

The Influence of Augmented Reality Experience on Customer Loyalty

Maria Prisila Paru^{1*}, Popy Rufaidah²

¹Master of Science in Management, Faculty of Economics and Business,
Universitas Padjadjaran

²Departement of Management and Business, Faculty of Economics and Business,
Universitas Padjadjaran

*Corresponding email: maria23014@mail.unpad.ac.id

Abstract: Indonesian online customers identified as lacking loyalty. A company should be able to invest in certain aspects to cultivate customer loyalty. This study explored the influence of Augmented Reality (AR) experience on customer loyalty. Specifically, we focus on the context of the AR makeup feature experience. We examined whether each dimension of the AR experience influences customer loyalty. The four dimensions of AR experience applied in this study were environmental embedding, perceived enjoyment, interactivity, and telepresence. This study applied a quantitative approach and employed the non-probability convenience sampling technique (273 respondents). Partial Least Square – Structural Equation Modelling (PLS-SEM) using SmartPLS 4 was utilized for path analysis and hypothesis testing. The model's explanatory power was measured by the R-square and was categorized as moderate (continuance intention $R^2=0.643$ and WOM $R^2=0.605$). The model demonstrated large predictive accuracy, as indicated by a Q^2 value (WOM= 0.590 and a ZCI= 0.63). Our findings confirmed that each dimension of the AR experience positively influences customer loyalty, reflected in continuance intention and WOM.

Keywords: Augmented reality experience; Environmental embedding, Perceived enjoyment, Interactivity, Customer loyalty

INTRODUCTION

The cosmetics industry continues increasing over time and is one of the fastest-growing sectors (Mondello et al., 2024). Lifestyle shifting, technological innovation, and economic growth are driving forces for rapid growth (Yue, 2024). The growing demand for cosmetic products triggered competition between cosmetics companies. Indonesia was positioned as the highest market in Southeast Asia in 2022 covering 36% of the makeup cosmetic market, based on monthly e-commerce sales (Statista, 2024). However, Indonesian online customers identified a lack of loyalty (Rahman et al., 2022). Therefore, it is crucial for companies including cosmetics companies to be more creative and innovative to gain customer loyalty (Zollo et al., 2021).

Over the past few years, customer loyalty has been acknowledged for its role in a company's growth, survival, and sustainable competitive advantage (Thakur, 2018; Mandhachitara & Poolthong, 2011). Jones and Sasser (1995) has described loyalty as an emotional connection or fondness for a company's personnel, goods, or services. Oliver (1999) defines loyalty as the strong desire to repeatedly purchase the same brand or set of products in the future, even in the face of external factors and marketing ads that may encourage behavior changes. According to Thakur (2018), in the context of customer loyalty in the mobile shopping app, continuance

intention and positive WOM are considered appropriate dimensions of loyalty. Molinillo et al. (2022) cited an earlier definition by Zeithaml et al. (1996) define customer loyalty as positive behavior toward a company, as demonstrated by a customer's inclination to do repeat business with a certain store and advocacy through word-of-mouth. Based on extant earlier studies related to customer loyalty, we applied the dimension of customer loyalty including continuance intention and positive word-of-mouth. Nonetheless, cultivating customer loyalty presents a significant challenge, particularly within online platforms where consumers are presented with numerous alternatives. Companies have increased their interest in creating positive customer experiences because they realize that creating unforgettable shopping experiences can differentiate them (Molinillo et al., 2020). Modern customers purchase goods and demand unforgettable experiences (Pekovic & Rolland, 2020).

Recently, scholars also put an interest in studying the influence of customer experience in building loyalty. Scholars argue that a certain dimension of customer experience is important to customer loyalty improvement (Pekovic & Rolland, 2020). Prior studies have a different way of delving into the relationship between experiences and customer loyalty. Some scholars add satisfaction as the mediated variable (Butt et al., 2024; Thakur, 2018; Chiu et al., 2013). The other study observes both direct and indirect influence of customer experience on customer loyalty. The study by Butt et al. (2023) found that experience with AR significantly and positively influences customer loyalty. A study by Molinillo et al. (2022) in the context of retail mobile application experience, revealed that the direct relationship between customer experience and customer loyalty is not significant but the indirect relationship through satisfaction is significant. The gap in earlier studies triggered us to conduct a study focusing on the influence of AR experience on customer loyalty particularly on makeup brands that use AR on their online platform.

