

## From Try-On To Buy-On: Augmented Reality (AR)'S Effects on Attitudes and Purchase Intention In Cosmetics

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### ABSTRACT

The research investigates how augmented reality (AR) features affect Indonesian consumers' likelihood to buy cosmetics products. The study uses Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze how vividness, interactivity, informativeness, and visual appeal affect consumer perceptions and behaviors based on the Technology Acceptance Model (TAM) and experiential perspectives. The study demonstrates that vividness makes products appear more useful, while interactivity simplifies usage, and visual appeal directly affects consumer attitudes because beauty-related AR experiences heavily rely on aesthetics. The study shows that informativeness has a positive effect, yet it produces less impact than the experiential elements. The combination of perceived usefulness and ease of use leads to more positive consumer attitudes, which prove to be the leading factor in purchase intention. The research expands TAM by adding experiential and aesthetic elements, which helps explain technology adoption processes in hedonic settings. The research demonstrates to practitioners that AR application success depends on creating interfaces that unite user-friendly design with engaging visual elements to boost customer involvement and drive sales and customer retention.

### KEYWORDS

Augmented Reality Shopping, Cosmetics Industry, Interactivity, Visual Appeal, Purchase Intention



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## INTRODUCTION

Within the dynamic realm of retail, the cosmetics industry stands out for embracing innovative technologies to enhance consumer engagement and drive sales. Augmented Reality (AR), a technology that seamlessly overlays digital information onto the physical world, has emerged as a game-changer in this regard (Nguyen, 2024). AR acts as a bridge between online and offline shopping experiences, offering a sense of direct interaction with products even before purchase. This technology allows customers to virtually try on cosmetics in real-world settings, leading to a more informed and engaging shopping experience (Baek et al., 2016; Verhagen et al., 2014; Hilken et al., 2017). Virtual try-on, interactive 3D catalogs, and augmented store environments are used in the cosmetics industry, which enrich the shopping experience (Konstantoulaki et al., 2024).

The rapid growth of the cosmetics industry in Indonesia is evident from various data showing significant increases in recent years (Annur, 2024). In 2022, a survey revealed that 66% of female consumers in Indonesia purchased cosmetics through e-commerce, with Shopee as the most popular platform used by 98% of respondents (Pahlevi, 2022). Indonesia ranks ninth in the proportion of internet users who shop online every week, on par with India. The German e-commerce research institute ECDB projects that Indonesia will have the highest e-commerce growth rate in the world by 2024, reaching 30.5%—almost three times higher than

the global average growth of 10.4%. In 2024, the AR and VR market in Indonesia is projected to generate revenue of US\$397.7 million (Statista, 2024). In Indonesia, e-commerce platforms and cosmetic brands have adopted AR as a shopping tool for customers, including platforms such as Shopee, and brands like Emina and Wardah. The integration of Augmented Reality in the cosmetics industry has the potential to open a new frontier for increasing consumer purchase intent amid this phenomenon.

Despite its widespread implementation, academic research on the quantitative impact of AR on consumer purchase intent in the cosmetics industry—especially in Indonesia—remains limited. This opens significant opportunities to investigate how AR's unique capabilities, such as interactivity, *informativeness*, and vividness, affect consumer behavior. This study aims to address this gap by systematically analyzing various AR features and evaluating their direct influence on cosmetics consumers' purchasing decisions.

This research investigates the impact of Augmented Reality (AR) on consumer purchase intention for cosmetic products, specifically within the Indonesian market. While cosmetic brands are increasingly adopting AR, a comprehensive understanding of its influence on Indonesian consumers' buying behavior remains limited. Building upon existing research that utilizes the Technology Acceptance Model, this study proposes incorporating Uses and Gratifications Theory and Experiential Value Theory to further address this gap. Notably, there is not yet a clear connection between visual appeal and experiential value in the cosmetics industry, despite findings from interviews and user try-ons. This combined approach will enable a systematic examination of various AR features—such as interactivity, vividness, *informativeness*, and visual appeal—and their direct influence on the purchasing decisions of cosmetic consumers in Indonesia.

