The Value of Augmented Reality Virtual Try-On and Product Information Distribution in Amplifying Customer Satisfaction through Brand Experience

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Abstract

Purpose: This research analyzes consumer behavior by examining how augmented reality virtual try-on features and product information distribution affect consumer satisfaction through enhanced brand experience. The focus is on Maybelline's Shopee Official Account, as implementing these strategies can strengthen customer relationship management by improving the online shopping experience for cosmetic products. **Research design, data and methodology:** Employing a quantitative method, this study utilized a survey technique distributed to 100 respondents who are followers of Maybelline's Shopee Official Account. The data were analyzed using Structural Equation Modeling (SEM), supported by SmartPLS. **Results:** This study provides evidence that augmented reality does not significantly affect brand experience or customer happiness. The research findings indicate that while this technology enables customers to test cosmetics digitally, its impact on customer satisfaction is minimal. Augmented reality does not appear to influence consumer behavior, as reflected in customer satisfaction. **Conclusions:** This research underscores the importance of understanding contextual factors and product characteristics when incorporating augmented reality in marketing to harness its potential benefits and influence consumer behavior. The study focused exclusively on the identified variables and Maybelline's cosmetic products available on the Shopee platform. Further research is required to explore more complex variables.

Keywords: Augmented Reality Virtual try–on, Brand Experience, Customer Satisfaction, Product Information Distribution, Marketing, Consumer Behavior, Customer Relationship Management.

JEL Classification Code: L66, L81, O39

1. Introduction

Currently, technological advancements extend beyond communication, encompassing various aspects that streamline work processes. Notably, the commercial sector has been greatly impacted, as evidenced by the proliferation of online marketplaces where individuals gather to promote and sell their products. This technological advancement significantly streamlines the buying process by eliminating the need for buyers to physically visit stores, thereby saving time and energy. The convenience of online shopping allows individuals to make purchases from any location, at any time,

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without being restricted by time or place. According to a poll conducted by the Association of Indonesian Internet Service Providers (APJII), there has been a substantial annual growth in the number of Internet users in Indonesia. In 2018, the percentage of total Internet users rose from 64.80% in the previous year to 77.02%, which translates to around 210,026,769 individuals. In 2022, Indonesia's population was recorded at 272,682,600 individuals. Survey findings show that a significant proportion of the Indonesian population, specifically 79%, engage in online transactions, with one prominent avenue being the exploration of online retail platforms.

The proliferation of beauty products in Indonesia has led enterprises to engage in fierce competition, strategizing ways to enhance their appeal and gain a competitive edge over other cosmetic companies in online sales channels and e-commerce platforms. Many online retail platforms and e-commerce businesses utilize cutting-edge technologies to boost their sales and meet consumer needs. One such innovation is Augmented Reality (AR) technology, which enables the integration of two-dimensional (2D) and three-dimensional (3D) items inside a given area. Augmented Reality (AR) is a technological innovation that enables the integration of virtual items into the real-world environment, hence enhancing the user's perception and interaction with their surroundings (Chen et al., 2011). Consumer behavior is constantly evolving and subject to change, with advancements in digital technology being a key driver of these shifts. (Saura et al., 2020). Hence, due to its dynamic characteristics, consumers nowadays employ technological advancements to aid their actions, particularly in purchasing goods or services, with Augmented Reality (AR) being one such innovation.

Augmented Reality (AR) can enhance Customer Relationship Management (CRM) by offering immersive and interactive experiences. This technology improves customer engagement and facilitates personalized product interactions, ultimately fostering more robust and meaningful relationships, which can lead to increased sales. Integrating CRM with electronic technology, known as E-CRM, yields advantages such as enhanced business transactions, heightened customer loyalty, and diminished management expenses. The use of proper electronic technology into CRM is vital for market expansion and innovation, making it indispensable for current company plans (Dehghanpouri et al., 2020). Accordingly, integrating Augmented Reality (AR) into Customer Relationship Management (CRM) brings transformative benefits to businesses. AR technologies enhance customer experience by enabling interactive product involvement, facilitating online product experiences, and improving post-purchase interactions. Augmented Reality (AR) uses advanced neural learning algorithms to efficiently store and analyze customer data, enhancing customer engagement and satisfaction (Malik et al., 2020). Therefore, Augmented Reality (AR) proves advantageous for enhancing the quality of customer relationship management in firms.

Numerous online retail platforms and e-commerce entities have adopted this technological advancement (Yim et al., 2017). The implementation of Augmented Reality (AR) technology has indirectly impacted the marketing strategies used by makeup companies. This technology allows potential consumers to virtually try products without visiting a store or using a physical tester. Augmented Reality (AR) has significantly transformed how brands engage with consumers and create value for them (Rejeb et al., 2023). This marks a significant change from the approach buyers used five years ago. In the beauty industry, renowned cosmetic brands have adopted Augmented Reality (AR) technology to boost product sales and improve their overall presence in the online marketplace.

In addition to using cutting-edge technology to boost sales, firms must constantly analyze their competition to stay ahead. This study examines Maybelline, a leading domestic cosmetics company, and its AR technology. According to experts, Maybelline products ranked second in 2019 (Kakei, 2019). Maybelline struggles to identify recurring customers. Numerous Indonesian cosmetics companies compete for consumer attention by soliciting authentic reviews, using social media and banner ads, television and brochures, and moving to online retail platforms. Dacko (2017) suggests that Maybelline's use of Augmented Reality (AR) on the e-commerce platform "shopee" has the potential to improve retailers' ability to adopt AR applications on mobile devices. Additionally, Augmented Reality (AR) has been observed to impact consumer behavior, resulting in increased consumer satisfaction (Kazmi et al., 2021). Augmented reality (AR) technology overlays virtual elements, information, and images onto physical environments, enabling real-time interaction with the real world. This opens up new opportunities for companies to deliver content to consumers.

