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The Role of Augmented Reality in Online Purchase Decision of Beauty Products on the E-commerce Platform Shopee

Farah Putri Wenang Lusianingrum[1], Arum Wahyuni Purbohastuti[2], Muhammad Johan Widikusyanto[3]

Fakultas Ekonomi dan Bisnis, Universitas Sultan Ageng Tirtayasa[1,2,3]

Abstract

The proliferation of augmented reality (AR) in the commercial sector remains constrained in terms of its psychological effects on online purchase behavior. The main aim of the research is to examine the influence of augmented reality on purchasing behavior for cosmetic goods on the Shopee platform based S-O-R theory. The online research study gathered comprehensive data from 200 participants. Purposive sampling selected the respondents. In this study, the analytical instrument used for data processing is Smart PLS. The S-O-R theoretical framework validated and corroborated all hypotheses. The interactivity and vividness of augmented reality significantly improve the user experience for cosmetic goods buyers on Shopee. Moreover, augmented reality interaction and vividness promote an increase in online purchase intent among customers of cosmetic products on Shopee. Furthermore, user experience and online buying intentions effectively drive consumers to make online purchasing decisions for cosmetic products on Shopee.

Keywords*: Augmented Reality; Online Purchase Decision; Online Purchase Intention; Stimulus-Organism-Response; User-Experience.*

Abstrak

Peningkatan penggunaan Augmented Reality (AR) pada dunia bisnis, namun masih terbatas dalam mempelajari bagaimana proses psikologis perannya terhadap perilaku pembelian online. Tujuan prioritas penelitian ialah menganalisis peran AR terhadap perilaku pembelian pada produk kosmetik di platform Shopee berdasarkan teori S-O-R. Survei ini dilakukan secara daring dan berhasil mengumpulkan data dari 200 responden yang dipilih dengan metode purposive sampling. Responden ini ditentukan dengan metode pusposive sampling. Alat analisis yang dimanfaatkan untuk pengolahan data pada penelitian ini yaitu Smart PLS. Kesuluruhan hipotesis terbukti dapat diterima dan mendukung kerangka teori S-O-R. Interactivity AR dan vividness AR secara meyakinkan dapat meningkatkan user experience konsumen produk kosmetik di Shopee. Selanjutnya, interactivity AR dan vividness AR mendorong tumbuhnya niat pembelian online konsumen produk kosmetik di Shopee. Lebih lanjut, user experince dan niat pembelian online berhasil untuk membuat konsumen membuat keputusan pembelian online produk kosmetik di Shopee.

Kata kunci: *Augmented Reality, Keputusan Pembelian Online, Niat Pembelian Online, Stimulus-Organism-Respons; Pengalaman Pengguna.*

Korespondensi: farahputriwenang@untirta.ac.id[1], arum_wp@untirta.ac.id[2]

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INTRODUCTION

Over the past five years, the importance of new technologies and their applications has significantly increased, and we anticipate their continued expansion, particularly in the health, marketing, engineering design, and education sectors (Kazmi et al., 2021). There has been a significant increase in the number of online purchasing activities as a result of the technological advancements that have eliminated barriers in the digital realm (Quattelbaum et al., 2022). The global trend of online purchasing through electronic devices, particularly mobile platforms, continues to expand, especially during and well beyond the COVID-19 pandemic. This extraordinary circumstance has had a variety of repercussions on customers' daily lives and has substantially altered the manner in which businesses and organisations operate and behave, as well as the manner in which consumers react.

Retailers present a variety of products and services to customers in a contemporary context that is both diverse and comprehensive. In addition, retailers must address a variety of concerns, such as high return rates, webrooming, cart abandonment in online purchases, and overall customer satisfaction during the online purchasing process (Eru et al., 2022). In addition to offering differentiation, a channel that can engage consumers by delivering personalized information and value has the potential to establish substantial customer engagement. Online purchasing differs from the tactile experience in physical stores primarily due to the absence of tactile interaction and the inability to physically interact with the products. Technology is critical for retailers to reach their target audience and for consumers to make informed decisions when purchasing products or services.

Augmented reality (AR) technology is a viable solution for bridging the gap between online and offline purchasing, as it provides an interactive shopping experience (Lavoye et al., 2021). AR is a contextual, advanced, and interactive implementation that superimposes digital objects, like 3D models or videos, on the real world, creating the illusion of their physical presence (Chen et al., 2022). This condition enables customers to virtually try products in any physical environment, including furniture, clothing, cosmetics, and sunglasses. AR's ability to offer a "try before you buy"

experience has the potential to significantly increase online conversion rates and reduce return rates for retailers.