This study also aims to explore the relationship between consumer engagement through Augmented Reality (AR) and their overall attitudes toward cosmetics brands. This includes analyzing how interactions with AR technology can improve customer experience and potentially strengthen brand loyalty. In addition, it empirically assesses the impact of AR features on consumer attitudes and purchase intentions for cosmetic products. The goals include designing a quantitative study that measures how different AR features affect consumer purchasing likelihood, as well as providing an empirical understanding of the mediation mechanisms of perceived usefulness, perceived ease of use, and attitude in shaping purchase intent. Thus, this study is expected to provide a comprehensive picture of how AR technology influences consumer purchasing behavior in the cosmetics industry.

This research is expected to provide theoretical, practical, and social benefits. Theoretically, it contributes to the literature on technology adoption by enriching the application of the Technology Acceptance Model (TAM), Uses and Gratifications Theory (UGT), and Experiential Value Theory (EVT) in the context of the cosmetics industry, serving as a reference for future research on the relationship between AR technology, consumer experience, and purchasing behavior. From a practical perspective, it offers insights for cosmetics industry players in identifying and optimizing the most influential AR features to increase consumer engagement and drive purchase intent, as well as guidance for e-commerce application developers and cosmetics brands in designing more attractive, *informative*, and effective AR-based shopping experiences to strengthen consumer loyalty. From a social

perspective, it helps consumers obtain a more enjoyable, interactive, and transparent shopping experience, enabling more informed purchasing decisions, and contributes to enhancing digital literacy—especially in the use of new technologies in retail and e-commerce sectors.

This research delves into the interaction between Indonesian consumers and Augmented Reality (AR) within the cosmetic market, specifically focusing on the factors influencing their purchase decisions. Employing quantitative data collection, the study assesses how specific AR attributes—such as interactivity and vividness—impact consumer attitudes toward AR and, ultimately, their likelihood to purchase cosmetics. The findings extend beyond academic contributions, offering valuable insights for industry practitioners. By understanding which AR features most effectively convert browsing into purchases, cosmetic retailers can optimize their technology investments and drive sales growth. The key research questions are: 1) How do specific AR features in the cosmetics industry influence consumer purchase intentions? 2) What role does consumer engagement with AR technology play in enhancing shopping experiences and loyalty to cosmetic brands?

## **METHOD**

The study used quantitative methods to analyze how augmented reality (AR) technology elements affect customers to buy cosmetics products. The research data collection involved an online survey which reached Indonesian consumers who used AR applications from cosmetic brands and e-commerce sites Shopee and Wardah and Emina. The research collected 351 valid responses which researchers determined as adequate for PLS-SEM statistical modeling. The extended sample size improved analysis reliability because it exceeded the smaller sample sizes used in previous exploratory research.

The researchers used measurement items from previous studies in AR and consumer behavior research to guarantee the study's rigor (see Table 1). The three items from Wu (2005) measured interactivity by assessing users' ability to control and respond during AR feature navigation. The four items from McLean and Wilson (2019) evaluated vividness by assessing the clarity and detail and visual richness of AR display content.

The three items from Chen et al. (2021) measured informativeness by assessing the extent of useful complete product information AR provided to users. The researchers added visual appeal as an extra construct because cosmetics consumption focuses on aesthetics through Han et al. (2021) developed three measurement items.

The Technology Acceptance Model core variables of perceived ease of use and perceived usefulness used Davis (1985) items for measurement. The study used three Yim et al. (2017) items to measure consumer attitudes toward AR attitudes and McLean and Wilson (2019) items to assess purchase intentions. The researchers used a six-point Likert scale which ran from 1 (strongly disagree) to 6 (strongly agree) to obtain responses. The researchers chose this scale to prevent neutral answers because it enhances result reliability according to Chomeya (2010).

