.17233/sosyoekonomi.2022.02.08
- Fahrurrozi, M. (2023). Enterpreunership & Digitalisasi Mengembangkan Bisnis di Era 5.0.
- Fauziana, H., Wardhana, A. K., & Rusgianto, S. (2022). The Effect of Education, Income, Unemployment, and Poverty toward the Gini Ratio in Member of OIC Countries. *Daengku: Journal of Humanities* and Social Sciences Innovation, 2(2), 181–191.
- Febriyanti, A. R., Ratnasari, R. T., & Wardhana, A. K. (2022). The Effect of Economic Growth,

Agricultural Land, and Trade Openness Moderated By Population Density on Deforestation in OIC Countries. *Quantitative Economics and Management Studies*, *3*(2).

- Firdaus, M. F., & Yamini, E. A. (2023). Pengaruh Brand Equity dan Brand Trust Terhadap Loyalitas Pelanggan Sepatu Sandal Merek Eiger. 2(3), 1154–1160.
- Ghifara, A. S., Iman, A. N., Wardhana, A. K., Rusgianto, S., & Ratnasari, R. T. (2022). The Effect of Economic Growth, Government Spending, and Human Development Index toward Inequality of Income Distribution in the Metropolitan Cities in Indonesia. *Daengku: Journal of Humanities and Social Sciences Innovation*, 2(4), 529–536.
- Gusman Lesmana, S.Pd., M. P. (2021). Bimbingan Konseling Populasi Khusus (1st ed.). KENCANA.
- Hermawan, F. Y., Hudaya, M. F., Cozha, D. D., & Asiddiqi, H. (2023). Identifikasi Spesifikasi Alat Elektromedik Berbasis Augmented Reality (AR). 1(1), 338–348.
- I Ketut Swarjana, S.K.M., M.P.H., D. P. (2022). *POPULASI-SAMPEL, TEKNIK SAMPLING & BIAS DALAM PENELITIAN* (Erang Risanto (ed.); 1st ed.). Penerbit ANDI.
- Ibnu, U., Uis, S., Umar, J. T., Baja, L., Telp, K. B., & Batam, D. P. (2021). PENGARUH PRODUCT INNOVATION, PRODUCT QUALITY DAN BRAND IMAGE TERHADAP CUSTOMER LOYALTY DENGAN COMPETITIVE ADVANTAGE SEBAGAI VARIABEL INTERVENING DI PT. INSERA SENA. Jurnal Jumka, 1(1), 49–58.
- Iman, A. N., Sukmana, R., Ghifara, A. S., & Wardhana, A. K. (2022). The Effect of Zakat Collection, Company Age, and Company's Total Assets on Financial Performance of Sharia Banking in Indonesia 2019-2020. Economic Education and Entrepreneurship Journal, 5(2), 217–224.
- Jill Griffin. (2003). Customer Loyalty (S. . Yati Sumiharti (ed.)). PT. Gelora Aksara Pratama.
- John Budiman Bancin, S.Pd., M. M. (2021). *Citra Merek dan Word Of Mouth (Perannya Dalam Keputusan Pembelian Mobil Nissan Grand Livina)* (Abdul Rofiq (ed.); 1st ed.). CV. Jakad Media Publishing.
- Lesmana, R., Widodo, A. S., & Sunardi, N. (2020). The Formation of Customer Loyalty From Brand Awareness and Perceived Quality through Brand Equity of Xiaomi Smartphone Users in South Tangerang. *Jurnal Pemasaran Kompetitif*, 4(1), 1. https://doi.org/10.32493/jpkpk.v4i1.7211
- Loestefani, V., Poan, R., Suwitorahardjo, B., & Wardhana, A. K. (2022). Service Quality and Product Quality as An Influence on Customer Loyalty at Naturalis Koffie. *FIRM Journal of Management Studies*, 7(2), 211–236.
- Lusianto, K. S. (2024). the Influence of Brand Image, Lifestyle, Promotion and Price on Oppo Mobile Phone Purchase Decisions At Anugerah Karya Abadi Kediri Store. *Airlangga Journal of Innovation Management*, 5(1), 91–106. https://doi.org/10.20473/ajim.v5i1.53735
- Ma'azah, N., & Prasetyo, A. (2023). Brand Image Melalui Customer Satisfaction Sebagai Variabel Intervening Terhadap Customer Loyalty Pada Produk Skincare Safi Indonesia. Airlangga Journal of Innovation Management, 4(2), 219–228. https://doi.org/10.20473/ajim.v4i2.50401
- Mark S. Glynn, Arch G. W. (2009). *Business-to-Business Brand Management*. Emerald Group Publishing Limited.
- Maulana At Thaariq, N., Hariasih, M., Komala Sari, D., Studi Manajemen, P., Bisnis, F., dan Ilmu Sosial, H., & Muhammadiyah Sidoarjo, U. (2023). Purchase Decision in terms of Brand Equity, Promotion and Price at Herya Convection in Sidoarjo Keputusan Pembelian ditinjau dari Ekuitas Merek, Promosi dan Harga pada Konveksi Herya di Sidoarjo. *Management Studies and Entrepreneurship Journal*, 4(6), 8323–8341.
- Mendo, A. Y., Singh, S. K., Yantu, I., Hinelo, R., Bokingo, A. H., Dungga, E. F., Juanna, A., Wardhana, A. K., Niroula, B., & Win, T. (2023). Entrepreneurial leadership and global management of COVID-