As its popularity grows, the distinctions between AR-based purchasing and other online shopping methods have been the subject of more extensive research (Du et al., 2022). The primary goal is to determine the potential advantages of incorporating AR into the realm of online purchasing. Kumar (2022), Hermes & Riedl (2021), and have conducted research that has identified substantial evidence that supports the superiority of AR experiences compared to other online purchasing methods. Additionally, Erdmann et al. (2023) and Trivedi et al. (2022) advocate for a comprehensive revelation of the substitute fundamental processes that influence online purchase decision. This includes spatial presence, self-brand connection, and discovery that augmented reality (AR) fosters higher levels of novelty, immersion, enjoyment, and value, leading to successful interaction advantages (Baek et al., 2018). In comparison to web-based product presentations, this results in a more favorable attitude toward the media and a higher intention to make a purchase (Yim et al., 2017). Additionally, Aburub, (2023) and Liu & Napitupulu (2020) underscores that AR improves user satisfaction and the desire to make purchases.

As previously mentioned, numerous researchers have compared the Augmented Reality (AR) experience with other online shopping experiences for clothing, beauty products, furniture, and sunglasses, both in terms of models or environments and in terms of showcasing the products or objects themselves (Ebrahimabad et al., 2024; Yim & Park, 2019). Despite the fact that other studies have studied the fundamental mechanisms in this research, the psychological mechanisms of the impact of AR technology on online purchase decision remain incomplete, as they have been limited to testing user experience and online purchase intention. In order to address this gap, this research will employ the stimulus-organism-response (S-O-R) perspective to elucidate the psychological mechanisms involved in the study of the impact of AR on online purchase decision.

The Stimulus-Organization-Response (SOR) theory perceives AR as a stimulus with the potential to significantly impact consumers perceptions and cognition,

subsequently influencing their intentions and purchasing decisions. External stimuli, such as engaging AR experiences, can influence the internal conditions of consumers, specifically their feelings and product evaluations. Online purchasing decisions ultimately express this response. According to Al Hilal (2023), AR has the potential to improve the user experience by enhancing visual information and reducing uncertainty regarding product quality, which is a critical factor in cosmetic product purchasing decisions. Pantano et al. (2017) found in a separate study that AR-supported user experiences tend to increase online purchase intentions by generating realistic simulations that allow users to experience products more closely with the target consumers. This evaluation stands out due to its execution in Indonesia, a developing nation. Analyzing the behavior and purchasing habits of individuals in developing countries can provide new insights into the adoption of advanced technologies like AR.

Customers in developing countries face different challenges than those in developed countries, and their populations are still less familiar with new technologies like AR (Ebrahimabad et al., 2024). One of these challenges is the state of the economy. Economic conditions significantly influence the assimilation of innovation, resulting in substantial disparities between developed and developing countries (Zhu, Kraemer, et al., 2006). In general, developing countries exhibit lower levels of participation in science and technology than developed countries, predominantly as a result of infrastructure and human resource constraints. Numerous developing countries continue to face significant obstacles in their efforts to industrialize. This condition underscores the importance of meticulously evaluating the disparate impacts of innovation assimilation and the adoption of new technologies in developed and developing countries. Consequently, the results of this investigation may be inconsistent with those obtained in developed nations (Zhu et al., 2006).

The primary goal of the study is to investigate the implementation of cutting-edge technologies, including augmented reality (AR) and virtual reality (VR), to facilitate consumer decision-making. This, in turn, results in an improvement in the overall experience, engagement, intention, and satisfaction of online shopping. Therefore, this study aims to explore how augmented reality influences online purchase decisions by

adapting the Stimulus-Organism-Response (S-O-R) model, using AR as stimulus, user experience and purchase intention as organism, and purchase decision as the response, specifically in the context of Shopee's cosmetic segmentsponse (decision to buy online) for cosmetics on the e-commerce platform Shopee. This research contributes a substantive theoretical and contextual advancement by applying the Stimulus–Organism–Response (S-O-R) framework to elucidate the underlying psychological mechanisms through which augmented reality (AR) influences consumer decision-making processes in the online beauty product sector, with a specific focus on the Shopee e-commerce platform in Indonesia. Departing from the predominant emphasis in previous studies which largely explored general user experiences or behavioral intentions in developed markets this study offers empirical validation of the functional roles of two critical AR dimensions, namely interactivity and vividness, as stimuli that shape both cognitive and affective consumer responses. These responses, in turn, mediate the path toward actual purchasing behavior. Furthermore, by targeting a sample of female consumers from millennial and Generation Z cohorts in Indonesia, the study fills an evident gap in the extant literature concerning geographic, cultural, and demographic diversity in AR-related consumer research. The implementation of Partial Least Squares Structural Equation Modeling (PLS-SEM) also reinforces the methodological rigor, enabling a robust examination of the direct and indirect pathways linking AR technology features with digital consumer behavior in emerging market contexts.

THEORETICAL FRAMEWORK

Mehrabian and Russell developed the Stimulus-Organism-Response (S-O-R) theory in 1974 to elucidate the influence of external stimuli on an individual's internal state (organism) and the subsequent responses or behavior (Lin et al., 2023; Lusiaingrum, 2023). Environmental psychology frequently employs this theory in various fields like marketing, consumer psychology, and organizational behavior. External elements, known as stimuli, present themselves to individuals and subsequently influence their cognition, intentions, emotions, and perceptions. In marketing, stimuli may include technologies such as augmented reality, promotions, or store design. (AR).