The technology used by Maybelinne, known as Shopee Beautycam, allows customers to conveniently experiment with different shades of make-up based on their preferences (Fransiska & Candraningrum, 2020). The process of utilizing the application is straightforward. Firstly, the user must access the Shopee application. Subsequently, they should initiate a search for the desired product, specifically "Maybelline New York." Once the search results are displayed, the user can select the preferred item. By clicking on the product, they will be presented with the option to try it on. This feature enables buyers to experiment with various Maybelline products. Upon identifying a suitable product, users can add it to their shopping cart by selecting the designated button.

This study aims to examine the efficacy of augmented reality in engaging cosmetic customers and improving their satisfaction in light of the increasing adoption of this technology by marketers. Maybelline is selected for its dominant presence in the cosmetics sector of the beauty industry. This study explores augmented reality's potential impact on brand effectiveness in product advertising and investigates the influence of product information distribution on consumer satisfaction by integrating augmented reality technology with product details. The concept of brand experience is included in the analysis. This can be attributed to the well-established association between experience and satisfaction (Yunpeng & Khan, 2023). Therefore, the concept of brand experience is considered a mediating variable in this research.

This study suggests a significant relationship between brand experience and customer satisfaction. It examines the mediating role of brand experience in the relationship between augmented reality and customer satisfaction. Additionally, the study incorporates product information distribution as an independent variable, highlighting its importance in influencing customer satisfaction. Research findings indicate that customer satisfaction is influenced by product information (Zhao et al., 2021). Product information influences perceptions of usefulness, ease of use, entertainment, and aesthetics (Candra et al., 2020; Kim et al., 2010). These factors are considered influential in determining customer satisfaction. Therefore, this study examines the impact of combining augmented reality with product information distribution on customer satisfaction and brand experience.

Moreover, customers expressed dissatisfaction with the color accuracy of Shopee Beautycam lipstick. The hue did not meet expectations when applied during immediate product testing. Buyers struggled to compare the 14 lipstick hues due to variations in color perception caused by differences in indoor and outdoor lighting. Instead of utilizing the feature above, a significant number of customers expressed a preference for viewing photographs or image galleries on Shopee (Shopee, 2020). The impact of augmented reality and product information distribution on customer happiness through brand experience may be hindered by various obstacles. Thus, this study aims to determine whether the factors examined in this research are effective by analyzing variables in the context of augmented reality, specifically regarding the brand Maybelline in the beauty industry, using descriptive quantitative methods.

2. Literature Review

2.1. Augmented Reality

Augmented Reality (AR) is an emerging technological innovation that promises to enhance the consumer experience during product purchases. However, it is worth noting that not all consumers show a strong interest in adopting this technology. A notable example is the mobile application Youcam Makeup, which allows users to virtually apply makeup to facial features like lips, eyes, cheeks, and eyebrows. In addition to enabling users to capture and disseminate photographs on social media platforms, this application also engages in partnerships with prominent cosmetic enterprises like L'oreal and Estee Lauder to facilitate the sale of their merchandise. Augmented reality technology is perceived not only by cosmetic companies as a valuable tool for effective product promotion but also as an increasingly significant and indispensable technology for the future (Mangtani et al., 2020).

2.2. Augmented Reality

The concept of brand experience encompasses various sensory, emotional, cognitive, and behavioral reactions elicited by stimuli associated with a brand. These stimuli may include elements of a brand's design, identity, packaging, communication strategies, and physical locations. (Brakus et al., 2009). Brand experience refers to how individuals react to their perception of a specific entity. In this instance, since augmented reality can elicit responses, the present study incorporates brand experience as a connecting factor linking augmented reality to customer happiness. Essentially, as brand experience represents a reaction to a stimulus, it can be posited that the presence of augmented reality as a stimulus enhances the brand experience. Brand experience includes:

1. Sensory Experience – when a brand makes a strong impression by appealing to our five senses.
2. Affective Experience – when a brand conjures strong feelings, emotions or sentiments.
3. Intellectual Experience – when the brand makes us think more, or induces us to think in a specific way.
4. Behavioral Experience – when the brand stimulates us to do thing or change our behavior as a result of the experience.

2.3. Customer Satisfaction

Customer satisfaction depends on a product's ability to deliver value to customers; if its performance does not meet expectations, it leads to disappointment. (Kotler & Armstrong, 2012). Consumer satisfaction/dissatisfaction represents a person's overall feeling or attitude toward a product after consumption The consumer's situation is monitored through the evaluation of purchased products and their integration into consumption activities. Although evidence of consumer satisfaction is underutilized in some

industries, effective marketers continually analyze multiple sources of dissatisfaction for improvement. Customer satisfaction refers to customers' evaluation of their experience with a product. (Zhang et al., 2019). Here are the three dimensions of customer satisfaction (Slack et al., 2020):

1. Overall Experience: Overall satisfaction referring to past shopping experiences.
2. Customer Expectation: Experience that exceeds consumer expectations.

Customer Happiness: Consumers feel happy shopping for a particular product.

2.4. Product Information Distribution

Three primary considerations focus on the information marketers present to consumers, typically through advertisements: the accuracy of the information, its sufficiency, and the overall impact of marketing information on societal values (Mothersbaugh, 2016).