**Table 1: Variable measurement items**

Variable	Measure
Interactivity (Wu, 2005)	I have control of my navigation through the brand's AR feature I had some control of the brand's AR feature that I seek to see The brand's AR feature was able to quickly and efficiently respond to my specific needs
Vividness (McLean and Wilson, 2019)	The visual display through the brand's AR feature was clear The visual display through the brand's AR feature was detailed The visual display through the brand's AR feature was vivid The visual display through the brand's AR feature was defined well
Informativeness (Chen et al., 2021)	AR provides detailed information about the cosmetic. AR provides complete information about the cosmetic. AR provides information that helps me in my decision.
Visual Appeal (Loiacono et al, 2007)	The product as seen through AR is quite attractive The product as seen through the AR application provided a way for users to easily experience it The product as seen through the AR service is quite visually appealing
Perceived Ease of Use (Davis ,1989)	Learning to use the AR feature on the app is easy for me I find it easy to get the AR feature on the app to do what I want it to do. My interaction with the AR feature on the app is clear and understandable I find the AR feature on the app to be flexible to interact with I find the AR feature on the app easy to use
Perceived Usefulness (Davis ,1989)	Using the AR feature on the app enables me to accomplish shopping tasks more quickly. Using the AR feature on the app enhances my shopping performance. Using the AR feature on the app increases my shopping productivity. Using the AR feature on the app enhances my shopping effectiveness. Using the AR feature on the app would make it easier to shop. I find the AR feature on the app to be useful
Attitude toward using AR (Yim et al., 2017)	I find it favorable to use AR to try cosmetics online. I find it pleasant to use AR to try cosmetics online. I feel positively AR in trying cosmetics online.
Purchase Intention (McLean and Wilson, 2019)	It makes sense to purchase from a makeup brand following my utilization of their AR feature If there are two makeup brands with the same/similar product offerings except that one has AR features and another does not, I would prefer to purchase from the one that has AR features for me to use If there are two makeup brands both with AR features, it seems smarter to purchase from the brand that I had a better experience with their AR features.

## RESULTS AND DISCUSSION

### Inner and Outer Model Evaluation

Before testing the hypothesis, the researcher evaluates the outer model and inner model of the tested model. The test uses SMART PLS 4.0 software. In evaluating the outer model, validity and reliability tests are carried out. Convergent validity can be seen through the number in the Average Variance Extracted (AVE) column whose value must be above 0.5 and the outer loading number must be above 0.7. Meanwhile, discriminant validity testing can be seen from the cross loading column. The reliability test is seen from the composite reliability column which must be above 0.7 (Hair et al., 2013).

### Data Quality Test Results

Validity and reliability analysis is carried out at the outer stage of the model below. The results of the analysis are as follows:

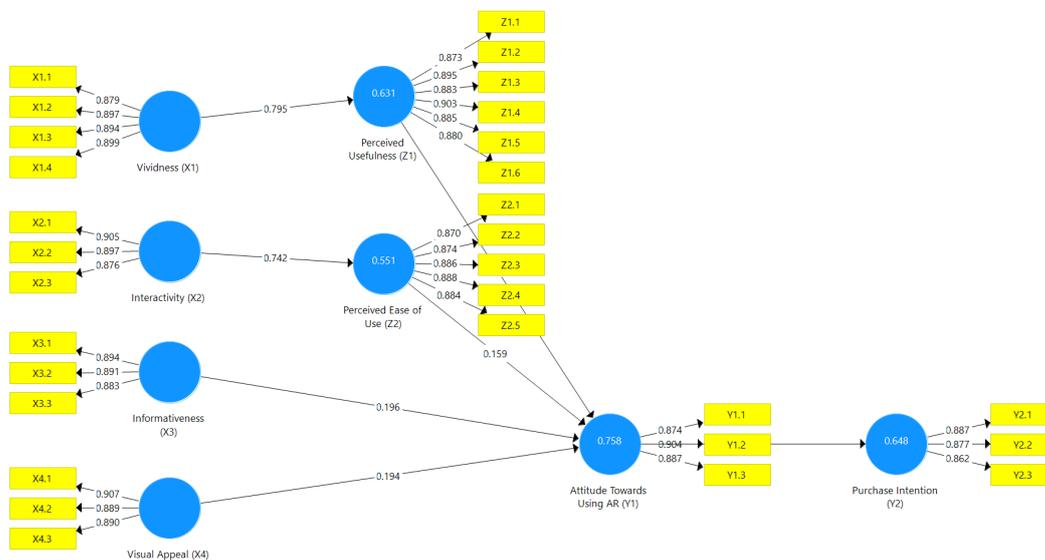


Figure 1. Diagram Model PLS

**Reliability Test**

The reliability of the indicator aims to assess whether the measurement indicator of latent variables is reliable or not, The method is to evaluate the results of the outer loading of each indicator, the loading value above 0.7 shows that the construct can explain more than 50% of the variance of the indicator (Wong K, K, , 2013; Sarstedt et al., 2017):