The term "organism" refers to the internal state of an individual, encompassing cognition, emotions, intentions, and perceptions influenced by the stimuli they encounter. Cognition, emotion, intention, and perception subsequently influence consumers' decisions to act. Response is the ultimate result of an individual's actions or behaviors. Responses typically result in purchasing decisions, satisfaction, or loyalty within the context of consumer behavior.

Given that augmented reality is a novel stimulus in the digital consumer experience, the application of the S-O-R theory to elucidate the impact of AR on consumer purchasing behavior is highly pertinent. The interactive and immersive experience that AR technology provides as a stimulus has a significant impact on consumer intention (organism) and cognition (experience), which in turn affects purchasing decisions (response). Recent research has further substantiated the positive correlation between AR and increased purchasing behavior, emphasizing the significant potential of this technology in the marketing sector.

Interactivity in AR refers to the users ability to manipulate and control virtual elements displayed on their devices screen (Zimmermann et al., 2023). This interaction includes features like the ability to virtually test products, scaling, and rotating. Interactivity improves user engagement and experience and provides users with greater control (Gil-López et al., 2023). Interactivity is a stimulus in the S-O-R theory that affects the internal state of the user or organism, as represented by the user's perceptions, emotions, and cognition during interaction with an application or platform (Gabriel et al., 2023). Modifications to these internal states influence the user's responses to the system, thereby shaping their experience. One of the primary attributes of augmented reality or technology-based applications is interactivity, which can improve user control, engagement, and participation, thereby resulting in a more positive experience.

The level of interactivity refers to the users ability to manipulate, control, and participate in elements within an application or system. The user is more likely to feel engaged and connected to the system when the level of interactivity they perceive is higher. User experience encompasses the users perception of the quality of interaction with the system, including simplicity of use, satisfaction, emotional engagement, and efficiency (Thakkar et al., 2023).

The psychological responses of users to control, engagement, and the sensory experiences offered by interactive applications influence user experience (UX) in this context. A system or application that provides a high level of interactivity is more likely to engage users in the decision-making process, which in turn increases their satisfaction and comfort while using the platform. Previous research has demonstrated that interactivity enhances users' perceptions of systems by offering a more immersive experience and increased control, thereby resulting in a more positive user experience (Ebrahimabad et al., 2024; Zimmermann et al., 2023). Therefore, we anticipate that interactivity will significantly enhance the user experience, mirroring the favorable opinions users hold about AR-based applications and other interactive technologies.

H1: The user experience is influenced by interactivity.

Interactivity in e-commerce gives consumers the opportunity to interact directly with products digitally. This allows consumers to experience and manipulate product features in a more genuine way, such as through 3D product simulations or augmented reality features(Erdmann et al., 2023). The internal reaction of an organism to an interaction, known as online purchase intention, is indicative of the users tendency or desire to purchase the product after engaging with an interactive platform or application (Jayathilaka & Park, 2022).

Interactivity offers a more genuine and profound purchasing experience in the online environment, as it fosters a sense of engagement with the products, thereby reducing uncertainty and enhancing control (Whang et al., 2021). Users experience greater emotive and cognitive engagement as their level of interactivity increases, which in turn results in a greater intention to make an online purchase intention. According to empirical research, a high level of interactivity not only fosters a deeper level of engagement with the product, but also improves consumers' perceptions of credibility and trust in online products, thereby increasing their purchase intention (Ebrahimabad et al., 2024; Hilken et al., 2017; and Whang et al., 2021).

H2: Online purchase intentions are influenced by interactivity.

Technology, such as augmented reality (AR) or visual elements in e-commerce applications, presents visual representations that are lucid and deep (Hermes & Riedl, 2021). These representations have the potential to impact users perceptions and experiences of the platform. According to the S-O-R theory, vividness functions as an

external stimulus that affects users sensory perception, emotions, and cognition (Gabriel et al., 2023). As the visual representation of a product in an application or platform becomes more vivid, such as through high-resolution, 3D visualization, or augmented reality, it renders the user experience more genuine and engaging. The user experience as an organism reflects the user's perception of the provided visual experience, which encompasses dimensions such as satisfaction, engagement, and comfort (Gabriel et al., 2023).

The use of vividness as a stimulus improves user perception of the quality of products or services within the application, resulting in a more detailed, rich, and clear visual representation. When users interact with vivid visuals, they have a more immersive experience and are more engaged. Previous research has demonstrated that vividness directly contributes to an enhanced user experience by improving the perception of realism, clarity of information, and visual appeal. Empirical studies have demonstrated that opulent visual experiences generate favorable impressions and elevate user satisfaction (Ebrahimabad et al., 2024; Whang et al., 2021). Therefore, we anticipate that vividness will significantly enhance the user experience by enhancing the perception of visual quality, emotional engagement, and realism.