19: A bibliometric study. F1000Research, 12(31), 31.

Mudrajad Kuncoro. (2004). Metode Penelitian Kuantitatif.

- Pratiwi, A. C., Wardhana, A. K., & Rusgianto, S. (2022). Application of Vector Error Correction Model on Macroeconomic Variables toward Changes in the Composite Stock Price Index. *Daengku: Journal of Humanities and Social Sciences Innovation*, 2(2), 219–229.
- Prentice, C., Dominique Lopes, S., & Wang, X. (2020). The impact of artificial intelligence and employee service quality on customer satisfaction and loyalty. *Journal of Hospitality Marketing and Management*, 29(7), 739–756. https://doi.org/10.1080/19368623.2020.1722304
- Prof. Dr. H.M. Sidik Priadana, M., & Denok Sunarsi, S.Pd., M. M. Ch. (2021). Metode-Penelitian-Kuantitatif (1st ed.). Pascal Books.
- Purba, T. (2024). Economics and Digital Business Review Pengaruh Citra Merek, Kualitas Produk, dan Persepsi Konsumen Terhadap Keputusan Pembelian Pada Produk Maybelline di Kota Batam Abstrak: 5(1), 373–383.
- Qosim, N., Ratnasari, R. T., Wardhana, A. K., Fauziana, H., & Barkah, T. T. (2023). Eight Years of Research Related to the Green Sukuk in the Global Stock Exchange Market to Support the Implementation of SDG: A Bibliometric Review. *Journal of Islamic Economic and Business Research*, 3(2), 161–180.
- Rahi. (2016). Impact of Customer Value, Public Relations Perception and Brand Image on Customer Loyalty in Services Sector of Pakistan. Arabian J Bus Manag Review, August. https://doi.org/10.4172/2223-5833.S2-004
- Rengganis, K., & Kusdibyo, L. (2020). Persepsi Penggunaan Fitur Augmented Reality pada Platform Online Shopping Berbasis Technology Acceptance Model. *Prosiding The 11th Industrial Research Workshop and National Seminar*, 26–27.
- Rifqi Suprapto, SP., M., & M. Zaky Wahyuddin Azzi, Se., M. S. (2020). *Buku Ajar Manajemen Pemasaran* (1st ed.). Myria Publisher.
- Ryandono, M. N. H., Mawardi, I., Rani, L. N., Widiastuti, T., Ratnasari, R. T., & Wardhana, A. K. (2022). Trends of research topics related to Halal meat as a commodity between Scopus and Web of Science: A systematic review. *F1000Research*, *11*(1562), 1562.
- Ryandono, M. N. H., Permatasari, S. A., & Wijayanti, I. (2019). Business behavior in an islamic perspective: Case study of muslim woman entrepreneurs in Ikatan Wanita Pengusaha Indonesia (IWAPI). 12th International Conference on Business and Management Research (ICBMR 2018), 154–159.
- Safitri, J. L. G., & Oktafani, F. (2022). Analisis Penerimaan Augmented Reality Pada Wardah Virtual Try On dengan Pendekatan Technology Acceptance Model (TAM). SEIKO : Journal of Management & Business, 5(2), 490–503. https://doi.org/10.37531/sejaman.vxix.464
- Santoso, T. B., & Kusuma, A. (2023). The Development of the Usage of Blockchain for Waqf and Zakat Globally: A Bibliometric Study. *International Journal of Mechanical Computational and Manufacturing Research*, 13(3), 83–91.
- Sari, L. P. (2023). Lita Permata Sari. PENGARUH BRAND EQUITY TERHADAP KEPUTUSAN PEMBELIAN KONSUMEN THRIFT SHOPPING PADA MAHASISWA UNIVERSITAS