This study enhances the existing literature by exploring the influence of AR experience on customer loyalty, focusing on AR makeup features. While prior studies show mixed results on AR's direct impact on loyalty, this research addresses gaps by examining the influence of AR dimensions on continuance intention and WOM. By demonstrating how AR affects shopping experiences, the study provides actionable insights for cosmetics brands to enhance customer loyalty. This research also highlights the growing importance of AR in the technology transformation of the cosmetics industry. Particularly in driving loyalty in emerging markets like Indonesia, where online customer loyalty is a known challenge. As per our understanding, this type of research topic remains limited in Indonesia, further underscoring the study's significance.

The structure of this article begins with the introduction, which describes the background of the study and provides the research's objective of bridging existing literature gaps regarding the Augmented Reality experience and its influence on customer loyalty. The methods section details the study's design and describes data collection methods, research instruments, and measurement processes. The results and discussion section presents respondent demographics, structural model evaluation, hypothesis testing outcomes, and an in-depth discussion. Ultimately, the conclusion summarizes the main insights, reinforcing the implications for both academic understanding and practical strategies in the cosmetics sector.

METHODS

Research Design

This study applied a quantitative approach. We aim to evaluate the influence of AR experience dimensions (environmental embedding, perceived enjoyment, interactivity, and telepresence) on customer loyalty reflected on continuance intention and WOM. The research model is shown in Figure 1.

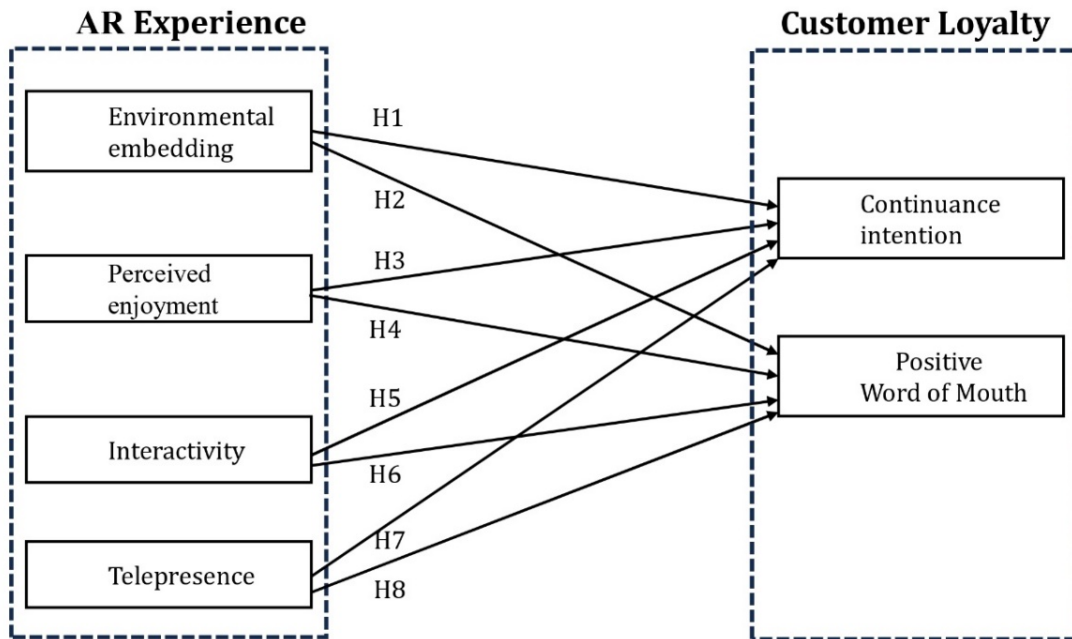


Figure 1. Proposed Research Model
Source: Developed by authors, 2024

- H1: Environmental embedding influences continuance intention
- H2: Environmental embedding influences positive word-of-mouth
- H3: Perceived enjoyment influences continuance intention
- H4: Perceived enjoyment influences positive word-of-mouth
- H5: Interactivity influences continuance intention
- H6: Interactivity influences positive word-of-mouth
- H7: Telepresence influences continuance intention
- H8: Telepresence influences positive word-of-mouth