H3: The user experience is influenced by vividness.

Vividness, acting as an external stimulus, influences users visual, cognitive, and emotive perceptions of the presented products or services (Chen et al., 2022). Users can experience increased confidence in the product and reduce uncertainty associated with products in e-commerce by introducing a more realistic and vivid representation of the product (Yim et al., 2017). The purpose of online purchasing reflects the user's intention or tendency to make a purchase after interacting with rich and detailed visual content.

Using vividness as a stimulus results in a detailed, realistic, and rich visual representation, which in turn instills in users a sense of confidence and comfort regarding the products they are viewing online. Presenting products with vivid visuals reduces ambiguity and uncertainty in the purchasing decision-making process, as it increases the perception of higher quality and greater trustworthiness. According to prior research, vividness contributes to the perception of realism and affective engagement, which in turn influences purchase intentions. Users tend to have a greater

intention to purchase products online when they encounter products with realistic and detailed visuals (Ebrahimabad et al., 2024; Whang et al., 2021). Therefore, we anticipate that vividness will significantly enhance online purchase intentions by enhancing perceptions of realism, inspiring emotional engagement, and reducing uncertainty regarding the product.

H4: Online purchase intentions are influenced by vividness.

User experience is the comprehensive assessment of users' attitudes toward a platform or application, which encompasses factors such as comfort, engagement, satisfaction, and simplicity of use (Khaldy et al., 2023). A positive user experience will influence the final decision to purchase products or services online. The S-O-R theory asserts that a variety of external stimuli, such as vividness and interactivity, shape the user experience like an organism, ultimately influencing the user's response, which is the purchasing decision (Gabriel et al., 2023). The user makes the purchase decision as the final phase of the process, following a series of interactions with the digital platform. Positive user experiences, such as contentment with an application or a favorable perception of the interface quality, can increase the probability of users making advantageous purchasing decisions.

When users have a positive user experience, they are more likely to feel at ease, engaged, and confident in the products or services available through digital platforms (Khaldy et al., 2023). Users are more likely to believe that they can effortlessly navigate, locate the information they require, and comprehend the product's advantages when they encounter an effective user experience. As a result, they are more likely to make a purchase. Research indicates that a positive user experience not only increases user engagement but also reinforces perceptions of quality and trust, which are critical factors in purchasing decisions (Flavián et al., 2019). Therefore, we anticipate that a positive user experience, through fostering increased confidence, emotive engagement, and reducing doubt during platform interactions, will significantly influence purchasing decisions.

H5: Online purchasing decisions are influenced by the user experience.

The user's intention to purchase products online is influenced by external stimuli such as vividness, interactivity, or user experience. The final action in the online purchasing process is the user's decision to purchase the product or service. According to the S-

O-R theory, an online purchase intention is an organism that acts as the cognitive and affective stage between the stimulus and the final decision (response). The decision to make an online purchase is a tangible outcome of a mental process that commences with intent.

The intention to make an online purchase directly influences the purchasing decision (Aulia et al., 2021). The likelihood that a user will make a purchase is directly proportional to the intensity of their desire or intention to do so. Trust, emotive engagement, and positive user experiences during interactions with the e-commerce platform are among the numerous factors that can influence the intention to make a purchase. Previous research has demonstrated that purchase intention is a critical factor in the formulation of purchasing decisions. In general, a strong intention suggests that the user is prepared to purchase a product, which increases the probability of conversion into actual action (Ebrahimabad et al., 2024). Therefore, it is anticipated that the intention to purchase online will have a substantial positive impact on online purchasing decisions as a result of the emotive involvement generated during the purchasing process, reduced uncertainty, and increased confidence.

H6: Online purchasing decisions are influenced by online purchase intention.

RESEARCH METHOD

A quantitative research approach is required for "The Role of Augmented Reality in Online Purchase Decision for Beauty Products in E-Commerce." This is due to the quantitative approach's suitability for testing hypotheses developed in line with the SOR theory. E-commerce is increasingly utilizing augmented reality (AR) technology to offer a more personalized and interactive purchasing experience, especially in developing countries like Indonesia. Shopee is one of the platforms that implemented AR in Indonesia. This is consistent with the assertions of Asih (2024) that Shopee is the most extensively used and popular e-commerce platform in Indonesia. The millennial and Gen Z cohorts comprise the majority of Shopee users in Indonesia (Santika, 2024). Additionally, AR in e-commerce enables consumers to virtually "try on" products prior to making a purchase, which is a substantial advantage for the cosmetics industry. This research concentrates on women who are millennial and

Generation Z and purchase cosmetics through the e-commerce platform Shopee, as women are the primary target audience of the cosmetics industry.

The research process comprises numerous phases. In the initial phase, previous researchers adapt and modify instruments to create a questionnaire. According to (Whang et al., 2021), the AR instrument measures two primary characteristics: vividness (five statement items) and interactivity (four statement items). Additionally, four statement items comprise the adaptation and modification from (Ebrahimabad et al., 2024) for the development of the user experience instrument, while five statement items comprise the online purchase intention. Meanwhile, researchers adapt and modify Beyari and Garamoun (2022) measurement of online purchasing decisions (to incorporate four statement items).