**Table 2. Outer Loading Test Results**

Variable	Indicators	Outer Loading	Information
Vividness (X1)	X1.1	0,879	Valid
	X1.2	0,897	Valid
	X1.3	0,894	Valid
	X1.4	0,899	Valid
Interactivity (X2)	X2.1	0,905	Valid
	X2.2	0,897	Valid
	X2.3	0,876	Valid
Informativeness (X3)	X3.1	0,894	Valid
	X3.2	0,891	Valid
	X3.3	0,883	Valid
Visual Appeal (X4)	X4.1	0,907	Valid
	X4.2	0,889	Valid
	X4.3	0,890	Valid
Perceived Usefulness (Z1)	Z1.1	0,873	Valid
	Z1.2	0,895	Valid
	Z1.3	0,883	Valid
	Z1.4	0,903	Valid
	Z1.5	0,885	Valid
	Z1.6	0,880	Valid
Perceived Ease of Use (Z2)	Z2.1	0,870	Valid
	Z2.2	0,874	Valid
	Z2.3	0,886	Valid
	Z2.4	0,888	Valid
	Z2.5	0,884	Valid
Attitude Towards Using AR (Y1)	Y1.1	0,874	Valid
	Y1.2	0,904	Valid
	Y1.3	0,887	Valid
Purchase Intention (Y2)	Y1.1	0,887	Valid
	Y1.2	0,877	Valid
	Y1.3	0,862	Valid

Source: SmartPLS Data Processing Results, 2025.

The results of the convergent validity test, as shown in Figure 4.1 and Table 4.14, show that all indicators for the variables Vividness, Interactivity, Informativeness, Visual Appeal, Perceived Usefulness, Perceived Ease of Use, Attitude Toward Using AR and Purchase Intention all met convergent validity. This is due to the fact that the outer loading value is greater than 0.70.

According to Ghozali (2016), reliability is a tool to evaluate questionnaires that indicate variables or structures. A questionnaire is said to be reliable if the respondents' answers are consistent or stable over time. In this case, this study also expects the dimensions and variables of the research to be consistent so that it can proceed to the next stage of the test. If the reliability value of the composite and Cronbach's Alpha is more than 0.7, then the reliability of the data is considered reliable (Wong K.K., 2013; Sarstedt et al., 2017).

**Table 3. Composite Reliability & Cronbach's Alpha Test Results**

Variable	Cronbach's Alpha	Composite Reliability	Information
Attitude Towards Using AR	0,866	0,918	Reliable
Informativeness	0,867	0,919	Reliable
Interactivity	0,873	0,922	Reliable
Perceived Ease of Use	0,928	0,945	Reliable
Perceived Usefulness	0,945	0,957	Reliable
Purchase Intention	0,848	0,908	Reliable
Visual Appeal	0,876	0,924	Reliable
Vividness	0,915	0,940	Reliable

Source: SmartPLS Data Processing Results, 2025.

Internal Consistency Reliability is a measure of how capable an indicator is to identify its latent constructs. Composite reliability and Cronbach's alpha are used to measure reliability. Cronbach's Alpha value of more than 0.6 is considered to represent good reliability, and the expected Composite Reliability value is more than 0.6 (Ghozali, 2016).

All of these constructs are considered reliable because the table above shows that their Cronbach's Alpha value value is greater than 0.6. For example, if Cronbach's Alpha of the latent variable Perceived Usefulness of 0.945 is greater than 0.6, then Perceived Usefulness can be considered consistent.

**Table 4. Average Variance Extracted (AVE) Test Results**

	Average Variance Extracted (AVE)
Attitude Towards Using AR	0,789
Informativeness	0,790
Interactivity	0,797
Perceived Ease of Use	0,776
Perceived Usefulness	0,786
Purchase Intention	0,767
Visual Appeal	0,802
Vividness	0,796

Source: SmartPLS Data Processing Results, 2025.