In order to assess how well product information distribution resonates with consumers, reference is made to perceived usefulness and perceived entertainment (Gibson, 2008). Consequently, perceived usefulness and perceived entertainment play crucial roles in the purchasing decision-making process (Zhu & Chang, 2015). Both are used in conjunction with perceived ease of use and perceived aesthetics as considerations for developing a product (Sheng & Teo, 2012). The aspects of perceived usefulness and perceived ease of use are derived from the Technology Acceptance Model, which itself originates from the Theory of Reasoned Actio (Mohammadi, 2015). Below are explanations related to these four dimensions used to assess the quality of product information (Kim, Kim, & Park, 2010):

1. Perceived Ease of Use: This perception refers to an individual's perception of the comfort and ease associated with searching for information and using a product.
2. Perceived Usefulness: This perception is based on an individual's perception of the benefits when using a particular product.
3. Perceived Entertainment: Perceived entertainment refers to how much consumers feel they can enjoy a particular product. This perception can also enhance product and service consumption and influence consumer attitudes and intentions.

Perceived Aesthetics: Perceived aesthetics refer to subjective evaluations and user dispositions toward the visual quality of a product.

2.5. Digital Marketing Communication

Digital marketing communication refers to the exchange of information between businesses and consumers through digital or electronic media. Unlike traditional marketing communication, digital marketing allows for greater interaction and dialogue between the sender and the receiver. (Shankar & Malthouse, 2007). Examples of digital communication include online display advertising, search advertising (both organic and paid), mobile communication, and word-of-mouth (WOM) communication via social media. According to Strauss and Frost (2016), there are 7 stages of digital marketing planning which includes Situation Analysis (analysing strength, weakness, opportunity, and threat), E-Marketing Strategic Planning (including segmentation, targeting, differentiation, dan positioning), Objectives, E-Marketing Strategy (including Product, Price, Place, Promotion), Implementation Plan, Budget and Evaluation Plan.

3. Research Methods

The present study adopts a quantitative research approach, with a primary focus on analyzing the intricate relationships between various variables. In line with this approach, the study adheres to the principles of quantitative methodology, as emphasized by Creswell and Creswell (2018). Quantitative research is chosen for its ability to rigorously investigate theories by examining the relationships among variables numerically. It is based on the idea that phenomena can be quantified and subjected to numerical analysis. This approach facilitates the collection of participant data, which can then be analyzed using statistical methods (Babbie, 2016).

The research, classified as explanatory, aims to provide explanations for the occurrence of a particular phenomenon or validate an underlying theory, aligning with the definition of explanatory research put forth by Neuman (2014). The study aims to elucidate the mechanisms underlying consumer satisfaction and how it is influenced by Augmented Reality Virtual Try-On, Product Information Distribution, and Brand Experience, which are considered mediating variables. It focuses on unraveling the complexities of these relationships. The participants in the study consist of 100 individuals who are clients of Maybelline and have utilized the augmented reality functionalities offered by the brand. This approach involves SmartPLS as the analytical tool, encompassing both outer and inner model analyses.

The outer model analysis ensures the validity and reliability of the measurement items used in the study. Convergent validity is a crucial component, evaluated by the correlation between individual items and latent construct scores, represented by standardized factor loadings. The study adheres to an accepted range of around 0.6 as suggested by Kozloff et al. (2019) for factor loadings, and a

value close to 0.6 is deemed acceptable. For convergent validity to be established, two key factors are examined: the outer loading value of each item indicator, and the Average Variance Extracted (AVE) value. Convergent validity is confirmed if the item indicators have loadings above 0.7 and an AVE value exceeding 0.5 (Hamid et al., 2017). Discriminant validity, which measures the distinctiveness of measurement items in assessing the intended construct, is also examined through cross-loading, Fornell-Larcker criterion, and Heterotrait-Monotrait Ratio (HTMT).

Cross-loading, an aspect of discriminant validity, is used to assess whether indicators demonstrate adequate discriminant validity. It involves determining whether item indicators show higher correlations with their intended latent construct than with other constructs. The Fornell-Larcker criterion is utilized to ensure that the square root of the Average Variance Extracted (AVE) for each construct exceeds the maximum correlation with other constructs. This criterion ensures that a construct's AVE accounts for more variance than its correlation with other constructs in the model, thereby confirming discriminant validity. Composite reliability is assessed to evaluate the reliability of each construct. Internal consistency is measured using Cronbach's alpha, with a value above 0.7 indicating strong reliability.

The inner model analysis explores the interrelationships among latent constructs and their causal effects. It employs various evaluation metrics to assess the model's effectiveness. R-squared is used to measure how well the model explains the variability in endogenous latent variables. Effect size measures the magnitude of the influence of exogenous latent variables on endogenous variables, with a higher value indicating a more significant impact. Predictive relevance evaluates the model's ability to accurately forecast endogenous variable values. Structural path coefficients measure direct associations between exogenous and endogenous latent variables.

In summary, the research adopts a quantitative methodology, utilizing SmartPLS for both outer and inner model analyses. It emphasizes the importance of ensuring validity and reliability in measuring key constructs and aims to uncover the causal relationships between Augmented Reality Virtual Try-On, Product Information Distribution, Brand Experience, and consumer satisfaction. This approach provides a comprehensive understanding of the intricate mechanisms at work in the study's objectives.

4. Results

Convergent validity refers to the extent to which item or component scores are related to construct scores, as indicated by standardized factor loadings. The loading factor measures the degree of association between each item and its corresponding construct. Loading factors greater than or equal to 0.6 are considered acceptable for outer loadings. (Kozloff et al., 2019). Therefore, it may be concluded that a value within the approximate range of 0.6 is deemed to meet the acceptable level within this particular situation.