The second stage entails selecting respondents using purposive sampling techniques with two criteria arw women who are members of the millennial and Generation Z groups and who have made cosmetic purchases on Shopee within the past six months. For this augmented reality research, the study used the purposive sampling method to select a total of 200 individuals as respondents. The number of respondents meets the minimum sample adequacy requirements set out by Kline (2015) and Hair et al. (2019). According to these, at least 200 respondents are required for structural equation modeling (SEM) analysis.

The third stage entails collecting data by distributing online questionnaires or conducting surveys to respondents who meet the criteria. The fourth stage entails selecting the collected data to determine its suitability for analysis. The fifth stage involves the analysis of data to conduct validity, reliability, and hypothesis testing using Partial Least Squares Structural Equation Modeling (PLS SEM). Researchers selected SEM because it can simultaneously analyze the effects of intricate relationships between latent variables and observed variables, making it an ideal choice for causal models like those in this study (Hair et al., 2019).

RESULT AND DISCUSSION

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The study entitled "The Role of Augmented Reality in Online Purchasing Decision of Beauty Products in E-commerce" has effectively collected high-quality data for analysis from 200 female millennial and Gen Z participants who have acquired cosmetic items on Shopee in the preceding six months. This study will give extensive data from 200 re-spondents who consented to participate, as shown in Table 1.

Tabel 1

Details of Respondent Characteristics

Characteristics	Information	Amount	Percentage
Generation	Milenial (born 1981-1996)	118	59%
	Gen Z (born 1997-2012)	82	41%
Job	Students	40	20%
	Civil Servants	44	22%
	BUMN	36	18%
	Private Employees and Entrepreneurs	65	32,5%
	And Others	15	7,5%
Income/month	< Rp 2.500.000	30	15%
	Rp 2.500.001 to Rp 7.500.000	80	40%
	>Rp 7.500.000	90	45%
Cosmetic Brand	Maybelline	126	63%
	Loreal	74	37%
Type of Product	Lip Make Up	98	49%
	Eye Make Up	34	17%
	Face Make Up	68	34%

Source: Processed Primary Data (2024)

The participants in this augmented reality role study are primarily from the millennial generation, constituting 59%, while 41% belong to Generation Z. The majority work in the private sector and as entrepreneurs, earning an average monthly income of over seven million five hundred thousand rupiah. Subsequently, respondents on the e-commerce platform Shopee exhibited a preference for the Maybelline cosmetic brand,

purchasing it at a rate of 63%, in contrast to the L'Oreal brand, which constituted merely 37% of purchases. Lip cosmetic products are the most frequently purchased items, attributable to the accessibility of augmented reality-enabling virtual product trials.

For analysis, the study used the SEM-PLS approach, which included both outer model analysis and inner model analysis. Researchers use the outer model for validity analysis, which includes convergent and discriminant validity, as well as assessing construct reliability. Figure 1 illustrates the progression of the outer model test results.

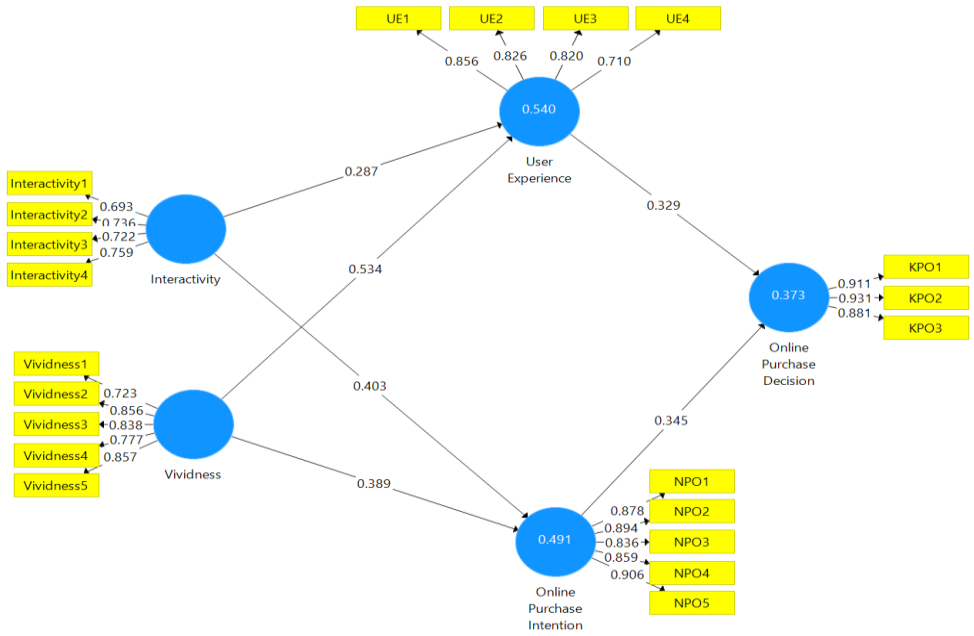

Figure 1.
Results of the Outer Model Test
Source: SmartPLS Output (2024)

The outer model evaluation must include a minimum of validity and reliability assessments. Table 2 presents the outcomes of the convergent validity assessment, as well as the construct reliability of this AR research.