Data Collection and Research Instrument

This study utilized an online questionnaire (Google form) for data collection. The non-probability convenience sampling technique was employed as a sampling method to reach out to readily accessible research units (Kumar et al., 2018; Rahi, 2017). The questionnaires were distributed through social media platforms, including Twitter, Instagram, and WhatsApp aiming at the active users of the Augmented Reality makeup feature. The total number of respondents in this study is 273. The sample size followed the heuristic: PLS-SEM minimum sample size should be ten times larger than the indicators (Hair et al., 2011). The total indicators applied in this study were 25, thus 273 respondents already fulfilled the heuristic.

Every questionnaire item was evaluated on a five-point Likert scale, where 1 indicated “strongly disagree” and 5 “strongly agree.” Likert scale is an appropriate interval scale to measure opinion and attitude (Kumar et al., 2018).

Measurement

Every questionnaire item was evaluated on a five-point Likert scale, where 1 indicated “strongly disagree” and 5 “strongly agree.” Likert scale is an appropriate scale to measure opinion and attitude (Kumar et al., 2018). This study included 25 indicators referred to prior studies. The four items for the environmental embedding dimension (ENV1-ENV4) were sourced from Lavoye et al. (2023). Perceived enjoyment was measured using three items (PE1-PE3) from Butt et al. (2022), with an additional item (PE4) from Holdack et al. (2022). Items measuring interactivity (INT1-INT3) were adopted from Whang et al. (2022), while INT4 was sourced from Wang et al. (2022). Four items in telepresence were adapted from Khoirunisa and Rufaidah (2024). Regarding continuance intention, three items (CI 1-CI 3) were derived from Butt et al. (2023) and (CI 4) from Khoirunisa and Rufaidah (2024). Finally, the word-of-mouth dimension included four items (WOM1-WOM4) from Molinillo et al. (2022) and an additional item (WOM5) from Thakur (2018).

Analysis Method

Partial Least Square – Structural Equation Modelling (PLS-SEM) using SmartPLS 4 was utilized for path analysis and hypothesis testing. This study specifically investigated the influence of each AR feature makeup dimension on each loyalty dimension. Accordingly, we employed PLS-SEM because PLS-Sem is recommended for the model with many model relations, constructs, or indicators (Hair et al., 2019). The evaluation encompassed the outer model (measurement) and the inner model (structural model). The outer model evaluation includes convergent validity, discriminant validity, and reliability. Convergent validity will be analyzed through indicators loading and average variance extracted (AVE) value. According to the rules of thumb for the reflective measurements model, indicator loadings should be higher than 0.7 and AVE should be above 0.5 to conclude that the latent variables explain more than half of their indicator variance (Hair et al., 2011). Discriminant validity was analyzed based on Fornell-Larcker criteria: the square root of the AVE higher than the highest correlation of the other construct (Hair et al., 2011). Reliability was measured by composite reliability (CR) which should be higher than 0.7 to show this study can yield a consistent result when repeated (Hair et al., 2011). The structural model would be assessed through R² value, Q² value, and statistical significance and relevance of the path coefficients.

RESULTS AND DISCUSSION

Respondent Profile

All respondents in this study were female because cosmetic products are mainly associated with women. As presented in Table 1, respondents are dominated by ages 26-30 (38.1%). Educationally, 55.31% of respondents have undergraduate degrees. The majority, work as private employees (39.19%). Most of the respondents lived

in Java Island (50.55%). Most respondents purchased cosmetic products online, 3-5 times a year (45.79%). Respondents who have utilized AR makeup features for 6-12 months make up the majority (40.66%). The estimated duration of AR makeup feature usage is mostly less than 1 hour (67.4%). E-commerce platforms become a favorite choice for using AR makeup features.