The AVE value of the Vividness variable is 0.796, Interactivity with an AVE value of 0.797. The AVE value in Informativeness is 0.790, the Perceived Usefulness variable is 0.786, the Perceived Ease of Use variable is 0.776, the Visual Appeal variable is 0.802, the Attitude Toward Using AR variable is 0.789 and the Purchase Intention variable is 0.767. This means that all variables have an AVE value of  $> 0.50$  so that the AVE test is fulfilled (Wong K.K., 2013, Sarstedt et al., 2017).

## Discussion

The structural model analysis showed important relationships between AR features and their effects on consumer perceptions and their purchasing decisions. The clarity and detail of AR experiences directly influenced how consumers viewed its usefulness in their shopping activities. The study supports McLean and Wilson (2019) who demonstrated that vividness creates better technology engagement and value perception in digital shopping spaces.

The study demonstrated that interactive features lead to better perceptions of user-friendly interfaces. AR systems that allow users to navigate and control them while providing instant responses make the technology more accessible and decrease the mental work needed to learn its use. The study by Yim et al. (2017) supports these findings because they established interactivity as a key factor which drives both usability and adoption rates in e-commerce platforms.

The study found that informativeness created a small but positive effect on consumer attitudes. The study results show that detailed accurate information received positive feedback from consumers but the effect size remained lower than other experiential elements. The study supports Chen et al. (2021) regarding informativeness in digital interfaces yet contradicts Wang et al. (2022) who found it to be a stronger predictor for AR adoption in beauty product markets. The results show that cosmetics consumers value emotional and aesthetic aspects more than factual information because of their hedonic nature.

The study found that visual appeal functions as a leading factor which determines positive AR attitudes in consumers. The design quality and visual attractiveness of AR features

determined how consumers evaluated the entire system. The study confirms Han et al. (2021) and Seo and Kwon (2022) who proved that beauty-related AR applications require aesthetically pleasing designs because consumers link visual excellence to product attractiveness and brand trustworthiness.

The Technology Acceptance Model variables demonstrated their expected behavior in the study. The study found that perceived usefulness and perceived ease of use strongly influenced consumer attitudes which then produced significant effects on purchase intention. The study confirms (Ajzen & Fishbein, 1977) by showing that positive attitudes create the strongest influence on purchase intention. The results validate (Davis's, 1985) Technology Acceptance Model while showing that hedonic and aesthetic factors including vividness and visual appeal play an equal role in determining consumer attitudes toward technology in consumption settings.

The research findings demonstrate how AR features work through mental processes and direct user experiences. The combination of vividness and interactivity leads users to find the system both useful and simple to operate according to technology adoption models. The combination of visual appeal and informativeness affects consumer attitudes through aesthetic and engagement factors.

The research shows that informativeness produces a smaller effect than other features which demonstrates a crucial difference between cosmetics and other product categories. Users in educational and healthcare contexts where AR applications serve functional purposes base their evaluations on information content (Rauschnabel, 2018; Alhassan et al., 2020).

The consumer choices in the cosmetics industry rely more on sensory experiences and visual attractiveness and emotional responses than on functional information. The findings demonstrate that beauty product consumers want both practical information and emotional validation and visual satisfaction because beauty products function as symbolic objects that create experiential value.

The research delivers advanced knowledge about how AR technology affects consumer actions in the cosmetics market. AR adoption success requires more than user-friendly interfaces and practical value because it needs to create experiences that match consumer self-perceptions and life goals through aesthetic and immersive and emotionally engaging content.

## CONCLUSION

This study offers novel insights into how augmented reality (AR) influences consumer purchase intentions in Indonesia's cosmetics industry, revealing that vividness, interactivity, visual appeal, and experiential attributes significantly enhance perceptions of functionality, simplicity, attitudes, and buying behavior—integrating the Technology Acceptance Model with Experiential Value Theory to balance utilitarian and hedonic elements during consumption. Practically, it advises cosmetic brands to prioritize investments in vivid, visually attractive, and user-friendly AR experiences to foster functional-emotional connections, boost engagement, purchase intent, and brand loyalty by leveraging AR as both a shopping aid and branding tool. Limitations include the sample's restriction to Indonesian cosmetics consumers, limiting generalizability; for future research, studies should expand to cross-cultural and multi-industry contexts, track evolving AR adoption longitudinally, and examine moderating factors like gender, age, and digital literacy on AR interactions.

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