Table 1: Outer Loadings

	AU	BE	CS	IF
AU1	0.982			
AU2	0.988			
AU3	0.963			
AU4	0.973			
AU5	0.95			
AU6	0.93			
AU7	0.861			
AU8	0.92			
BE1		0.994		
BE10		0.964		
BE11		0.955		
BE12		0.89		
BE2		0.978		
BE3		0.962		
BE4		0.93		
BE5		0.885		
BE6		0.92		
BE7		0.949		
BE8		0.952		
BE9		0.94		
CS1			0.921	
CS2			0.979	
CS3			0.955	
CS4			0.965	
CS5			0.92	
CS6			0.932	
CS7			0.914	
CS8			0.925	
CS9			0.952	
IF1				0.844
IF10				0.813
IF11				0.753
IF12				0.756
IF2				0.858
IF3				0.858
IF4				0.853
IF5				0.834
IF6				0.837
IF7				0.805
IF8				0.794
IF9				0.794

The results of convergent validity testing, based on outer loadings, indicate that all constructs in the Augmented Reality Marketing (AU) and Brand Experience (BE) variables meet the criteria. All constructs have values greater than 0.6, confirming they satisfy the requirements for convergent validity. The findings from the assessment of convergent validity using outer loadings indicate that all constructs inside the Customer Satisfaction (CS) and Product Information Distribution (IF) variables satisfy the necessary criteria. This is because each of these variables possesses a value over 0.6, hence satisfying the criteria for convergent validity. The subsequent step in the evaluation process involves conducting a discriminant validity test, considered a crucial criterion for the outer model test. Discriminant validity refers to a measuring approach that assesses reflective indicators by examining the correlation between the construct and measurement items about the correlation between the same construct and other constructs.

A measurement is considered better when the relationship between a construct and its measurement item is more reliable than the relationship between that construct and any other construct. Using the average variance extracted (AVE) is an alternative approach to assess the discriminant validity of a test. According to Martensen et al. (2007), an object is deemed authentic when its AVE value exceeds 0.5. Consequently, the evaluative measure being employed in the assessment is a threshold value of 0.5. This implies that if the Average Variance Extracted (AVE) attains or surpasses this threshold, it can be said to meet the criteria for discriminant validity. The present study employed the Fornell-Larcker Test and Cross Loading techniques to assess the discriminant validity's precision.

Table 2: Discriminant Validity: Fornell-Larcker

	AU	BE	CS	IF
AU	0.947			
BE	0.636	0.944		
CS	0.589	0.94	0.941	
IF	0.757	0.776	0.709	0.817

According to the Fornell-Larcker test, it can be observed that each variable exhibits the highest average variance extracted (AVE) value in comparison to the other variables. For example, the Augmented Reality Marketing (AU) variable shows a higher value of 0.947 compared to the Brand Experience (BE) variable, which has a value of 0.636. Similarly, the Customer Satisfaction (CS) variable has a value of 0.589, and the Product Information Distribution (IF) variable has a value of 0.757, both lower than the Augmented Reality Marketing (AU) variable. Additionally, it is noteworthy that the BE variable exhibits a value of 0.944, surpassing both the CS (0.940) and IF (0.776) variables. Similarly, the variable CS exhibits a value of

0.941, which surpasses that of IF (0.702), BE (0.940), and AU (0.589). In comparison to AU (0.757), BE (0.776), and CS (0.709), the IF variable exhibits a higher value of 0.817. Therefore, it may be concluded that all variables successfully meet the criteria of the Fornell-Larcker test. The subsequent step involves conducting the cross-loading test, which serves the purpose of assessing the extent to which the constructs within the variables meet the necessary criteria for the outer model.

Table 3: Discriminant Validity - Cross Loadings

	AU	BE	CS	IF
AU1	0.982	0.629	0.589	0.753
AU2	0.988	0.636	0.594	0.756
AU3	0.963	0.604	0.563	0.715
AU4	0.973	0.641	0.592	0.762
AU5	0.95	0.595	0.529	0.714
AU6	0.93	0.591	0.541	0.704
AU7	0.861	0.537	0.489	0.657
AU8	0.92	0.573	0.555	0.662
BE1	0.625	0.994	0.932	0.77
BE10	0.613	0.964	0.894	0.761
BE11	0.603	0.955	0.882	0.742
BE12	0.569	0.89	0.814	0.709
BE2	0.633	0.978	0.926	0.751
BE3	0.596	0.962	0.892	0.761
BE4	0.593	0.93	0.883	0.74
BE5	0.564	0.885	0.84	0.657
BE6	0.573	0.92	0.915	0.684
BE7	0.66	0.949	0.895	0.752
BE8	0.591	0.952	0.889	0.736
BE9	0.574	0.94	0.882	0.723
CS1	0.526	0.844	0.921	0.613
CS2	0.585	0.918	0.979	0.686
CS3	0.536	0.891	0.955	0.637
CS4	0.564	0.908	0.965	0.687
CS5	0.543	0.887	0.92	0.661
CS6	0.557	0.864	0.932	0.667
CS7	0.523	0.835	0.914	0.633
CS8	0.558	0.897	0.925	0.692
CS9	0.59	0.91	0.952	0.723
IF1	0.7	0.674	0.61	0.844
IF10	0.617	0.695	0.629	0.813
IF11	0.568	0.547	0.479	0.753
IF12	0.493	0.583	0.538	0.756
IF2	0.668	0.671	0.574	0.858
IF3	0.684	0.669	0.597	0.858
IF4	0.672	0.617	0.605	0.853
IF5	0.611	0.596	0.582	0.834
IF6	0.583	0.706	0.673	0.837
IF7	0.549	0.635	0.611	0.805
IF8	0.673	0.579	0.487	0.794
IF9	0.601	0.607	0.531	0.794

The PLS cross-loadings table presents the correlation results between the AU (Augmented Reality marketing), BE (Brand Experience), CS (Customer Satisfaction), and IF (Product Information Distribution) variables within the research context. The results indicate that each variable shows the highest correlation with its own indicators, as expected. For instance, the AU variable exhibits the highest correlation with AU1, AU2, AU3, and so forth. The same pattern is observed for the BE, CS, and IF variables.