Table 1. Respondent Profile

	Profile		%	Profile	F	%	
Age	< 20	26	9.52	Cosmetic product purchases online (per year)	< 3 times	93	34.07
	21-25	94	34.43		3-5 times	125	45.79
	26-30	104	38.10		> 5 times	55	20.15
	31-35	32	11.72				
	36-40	12	4.40				
	>40	5	1.83				
Highest education attained	Highschool or below	43	15.75	How long have you been using the AR makeup feature?	< 6 months	100	36.63
	Diploma/Certificate	47	17.22		6 - 12 months	111	40.66
	Undergraduate Degree	151	55.31		1 - 3 year	52	19.05
	Postgraduate Degree	32	11.72		> 3 years	10	3.66
Occupation	High School Student	10	3.66	AR makeup feature usage duration	< 1 hour	184	67.40
	College Student	83	30.40		1-2 hours	83	30.40
	Private Employee	107	39.19		> 2 hours	6	2.20
	Public sector employee	10	3.66				
	Self-employed	50	18.32				
Other (housewife, etc)	13	4.76					
Domicile	Sumatera Island	26	9.52	Platform used to purchase makeup with AR feature	Brand website, e.g., Wardah & Maybelline	125	45.79
	Java Island	138	50.55				
	Kalimantan Island	27	9.89				
	Sulawesi Island	21	7.69		Marketplace, e.g., Shopee	148	54.21
	Bali, Nusa Tenggara, Maluku	57	20.88				
	Papua Island	4	1.47%				

Note: F= Frequency

Outer Model Evaluation / Measurements Evaluation

PLS-SEM evaluation is generally conducted in two separate steps encompassing outer loading (measurement) assessment and structural model assessment (Hair et al., 2011). The primary objective of the measurement model evaluation is to obtain a valid and reliable construct. Validity was obtained through the convergent validity measurement (outer Loading and AVE) shown in Table 3 and discriminant validity (Fornell-Larcker) shown in Table 4. According to the rules of thumb for the reflective measurements model, outer loadings should be > 0.7 and AVE should be > 0.5 (Hair et al., 2011). The outer loading of all indicators was > 0.7 and the AVE value showed all have fulfilled the requirements > 0.5 . The Discriminant Validity is shown in Table 4 which indicates that the Fornell-Larcker criterion has been fulfilled: the square root of the AVE was more significant or higher than the highest correlation of the other construct (Hair et al., 2011). Therefore, we concluded that all indicators used in this model were valid. A reliability test was performed by composite reliability (CR) value. The result showed that all CR values were above > 0.7 . Thus, the internal consistency reliability has been fulfilled. The outer model confirmed that the indicators in this study are valid and reliable, therefore the next step of evaluation which is the structural model can be carried out. The results also confirmed that instruments used can yield a consistent result when repeated.

Table 3. Outer Loading of the Measurements: Outer Loading, AVE, Composite Reliability (CR)

Dimension and Indicator	Code	Outer Loading	AVE	CR
Environmental Embedding: (Lavoye et al., 2023)			0.575	0.844
I was able to see how the cosmetic product looked on my face	ENV 1	0.794		
I could visualize how the cosmetic product fit on my face	ENV 2	0.744		
I felt like I was wearing this cosmetic product on my face	ENV 3	0.772		
I felt like I could do whatever I wanted with the cosmetic product with Augmented Reality (AR) makeup app features	ENV 4	0.722		
Perceived Enjoyment (Butt et al., 2022; Holdack et al., 2022)			0.544	0.826
The use of the Augmented Reality (AR) make-up app was indeed a joy	PE1	0.707		
To me, shopping online with an Augmented Reality (AR) makeup app for cosmetic products was enjoyable.	PE 2	0.800		
To me, shopping online with an Augmented Reality (AR) makeup app for cosmetic products was an adventure	PE 3	0.718		
The use of the Augmented Reality (AR) makeup app was interesting	PE 4	0.722		
Interactivity Liu (2003) in Whang et al (2022); Wang et al., (2022)			0.644	0.879
Overall shopping for cosmetics products experience with AR was very interactive with me.	INT 1	0.808		
This shopping experience facilitates two-way communication	INT 2	0.801		
During the shopping, I feel on an equal footing	INT 3	0.800		