Table 2
Outcome of Validity Convergent & Reliability

Statement Items	Loading Factor	Cronbach's Aplha	AVE
Interactivity		.705	.530
My experience purchasing cosmetics from brands such as Maybelline and L'Oreal on the Shopee e-commerce platform has been predominantly interactive.	.693		
The experience of purchasing cosmetics from the e-commerce platform Shopee for brands such as Maybelline or L'Oréal enables rapid two-way communication and prompt responses.	.736		
Shopping for cosmetics on the e-commerce site Shopee for brands such as Maybelline or L'Oreal has effectively demonstrated the convenience of independently picking and testing goods.	.722		
Purchasing cosmetics from the e-commerce platform Shopee for brands such as Maybelline or L'Oréal provides me with an experience comparable to acquiring them straight from a physical store.	.759		
Vividness		.870	.659
The experience of testing beauty items from brands such as Maybelline or L'Oréal on the e-commerce site Shopee is distinctly achievable.	.723		
You can conduct cosmetic item testing with considerable precision on the e-commerce site Shopee for brands like Maybelline or L'Oréal.	.856		
The experience of testing cosmetic goods from brands such as Maybelline or L'Oreal on the Shopee e-commerce platform is visually striking.	.838		
The experience of testing beauty goods on the e-commerce platform Shopee for companies such as Maybelline or L'Oréal is remarkably authentic and lifelike, akin to the actual experience.	.777		
The experience of testing cosmetic items on the e-commerce platform Shopee for brands like Maybelline or L'Oreal is well defined, including the authentic hues.	.857		
User Experience		.819	.648
I am satisfied with my experience.	.856		
This experience is just as I wanted.	.826		
This experience is as satisfying as I imagined.	.820		
This experience is just like the real experience of trying on cosmetics in an offline store.	.710		
Online Purchase Intention		.923	.766
I feel more confident when making purchases online.	.878		
I believe that in the future, I will be able to make purchasing decisions more easily.	.894		
I have the desire to be able to shop online.			
I feel that shopping online can reduce search costs, which motivates me.	.836 .859		
I enjoy shopping online because it makes the shopping experience and life easier.	.906		
Online Purchase Decision		.894	.824
I decided to buy the cosmetic products I like on the e-commerce platform Shopee.	.911		
	.931		

Statement Items	Loading Factor	Cronbach's Aplha	AVE
I decided to buy a product on Shopee after interacting with the augmented reality feature.	.881		
I decided to buy cosmetic products on Shopee because the transactions are simple and the information is reliable.			

Source: SmartPLS Output (2024)

The initial investigation of the outer model focuses on convergent validity. The goal of convergent validity is to make sure that all the indicators that measure the same thing have a strong correlation or link. This makes sure that the measurements are valid and accurate. Convergent validity necessitates that the factor loading value of each indication from a construct or variable surpasses 0.6 (Hair et al., 2019). Table 2 indicates that all five constructs possess factor loading levels exceeding the threshold of 0.6. This demonstrates that the five research constructs satisfy the criteria for convergent validity.

The second analysis of the outer model pertains to the constructs reliability. The value of Cronbach's alpha demonstrates the reliability of the construct. In the context of SEM analysis, Cronbach's alpha is a statistical coefficient that measures how reliable a set of indicators is at describing a construct or latent variable in a partial path analysis. Based on the evaluation of the Cronbach's alpha value, we determine the Cronbach's alpha test; a value exceeding 0.7 is considered to satisfy the reliability test criteria (Hair et al., 2019). The Cronbach's alpha values for the five constructions surpass 0.7, meeting the reliability criteri-on as indicated in Table 2.

Subsequently, Table 2 presents Average Variance Extracted (AVE) values, which demonstrate the extent to which a latent variable contributes to the variance of each corresponding indicator. For the con-struct to be considered free from dependability concerns, the AVE value must exceed 0.5 when making decisions (Hair et al., 2019). All constructs in Table 2 have AVE values surpassing 0.5. Each construct in this study possesses the ability to represent the latent variables it signifies. Table 3 will present the results of discriminant validity.