Table 4: Construct Reliability and Validity

	Cronbach's Alpha	Rho_A	Composite Reliability	AVE
AU	0.983	0.985	0.986	0.896
BE	0.989	0.989	0.99	0.891
CS	0.984	0.984	0.986	0.885
IF	0.955	0.957	0.96	0.668

Cronbach's Alpha is a statistical test used to assess the internal reliability of a set of items or questions within a specific construct. A Cronbach's Alpha value ≥ 0.7 indicates item reliability (Suryani & Syafarudin, 2021). If Cronbach's Alpha is 0.7 or higher, it indicates a satisfactory level of internal consistency for the set of items, thus making it suitable for measuring the intended construct. The table indicates that all variables have Cronbach's Alpha values exceeding 0.7. Specifically, AU has a value of 0.983, BE has a value of 0.989, CS has a value of 0.984, and IF has a value of 0.955.

In addition, a rho_A value greater than 0.7 is also necessary (Rastegar et al., 2021). All variables exhibit rho_A values exceeding 0.7, specifically AU (0.985), BE (0.989), CS (0.984), and IF (0.957). The AVE value is a measurement used to assess the validity of variables in research. According to Martensen et al. (2007), an AVE greater than 0.5 is considered valid. The values of the four variables (AU, BE, CS, and IF) in the table are considered valid, as they meet the criteria: AU = 0.896, BE = 0.891, CS = 0.885, and IF = 0.668.

Composite reliability is a measure used to assess the consistency or reliability of a construct in research. Internal consistency, often measured by Cronbach's Alpha, is frequently used to evaluate composite reliability. A reliability value above 0.70 is generally considered indicative of good construct reliability (Suryani & Syafarudin, 2021). If the composite reliability value is 0.7 or higher, the construct is deemed to have sufficient measurement reliability. The table indicates that all variables have composite reliability values exceeding 0.7. Specifically, AU has a value of 0.986, BE has a value of 0.990, CS has a value of 0.986, and IF has a value of 0.960.

Internal pattern analysis, also known as internal relationships or structural modeling, is a research method used to uncover the connections between latent variables by applying the study's theoretical framework. The R-squared test is used to assess the internal model analysis, measuring the extent of variation in the relationship between the independent and dependent variables. A higher R-square value indicates a stronger predictive ability of the model, reflecting its level of internal model suitability (Saputra et al., 2016). The following are the results of the R Square test:

Table 5: R Square Test

	R Square	R Square Adjusted
BE	0.608	0.6
CS	0.885	0.882

The adjusted R-squared results indicate that the Brand Experience (BE) variable has a significant influence, with a value of 0.6. The combined effect of Augmented Reality Marketing (AU) and Product Information (IF) on Brand Experience (BE) accounts for 60% of the variance, representing a 60% impact. The unexamined factors contribute to the remaining 40% of influence. The Customer Satisfaction (CS) variable is influenced by Augmented Reality Marketing (AU), Product Information (IF), and Brand Experience (BE), with a coefficient of 0.882. The resulting influence can be expressed as 0.882 or 88.2%. Unmentioned factors influence the remaining 11.8% in this study. Brand Experience (BE) and Customer Satisfaction (CS) are influenced by various variables, leading to their impact. Below is the table that shows the hypothesis test which can be examined below:

Table 6: Hypothesis Test

	T Statistics	P Values
AU $\rightarrow$ BE	0.951	0.171
AU $\rightarrow$ CS	0.278	0.39
BE $\rightarrow$ CS	31.274	0
IF $\rightarrow$ BE	7.231	0
IF $\rightarrow$ CS	1.061	0.145

The t-statistic and p-value should be considered to determine the significance of a path. Both are crucial in hypothesis testing. A t-statistic value of 1.96 was used, with an alpha level of 5%. According to Chin (1998), the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted if the t-statistic exceeds 1.96 and the p-value is below 0.05. The research findings indicate no significant impact of Augmented Reality (AU) on Brand Experience (BE), as evidenced by a p-value of 0.171, which exceeds the threshold of 0.05. The t-statistic value is 0.951, which is below the critical value of 1.96, indicating no significant effect of Augmented Reality (AU) on Brand Experience (BE). Additionally, the Augmented Reality (AU)

variable does not influence Customer Satisfaction (CS). The p-value of 0.39 exceeds the significance level of 0.05.

The Brand Experience (BE) variable has a significant positive effect on Customer Satisfaction (CS), with a p-value of 0.000 and a t-statistic value of 31.274, both confirming statistical significance. Similarly, Product Information (IF) has a significant positive effect on Brand Experience (BE), as indicated by a p-value of 0.000, which is below the 0.05 threshold. The t-statistic value of 7.231 exceeds the critical value of 1.96, indicating a significant influence. Furthermore, empirical evidence has demonstrated a positive relationship between Product Information (IF) and Customer Satisfaction (CS), with statistical analysis indicating a significance level below 0.05, precisely 0.145. The calculated t-statistic value of 1.061 exceeds the critical value of 1.96, suggesting a statistically significant influence.