I could communicate in real-time	INT 4	0.802		
Telepresence (Khoirunissa & Rufaidah, 2024)			0.655	0.883
I do not pay much attention to the surrounding environment when using an Augmented Reality (AR) makeup app	TEL 1	0.746		
I feel cool when I am using the Augmented Reality (AR) makeup app	TEL 2	0.845		
I seem to forget where I am when using the Augmented Reality (AR) makeup app	TEL 3	0.814		
When using an Augmented Reality (AR) makeup app, it doesn't feel like time flies	TEL 4	0.828		
Continuance Intention (Butt et al., 2023; Khoirunissa & Rufaidah, 2024)			0.667	0.889
In the future, I will shop more at brands that provide AR makeup features than I do now	ZCI 1	0.814		
If AR makeup features still exist, I plan to shop at this brand regularly in the future	ZCI 2	0.850		
The brand-provided AR makeup will be my first option next time go shopping	ZCI 3	0.825		
Through the AR makeup used by this cosmetic brand, I always buy products from this cosmetic brand even though there are many cheaper products in other brands	ZCI 4	0.775		
Positive WOM: (Zeithaml et al., 1996; Molinillo et al., 2022; Thakur, 2018)			0.640	0.899
Say positive things about cosmetic brands equipped with AR makeup to other people	WOM 1	0.805		
Recommend a cosmetic brand equipped with AR makeup to someone who seeks your advice	WOM 2	0.786		
Recommend cosmetic brand equipped with AR makeup to relatives	WOM 3	0.793		
Recommend cosmetic brand equipped with AR makeup to friends	WOM 4	0.794		
I will point out the positive aspects of cosmetic brand equipped with AR makeup if anybody criticizes it	WOM 5	0.822		

Table 4. Discriminant Validity (Fornell-Larcker)

	ENV	INT	PE	TEL	YCLOY	ZCI
ENV	0.758					
INT	0.686	0.803				
PE	0.647	0.680	0.738			
TEL	0.636	0.704	0.630	0.809		
WOM	0.677	0.687	0.678	0.644	0.800	
ZCI	0.703	0.727	0.674	0.660	0.744	0.817

Structural Model Evaluation

Assessing the structural model constitutes the next step in evaluating PLS-SEM results after obtaining a satisfactory outer assessment (Hair et al., 2019). The standard evaluation criteria consist of R-square/R² (coefficient of determination), Q², and statistical significance and relevance of the path coefficients (Hair et al., 2019). R² value

can be interpreted as 0,25= weak, 0,5=moderate, and 0,75=substantial/strong (Hair et al., 2019). The R² results, shown in Figure 2, are categorized as moderate. Continuance intention (ZCI) has an R² of 0.643, meaning that 64.3% of its variance is explained by environmental embedding (ENV), perceived enjoyment (PE), interactivity (INT), and telepresence (TEL). Similarly, WOM has an R² of 0.605, indicating that these same dimensions explain 60.5% of the variance in positive word-of-mouth. The predictive relevance (Q²) denoted by Stone-Geisser’s value obtained from blind-folding procedure (Hair et al., 2011). The Q² depicts the prediction capability of the model (Hair et al., 2011). It can be interpreted using the rule of thumb: Q² is 0 = small; 0.25= medium; 0,5 large predictive accuracy (Hair et al., 2019). The Q² value in this study is 0.590 for WOM and 0.63 for ZCI. Both results indicate high predictive accuracy

Table 5. Hypothesis Testing

Hypothesis		Path Coefficient	T-statistics	P-values	Decision
H1	ENV → ZCI	0.275	3.622	0.000	Accepted
H2	ENV → WOM	0.254	3.529	0.000	Accepted
H3	PE → ZCI	0.199	3.674	0.000	Accepted
H4	PE → WOM	0.261	4.085	0.000	Accepted
H5	INT → ZCI	0.297	4.061	0.000	Accepted
H6	INT → WOM	0.221	2.585	0.010	Accepted
H7	TEL → ZCI	0.151	2.338	0.019	Accepted
H8	TEL → WOM	0.163	2.172	0.030	Accepted