ABDURACHMAN SALEH SITUBONDO, 2(1), 74-87.

- Setiawan, N. (2017). Pengaruh Customer Based Brand Equity Terhadap Customer Satisfaction Pada Operator Seluler Di Indonesia the Influence of Customer Based Brand EquitSetiawan, N. (2017). Pengaruh Customer Based Brand Equity Terhadap Customer Satisfaction Pada Operator Selule. 4(1), 111–118.
- Setiawan, R., Nurhasan, R., Hurriyati, R., & Wibowo, L. A. (2020). Brand Credibility vs Brand Image: A Case Study of Gojek Customers' Loyalty. 456(Bicmst), 50–52. https://doi.org/10.2991/assehr.k.201021.012
- Suhardi, S., & Carolin, F. A. (2019). Pengaruh Brand Image Dan Brand Trust Terhadap Customer Loyalty Semen Holcim Pada Pt. Kinco Prima Kota Batam. Jurnal Benefita, 1(1), 39. https://doi.org/10.22216/jbe.v1i1.3404
- Syahfudin, E., & Ruswanti, E. (2015). The Impact of Service Quality and Brand Image on Customer Loyalty Mediated by Customer Satisfaction : in Indonesia Banking Industry Bank BNI BRI Danamon Bukopin Commonwealth CIMB Niaga Bank BNI Commonwealth Danamon Permata BTN. *Journal Faculty of Economic*.
- Wardhana, A. K., & Ratnasari, R. T. (2022). Impact of Agricultural Land and the Output of Agricultural Products Moderated with Internet Users toward the Total export of Agricultural Product in Three Islamic South East Asian Countries. *Iqtishodia: Jurnal Ekonomi Syariah*, 7(2), 11–20.
- Zaid, S. (2021). Ekuitas Merek dan Advokasi Pelanggan (Saeful Anam (ed.)). Academia Publication.
- Zaki, I., Herianingrum, S., Hapsari, M. I., Bayuny, A. F. R., & Wijayanti, I. (2024a). Diversifikasi Pengolahan Frozen Nugget, Pengemasan dan Pemasaran Google Bisnis. *JILPI: Jurnal Ilmiah Pengabdian Dan Inovasi*, 2(3), 1–10.
- Zaki, I., Herianingrum, S., Hapsari, M. I., Bayuny, A. F. R., & Wijayanti, I. (2024b). Diversifikasi Pengolahan Tanaman Obat Tradisional, Pengemasan dan pemasaran Online Di Desa Sugihwaras Kecamatan Prambon Kabupaten Nganjuk. *Janaloka*, 3(1), 1–8.
- Zakik, Z., Kamil, A., Prasetyo, A. S., Ryandono, M. N. H., & Wijayanti, I. (2022). Economic development on Madura Island through halal tourism: A business feasibility study. *Al-Uqud: Journal of Islamic Economics*, 6(2), 289–303.