Table 7: Hypothesis Test

	T Statistics	P Values
AU → BE → CS	0.954	0.17
IF → BE → CS	6.863	0

The T-statistic result of 0.954, which is lower than the critical value of 1.96, indicates no significant influence of Augmented Reality (AR) on Customer Satisfaction (CS) through Brand Experience (BE). Additionally, the p-value is greater than 0.05, further confirming the lack of statistical significance and suggesting no significant effect. There is no evidence to support the idea that Brand Experience (BE) acts as a mediator between Augmented Reality (AR) and Customer Satisfaction (CS). In analyzing the mediating role of Product Information (IF) in the relationship between Augmented Reality (AR) and Customer Satisfaction (CS), the T-statistic value of 6.863 exceeds the critical value of 1.96, indicating a significant influence. The p-value is less than 0.05, confirming a significant effect. Based on the research results, the hypotheses can be categorized as either rejected or accepted.

1. **H1:** There is a positive influence between Augmented Reality Virtual Try-On (X1) and Customer Satisfaction (Y). This hypothesis suggests that the use of Augmented Reality Virtual Try-On technology (X1) will have a positive impact on the level of consumer satisfaction (Y). However, the research results show no significant relationship between using Augmented Reality Virtual Try-On technology and consumer satisfaction. In other words, implementing AR Virtual Try-On in this research could not significantly increase consumer satisfaction.
2. **H2:** There is a positive influence between Product Information (X2) and Customer Satisfaction (Y). This hypothesis assumes that providing quality product information (X2) will increase consumer satisfaction (Y). The findings show a significant influence between the quality of product information and consumer satisfaction.
3. **H3:** There is a positive influence between Augmented Reality Virtual Try-On (X1) and Brand Experience (Z). This hypothesis implies that the use of Augmented Reality Virtual Try-On (X1) will influence the brand experience (Z) positively. However, this research shows no significant relationship between the use of AR Virtual Try-On and brand experience. In other words, implementing AR in this research could not significantly improve consumers' brand experience.
4. **H4:** There is a positive influence between Product Information (X2) and Brand Experience (Z). This hypothesis suggests that quality product information (X2) will have a positive impact on brand experience (Z). The research results support this hypothesis, showing that the quality of product information has a positive effect on brand experience. Quality product information can influence the brand experience by providing a better understanding of the brand's products or services and creating a more positive experience.
5. **H5:** There is a positive influence between Brand Experience (Z) and Customer Satisfaction (Y). This hypothesis states that brand experience (Z) will have a positive impact on the level of consumer satisfaction (Y). The research results support this hypothesis, showing that positive brand experiences contribute to higher levels of consumer satisfaction.
6. **H6:** Brand Experience mediates the influence of Augmented Reality Virtual Try-on at the Official Maybelline Shop on Shopee on Customer Satisfaction. This hypothesis states that Brand Experience mediates the influence of Augmented Reality Virtual Try-on at the Official Maybelline Shop on Shopee on Customer Satisfaction. The research results do not support this hypothesis because they show that brand experience does not mediate the effect of augmented reality on consumer satisfaction.
7. **H7:** Brand Experience mediates the influence of Information Products on Shopee on Customer Satisfaction. This hypothesis states that Brand Experience mediates the influence of Information Products on Shopee on Customer Satisfaction. The research results support this hypothesis because they show that brand experience mediates the effect of product information on consumer satisfaction.

Based on the analysis above, the acceptance of Hypotheses 2, 4, 5, and 7 indicates favorable associations between product knowledge, brand experience, and consumer satisfaction. The study results indicate that Hypotheses 1, 3, and 6 were not supported, suggesting that

the implementation of Augmented Reality Virtual Try-On did not yield a statistically significant improvement in customer happiness, brand experience, or the mediating effect of these variables.

5. Discussion

This study shows that the quality of product information positively influenced the brand experience. The study found that offering comprehensive and valuable product information positively impacted consumers' brand experience, leading to a more favorable brand perception. Furthermore, the study proved that positive brand experiences were linked to increased consumer satisfaction. This suggests that consumers who had positive interactions with the brand, regardless of the implementation of augmented reality, expressed higher satisfaction with their overall shopping experience. Providing high-quality product information was found to affect consumer satisfaction positively. The study found that providing informative and relevant product details significantly increased satisfaction levels among online shoppers. However, while augmented reality (AR) can potentially enhance brand perception, its implementation in this context did not significantly impact brand experience.

This study found no significant impact of AR virtual try-on on consumer satisfaction or brand experience. The quality of product information and positive brand experiences were found to be influential factors in customer satisfaction during online cosmetic shopping. Augmented reality (AR) can potentially enhance customer experience, thereby aiding company customer relationship management (Malik et al., 2020). Contrary to previous studies, this research demonstrates that augmented reality (AR) does not significantly influence customer satisfaction. Generally, augmented Reality (AR) has a significant impact on the marketing field, and this study's findings challenge commonly held beliefs.

One of the notable effects of this technology is its capacity to integrate tangible reality with virtual components, thus generating a more immersive and participatory encounter for consumers. Augmented reality (AR) technology facilitates direct customer engagement with products or services, providing them with the opportunity to digitally evaluate or experience products prior to making a purchase decision. This can enhance consumer satisfaction and simplify the buying decision process. Additionally, augmented reality (AR) can serve as a valuable tool for providing additional product information, visualizing product features, and offering interactive tutorials. These applications of AR can contribute to the enhancement of brand awareness and the augmentation of

consumer comprehension about items or brands (Kumar et al., 2023).