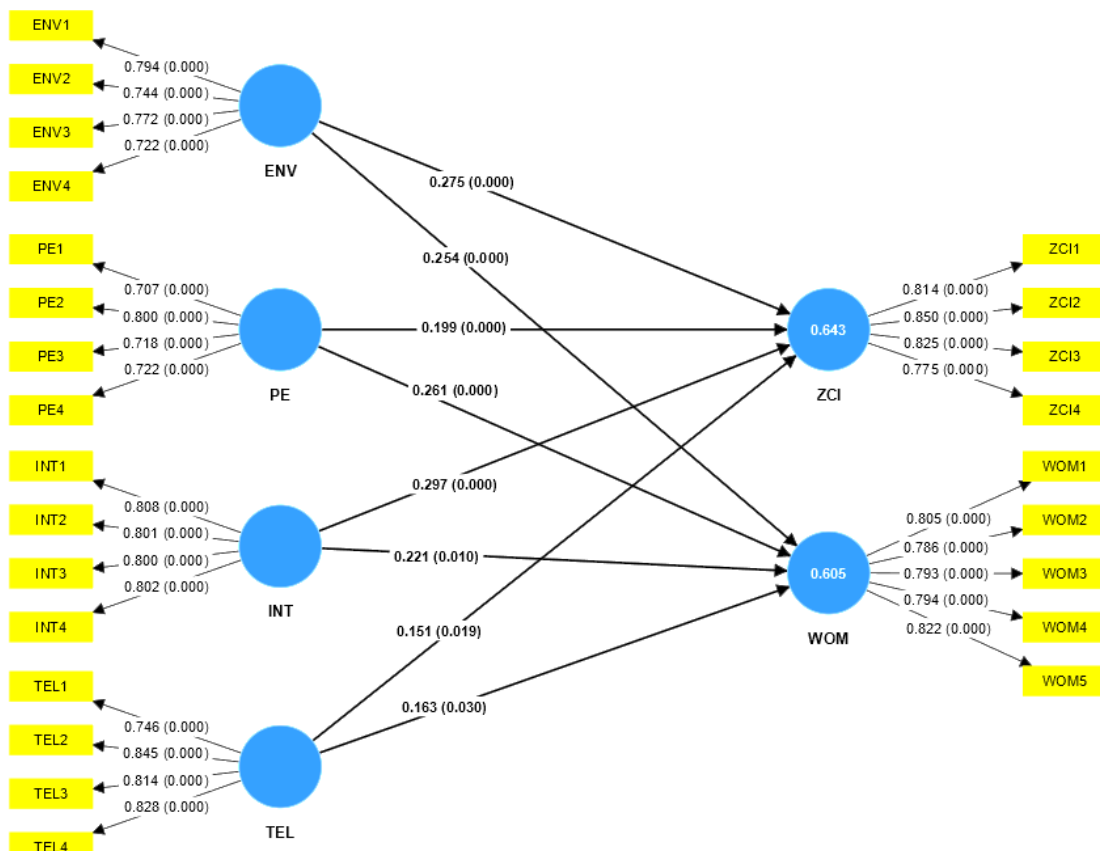


Figure 2. Outer Model & Structural Model

Hypothesis Testing

The hypothesis test was conducted by evaluating the significance of the path coefficients through the t-statistic and the p-value (Hair et al., 2011). Results are shown in Table 5 and Figure 2. The statistical significance of the path coefficient was tested by a bootstrapping process that involved 5000 iterations. The hypothesis is accepted when the t-statistic value > 1.96 (Hair et al., 2011) and p-values lower than the significance level (0,05). The results of the eight hypotheses tested show that t-statistic > 1.96 and p-values are lower than 0.05 (Figure 2 and Table 5). Therefore, all the hypotheses were accepted. Regarding relevance, path coefficients are found in the range of -1 to +1 with values close to -1 suggesting a negative relationship and values close to +1 indicating a positive relationship (Hair et al., 2022). Based on the results, path coefficients in this study were valued closer to +1, showing a positive relationship.

Discussion

This study explored the influence of AR experience specifically AR makeup feature experience on customer loyalty. We examine various dimensions of AR experience and their influences on customer loyalty reflecting on continuance (intention) and positive word-of-mouth. The four dimensions of AR makeup feature experience applied in this study were environmental embedding, perceived enjoyment, interactivity, and telepresence. According to the hypothesis testing results, each dimension of the AR makeup feature experience positively influences customer loyalty (continuance intention and WOM respectively).