Table 3.
Outcome of Discriminant Validity

Variable	Interactivity	Vividness	UE	OPI	OPD
Interactivity	.728				
Vividness	.565	.812			
User Experience (UE)	.589	.696	.805		
Online Purchase Intention (OPI)	.623	.617	.640	.875	
Online Purchase Decision (OPD)	.478	.473	.550	.556	.908

Source: SmartPLS Output (2024)

The AVE value ascertains discriminant validity in the examination of the outer model, particularly the third dimension. The AVE value must surpass the correlation between one construct and another. A variable's AVE value must exceed its correlation with other variables within the same construct. If the AVE value fails to meet this criterion, the Fornell-Larcker criteria deems the internal correlation among the variables within that construct insufficient (Garson, 2016). Table 3 demonstrates that the correlation coefficients among the variables in this investigation are uniformly elevated. This condition indicates that the Fornell-Larcker test standards have been met. Table 4 presents the outcomes of the R square test.

Table 4.
Outcome of R Square Test

Variabel	R Square	Adjusted R Square
User Experience	.540	.536
Online Purchase Intention	.491	.486
Online Purchase Decision	.373	.366

Source: SmartPLS Output (2024)

According to Hair et al. (2019), R square measures the degree to which independent variables within a research model explain variability in a dependent variable. Researchers derived the presented information from Table 4 and Figure 1. User expeThe independent variables of interactivity and vividness influence user experience at a rate of 54%, with additional variables not included in this model accounting for the remaining 46%. The independent variables of interactivity and vividness demonstrate an impact on the intention to purchase online at a rate of 0.491, or 49.1%, with additional variables not included in this model accounting for the remaininThe independent variables of user experience and online buy intention

influence online purchase decisions at a rate of 0.373, or 37.3%, with additional variables not included in this model accounting for 62.7%. Presented below is Table 5, which delineates the outcomes of the hypothesis test.

Table 5.
Hypothesis Direct Test

Hipotesis	Path Coefficients	T-value	Conclusion
Interactivity → User Experience (H1)	.287	3.820	Accepted
Interactivity → Online Purchase Intention (H2)	.403	7.364	Accepted
Vividness → User Experience (H3)	.534	9.541	Accepted
Vividness → Online Purchase Intention (H4)	.389	5.217	Accepted
User Experience → Online Purchase Decision (H5)	.329	2.884	Accepted
Online Purchase Intention → Online Purchase Decision (H6)	.345	2.816	Accepted

Source: SmartPLS Output (2024)

Table 5 summarizes the hypothesis testing results, demonstrating statistically significant support for all six hypotheses. This affirms the proposed S-O-R model where both interactivity and vividness positively influence user experience and online purchase intention, which in turn affect actual purchase decisions. Hypothesis 1, which concerns the influence of interactivity on user experience, is accepted because the t-statistic value of 3.820 exceeds 1.96, and the path coefficient of 0.287 is significant with a p-value of 0.000 < 0.05. Augmented reality (AR) is a technology enabling consumers to visualize a digital representation of a product into the physical environment via devices like smartphones or tablets (Yim et al., 2017). In the realm of acquiring beauty products such as L'Oréal and Maybelline on Shopee, augmented reality enables users to digitally "try on" items, allowing them to test lipstick or foundation hues on their faces in real-time. Augmented reality (AR) promotes interactivity by offering an immersive experience that allows customers to modify and test products without the necessity of tangible items. Users may select from a range of colors, personalize the aesthetics, and view the outcomes immediately, enhancing their sense of control and involvement in the purchasing experience (Ebrahimabad et al.,

2024).

Augmented reality offers a distinctive and novel experience, enabling users to "try before they buy," a feature unavailable on traditional platforms (Lavoye et al., 2021). This experience augments immersion, allowing customers to feel a proximity to the goods equivalent to being in a physical store. The augmented reality experience enhances user engagement in the product research process (Kumar, 2022). Users can personalize their selections, including choosing other color options or observing the product's ultimate appearance in real-time, thus augmenting emotional involvement and contentment. Consequently, the findings of this research validate the SOR theory, indicating that stimuli characterized by interactivity exert a substantial influence (organism) on consumers.

Hypothesis 2, regarding the influence of interactivity on online purchase intention, is accepted as the t-statistic value of 7.364 exceeds 1.96, and the path coefficient of 0.403 is significant with a p-value of 0.000 < 0.05. Detailed and lifelike product representations showcase the vividness of augmented reality. Users not only view product photographs, but they also observe how the product appears when applied directly to themselves, providing enhanced depth and detail. Augmented reality technology can augment the "real-life" effect of products, rendering the shopping experience more immersive and authentic (Jayathilaka & Park, 2022). Vividness denotes the degree of visual richness of the displayed content (Kumar, 2022). Augmented reality amplifies vividness by enabling customers to examine product features more intricately, such as visualizing makeup shades on their own skin or assessing things from various perspectives. This aligns with the SOR framework, indicating that stimulation through vividness can influence user experience. (organism).