However, this study offers a contrasting perspective to previous research by asserting that augmented reality (AR) does not significantly affect customer satisfaction, in contrast to the numerous existing studies. The potential reason for this outcome may stem from the inadequate or misaligned use of augmented reality (AR) technology by Maybelline, which may not have catered to consumer preferences effectively. The consumer experience and pleasure may be disrupted and diminished when there is an excessive or irrelevant utilization of augmented reality (AR) concerning certain products or services. In addition, the usefulness of augmented reality (AR) might be constrained by technological factors, such as suboptimal implementation leading to low-quality experiences or incompatibility with certain devices. The utilization of augmented reality (AR) in a complex or non-intuitive manner may serve as a noteworthy contributing factor. Consumers who encounter difficulties in engaging with augmented reality (AR) technology or fail to perceive a distinct value proposition may encounter feelings of disappointment, which may diminish their overall happiness. According to Dampage et al. (2021), a decline in satisfaction can result in a decrease in revenue. Hence, it is imperative to ascertain that Augmented Reality (AR) in marketing endeavors effectively contributes to client happiness.

Augmented reality (AR) can significantly enhance the customer experience. This technology creates deeper engagement with the physical environment by integrating digital elements that provide additional information or entertainment. Consumers can view ads or promotional content within their physical surroundings, leading to higher levels of involvement. Furthermore, augmented reality (AR) facilitates a high degree of customization, allowing for the customization of marketing materials based on individual tastes and behaviors. As elucidated in the research, the utilization of augmented reality (AR) ought to be tailored to the diverse phases of the client experience to deliver supplementary value at each point. By utilizing data analytics from augmented reality (AR), organizations can gain valuable insights into customer behavior and their interactions with products or information in the physical world. According to Wedel et al. (2020), this presents prospects for cultivating enduring client loyalty and enhancing company associations. Successfully incorporating augmented reality (AR) into marketing strategies can provide a competitive edge by creating engaging and unique customer experiences while strengthening brand perception. Therefore, AR is a crucial element for many organizations in their marketing efforts.

Companies must also prioritize the consumer experience. When consumers have high expectations for augmented

reality (AR) technology and those expectations are not met, it can lead to disappointment and potentially lower overall satisfaction. AR technology must keep pace with the latest technical advancements. If the product or service does not meet the expected standards, consumers may encounter unfavorable encounters (Batat, 2021). An unpleasant encounter might considerably diminish customer satisfaction. Hence, it is imperative to conduct a more comprehensive assessment of the efficacy of Maybelline's Augmented Reality (AR) technology, specifically concerning its Virtual Try-On (VTO) function, as its ability to boost consumer happiness remains unverified. Furthermore, this study shows that implementing Maybelline's augmented reality (AR) technology did not enhance the brand experience. This suggests that AR presents certain challenges or limitations that require resolution.

Augmented reality (AR) can help various brands in their marketing efforts by enabling them to effectively showcase their unique features through virtual product simulations. Brands may be categorized into four distinct strategic approaches when employing augmented reality (AR), each of which plays a role in enhancing the brand experience and consumer journey. Augmented reality (AR) technology enables brands to incorporate dynamic elements at various stages of the consumer journey, including offering unique customization options. As a result, AR has the potential to enhance exclusivity, brand resonance, and the overall brand experience. (Javornik et al., 2021). Nevertheless, this principle is not universally applicable to all situations.

Augmented reality (AR) offers firms the opportunity to create innovative and engaging marketing strategies that effectively set them apart from the competition. This technology enables the integration of virtual elements into the physical environment, thereby increasing consumer engagement. (Rauschnabel, 2021). Furthermore, augmented reality (AR) technology aids customers in making more informed choices by offering supplementary details about products, such as nutritional facts or pertinent contextual information (Chylinski et al., 2020). According to a study conducted by Heller et al. (2019a), the findings indicate that the utilization of augmented reality (AR) has the potential to enhance consumer satisfaction (Chylinski et al., 2020). This is because individuals are more likely to make purchases when exposed to products featuring AR technology. According to Hilken et al. (2017), augmented reality (AR) has the potential to enhance customer comprehension of products through the provision of dynamic visual representations. In retail settings, augmented reality (AR) can streamline the product research process, improving customers' ability to navigate a wide range of options (Dent Reality). As a result, AR offers clear benefits in enhancing

the customer experience and plays a key role in achieving marketing strategy objectives.

Therefore, augmented reality (AR) not only transforms the marketing of products and services but also enhances engagement between businesses and consumers. This technology creates more immersive experiences, enabling firms to achieve higher levels of creativity in their marketing strategies. (Kumar et al., 2023). Numerous studies have demonstrated that the utilization of augmented reality (AR) technology has the potential to augment consumer interaction within the context of restaurant experiences, hence fostering heightened levels of satisfaction, delight, and enchantment among individuals. The engagement of customers in the restaurant eating experience has been found to have a positive impact on their overall pleasure. Batat (2021) suggests that implementing augmented reality (AR) technology can expand the range of food choices available in restaurants. AR technology allows restaurants to provide additional information about their menu items, visually display food attributes, and potentially offer interactive instructional sessions.

Moreover, augmented reality (AR) can influence the sensory perception of food and enhance the overall satisfaction gained from the dining experience. The integration of augmented reality (AR) technology into the dining experience has the potential to enhance consumer satisfaction with meals. Nevertheless, there exist certain obstacles and potential negative ramifications that augmented reality (AR) may impose on the overall user experience. This includes the use of basic augmented reality (AR) technology or AR experiences plagued by technological issues. Such problems can reduce the overall quality of the dining experience. Furthermore, there is a divergence of perspectives between restaurants and consumers regarding the implementation of augmented reality (AR) technology in dining establishments. To prevent unfavorable experiences, restaurants must ensure that the AR technology they use is highly sophisticated and mature. (Batat, 2021). In general, the utilization of augmented reality (AR) within the context of restaurants has the potential to foster more profound experiences, enhance consumer contentment, and confer a competitive advantage.