Hypothesis 3, which examines the influence of vividness on user experience, is accepted since the t-statistic value of 9.541 exceeds 1.96, and the path coefficient of 0.534 is significant with a p-value of 0.000 < 0.05. Augmented Reality Vividness denotes AR technology's ability to deliver a visually and sensorially immersive experience, augmenting the authentic perception of objects despite users' inability to physically interact with them (Choi & Choi, 2020). In the realm of e-commerce, augmented reality enhances vividness by enabling consumers to visualize how

products, such as cosmetics from L'Oréal and Maybelline, will appear on them in real-time, simulating the experience of trying the products on. The SOR hypothesis posits that visually rich stimuli (AR vividness) can elicit cognitive and emotional responses (organism), thereby enhancing user experience. This immersive experience will enhance users' emotional involvement with the product, diminish doubt, and foster better confidence in purchasing decisions (Ebrahimabad et al., 2024). Vivid AR technology enables consumers to get more realistic product renderings, resulting in enhanced enjoyment during the purchasing experience.

Hypothesis 4, concerning the influence of vividness on online purchase intention, is accepted because the t-statistic value of 5.217 exceeds 1.96, and the path coefficient of 0.389 is significant with a p-value of 0.000 < 0.05. Augmented Reality Vividness refers to the realism and intricacy with which AR visualizations can depict things for viewers (Khaldy et al., 2023). In the context of e-commerce, AR vividness allows consumers to virtually experience things with remarkable clarity, thereby enhancing their trust and confidence in their purchase decisions (Iisnawati et al., 2023). The SOR hypothesis posits that the stimulus (AR vividness) influences the organism (purchase intention), indicating that a more vivid experience of virtually trying things enhances consumer confidence and propensity to purchase. Users who gain confidence from a clear visualization of a product via augmented reality are more likely to proceed to the purchasing phase.

Hypothesis 5, which looks at the influence of user experience on online purchase decisions, is accepted as the t-statistic value of 2.884 exceeds 1.96, and the path coefficient of 0.329 is significant with a p-value of 0.000 < 0.05. User Experience AR is a fundamental component of the organism within the SOR theory framework. Upon receiving stimuli through augmented reality elements for virtual product interaction, consumers' psychological reactions, including impressions of the user experience, will affect their ultimate decision regarding online purchase (Ebrahimabad et al., 2024). The Stimulus-Organization-Response (SOR) theory demonstrates that the user experience with augmented reality (organism) significantly influences online shopping decisions (response). An effective AR user experience will yield favorable views, including satisfaction, trust, and confidence in the product, thus promoting purchasing decisions. Users who derive tangible advantages from AR technology typically

progress to the acquisition phase.

Lastly, hypothesis 6, regarding the influence of online purchase intention on online purchase decisions, is accepted because the t-statistic value of 2.816 exceeds 1.96, and the path coefficient of 0.345 is significant with a p-value of 0.000 < 0.05. Within the framework of the stimulus-organization-Response (SOR) theory, purchase intention constitutes a component of the organism, indicating the cognitive or psychological responses of consumers to the stimulus. This includes interactions with online features or promotions. Stimuli such as product reviews, augmented reality technology, pricing, or other information accessible on the Shopee platform prompt the consumer's intention to purchase. This intention acts as a robust predictor of online purchase decisions, which constitute the ultimate response manifested as the actual purchase of a product (Hairudinor & Rusidah, 2023; Aulia et al., 2021). According to SOR theory, purchase intention as an organism result from the evaluative and appraisal processes that consumers engage in regarding a variety of inputs. (stimulus). After establishing the intention to purchase, the final phase of this procedure involves deciding to execute the transaction. Consumers with strong purchase intentions, particularly those who have had positive experiences with the products and information on Shopee, are more likely to engage in real purchasing behavior.

CONCLUSION AND SUGGESTION

This study emphasizes the crucial impact of augmented reality (AR) technology on online customer purchase behavior within e-commerce platforms, especially for cosmetics products. The research findings demonstrate that the interactivity and vividness of augmented reality enhance user experience and intention to purchase online. Moreover, user experience and online buy intention can improve online purchasing decisions on the Shopee platform. Augmented reality enhances the customer buying experience by offering clearer and more interactive product visualizations, hence boosting user confidence and happiness in decision-making.

The findings recommend that e-commerce platform developers and cosmetic brand strategists enhance AR functionalities to optimize customer engagement and drive conversion. Furthermore, broader cross-platform and product category studies are

needed to validate these findings in different contexts. This study contains limitations, including a sample restricted to users of a single platform, thereby impacting the generalizability of the findings. Consequently, it is advisable for future studies to examine the implementation of AR technology across diverse platforms and product categories while also considering for additional moderating factors that could affect customer behavior.

Future research could broaden the study's scope by including moderating variables such as brand trust or prior user experience with AR technology. Furthermore, employing longitudinal approaches may yield a more profound comprehension of the evolution of consumer purchasing intentions and actions over time. Extending the research to more e-commerce platforms or diverse product categories can enhance the generalizability of the findings.

This study possesses multiple drawbacks. The study limits the sample to Shopee users in Indonesia, potentially limiting the global applicability of the results. This study employs a cross-sectional methodology; hence, it is unable to detect temporal variations in consumer behavior. Finally, this study did not take into account additional external factors, such as pricing and promotions, which may also affect purchasing decisions.

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