Augmented reality (AR) offers several advantages in marketing. It provides a cost-effective alternative to virtual reality (VR) marketing, while also introducing a playful and engaging element to marketing strategies. This technology allows marketers to deliver personalized information that meets the unique needs of each user. Moreover, augmented reality (AR) serves as a proficient instrument for brand-centric, inventive, and occasion-oriented marketing strategies, enabling enterprises to acquire a competitive edge. Augmented reality (AR) can help enterprises enhance the promotion of their products and services by interacting

with the physical environment. Ng and Ramasamy (2018) suggest that this strategy can enhance consumer interest in products and facilitate organizations' collection of feedback. Therefore, it is undeniable that augmented reality (AR) has produced numerous positive effects in the marketing field.

Nevertheless, augmented reality (AR) has its limitations as a marketing tool. It is not as widely adopted as virtual reality (VR), and its implementation costs are relatively high. Additionally, privacy and security concerns arise due to the use of location-based data, such as GPS, in certain AR applications. Augmented reality (AR) now lacks the level of development necessary to supplant two-dimensional advertising techniques entirely. Additionally, when it comes to retaining technical information, users often exhibit poorer levels of recall in comparison to traditional marketing strategies. Augmented reality (AR) is a technological innovation with the potential to enhance the overall user experience, promote products more effectively, and provide distinct marketing advantages. However, it is crucial to recognize and evaluate the constraints and complexities that come with utilizing augmented reality (AR) in marketing. While the future of augmented reality (AR) in marketing remains uncertain, it is widely acknowledged by business executives that the digitalization of strategies is imperative in order to remain competitive in an era characterized by rapid technological advancements (Ng & Ramasamy, 2018). Augmented reality (AR) is anticipated to assume a prominent role in the future, offering numerous possible applications in the field of marketing.

The divergent outcomes observed in previous studies, which highlight the positive effects of augmented reality (AR) on consumer satisfaction and brand experience, contrast with the findings discussed in this study. in the article, can be attributed to various significant factors. The quality of augmented reality (AR) implementation is a crucial factor that affects its effectiveness. This study indicates that successfully integrating AR technology into the shopping experience and aligning with consumer preferences are crucial for achieving the expected positive outcomes. The effectiveness of augmented reality (AR) is closely tied to its ability to resonate with the target audience and align with the broader consumer journey. Furthermore, consumer preferences across different segments are crucial. This study indicates that Maybelline's implementation of AR technology may not have adequately addressed the preferences of its intended target audience. Consumer preferences for AR applications vary greatly, and a universal approach may not adequately address customers' diverse expectations and needs.

Technological factors are an additional dimension that influences outcomes. Challenges such as suboptimal implementation, low-quality experiences, and device compatibility issues can hinder the smooth integration of augmented reality (AR) into the consumer journey. Technological challenges may impact the effectiveness of augmented reality (AR) applications, thus influencing the observed outcomes.

Augmented reality (AR) adds an extra dimension to the analysis. The study suggests that consumers may face difficulties engaging with AR technology if its implementation is complex or unintuitive. Unclear value propositions and challenges in using AR can result in disappointment and diminished consumer satisfaction. Lastly, brand-specific factors also play a significant role. This study suggests that Maybelline's AR technology utilization may not have aligned with the brand's overall strategy or customer expectations. This emphasizes the need to customize augmented reality (AR) implementation to align with the brand's goals and customer preferences in order to establish a consistent and unified strategy. In summary, the conflicting evidence from prior research and the findings of this study highlight the importance of adopting a nuanced perspective on the influence of augmented reality (AR) in marketing. The effectiveness of AR depends on contextual factors, implementation quality, and consumer preferences. This study emphasizes the significance of customized strategies and ongoing evaluation of technological implementations, acknowledging that the influence of augmented reality (AR) can differ among various brands, industries, and specific situations.

6. Conclusion

The findings of this research reveal that the use of Augmented Reality Virtual Try-On (AR) technology does not significantly impact consumer satisfaction. In other words, implementing AR in Maybelline's Official Shop on Shopee does not substantially enhance consumer satisfaction. Likewise, the quality of product information provided in Maybelline's Official Shop on Shopee does not significantly influence customer satisfaction. These findings suggest that, in this particular scenario, high-quality product information has not significantly improved customer satisfaction. However, the research confirms that the quality of product information significantly impacts brand experience. Informative and relevant product information can enhance the brand experience by helping consumers better understand a brand's products or services. Therefore, the quality of product information is essential for building a stronger brand experience. This study asserts that brand experience positively contributes to consumer satisfaction. The brand's excellent experience in Maybelline's Official Shop on Shopee significantly influences consumer happiness. Accordingly, the impact of brand experience on

customer behavior can be influenced by product information, potentially leading to the intention to purchase, product sharing desire, and other behaviors that might benefit the company.

This highlights the importance of cultivating a positive brand experience to achieve higher consumer satisfaction. The research indicates that Augmented Reality Virtual Try-On (AR) does not significantly influence brand experience. This suggests that AR may not always be the most effective tool for enhancing brand experience in this context. Therefore, these findings provide insights into the importance of contextual and additional factors when designing effective strategies to improve customer satisfaction through brand experience. Furthermore, given the dynamic nature of consumer behavior, it is inaccurate to assume that augmented reality (AR) can consistently influence consumer behavior solely through customer satisfaction in all scenarios. Various obstacles may hinder its impact. The company must ascertain the root reason for this situation to devise efficient improvements in the future. Effective utilization of augmented reality (AR) can enhance customer relationship management (CRM). By leveraging augmented reality (AR), firms can enhance client retention by increasing satisfaction and potentially attracting new customers.

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