Environmental embedding represents the integration of virtual content into the user's/customer's physical environment, enhancing the visualization of products during online shopping. It also reduced the risk perception of unsuitable products. According to Laroche et al., (2004), customers' perception of risk decreases when they can mentally understand the features of an offering through increased visualization. Customers may find it difficult to visualize and evaluate how the cosmetics product looks on their face when they do online shopping. AR feature offers an authentic experience and bridges the gap between purchasing online and offline (Hilken et al., 2018). Our result highlights that environmental embedding is one of the AR experience elements that positively influences customer loyalty.

Perceived enjoyment pertains to the pleasure derived using AR features, independent of practical benefits. As explained earlier, modern customers purchase goods and demand unforgettable experiences (Pekovic & Rolland, 2020). Depicted from the demographic profile, the age-dominant respondents were 26-30 (38.1%) and 21-25 (34.43%). The data showed that AR makeup features were predominantly used by Generation Z and Generation Y who are associated with modernity and technology. Accordingly, the AR makeup feature provides a delightful and modern shopping experience supported by advanced technology, which leads to repurchasing and spreading the positive experience to others.

Shopping is usually a social activity, and doing it online calls for social presence (Weisberg et al., 2011). AR makeup feature offers an interaction like a salesperson would in a physical store (Lavoye et al., 2023). This study shows that AR can perform as a medium for the interaction of customer and their brands, thus positively affecting their loyalty.

Telepresence refers to the feeling of being physically present in a virtual environment, which can significantly enhance customer engagement. The more the customer can engage with the product the more understanding they have of the products fit their preference which can lead to further behavior such as continue buying and sharing positive information.

The findings of our study corroborate earlier studies by Butt et al., (2023) that AR experience has a direct influence on customer loyalty. The first AR makeup feature in Indonesia appeared in 2019, launched by L'Oréal Group under the Maybelline brand Virtual Try On. Later, other cosmetic brands and e-commerce platforms also applied the technology. Refers to the respondents' answers to the question " How long have you been using AR feature makeup", there was a trend that more and more customers are interested in using AR makeup features, shown by a high number of new AR makeup users (duration < 6 months).

Focusing on specific dimensions of AR experience relevant to the cosmetics context, this study emphasized the importance of customer experiences to foster loyalty. The AR makeup feature not only aids customers in selecting suitable products but also delivers a unique and personalized shopping experience, thereby deepening the connection with the brand. Positive experiences with AR features stimulate repeat purchases and word-of-mouth.

CONCLUSION

This study makes several important contributions to both theory and practice in the context of augmented reality (AR) and customer loyalty in the cosmetics industry. Theoretically, it extends the literature on AR experiences by identifying four specific dimensions—environmental embedding, perceived enjoyment, interactivity, and telepresence—that significantly impact customer loyalty. Unlike previous studies that have primarily focused on AR's general effects, this research delves into these individual dimensions, offering a more nuanced understanding of how each element influences key loyalty indicators such as continuance intention and positive word-of-mouth (WOM). Practically, the findings offer valuable insights for cosmetics companies seeking to enhance customer retention and advocacy through innovative technologies like AR. Improving the quality and interactivity of AR features, companies can create more immersive shopping experiences, which are particularly effective in online environments where customer loyalty is often lower.

The study also highlights the potential for AR to bridge the gap between online and offline shopping by allowing customers to virtually "try on" products, thereby increasing confidence and reducing purchase risk. This is particularly relevant in the growing Indonesian cosmetics market, where customer loyalty has been identified as a key challenge. This study was conducted in Indonesia. Further studies can explore AR experiences in other countries for a more comprehensive understanding. Besides, in the next studies, researchers can elaborate on other variables e.g., brand trust, customer satisfaction, or fear of missing out (FOMO) to explore how AR experience influences customer loyalty. Future research also might consider choosing one specific brand and comparing the sales of its products before and after the AR makeup application was launched.

REFERENCES

- Azuma, R. T. (1997). A survey of augmented reality. In *Presence: Teleoperators and virtual environments* (Vol. 6). <http://www.cs.unc.edu/~azumaW>:
- Butt, A., Ahmad, H., Ali, F., Muzaffar, A., & Shafique, M. N. (2023). Engaging the customer with augmented reality and employee services to enhance equity and loyalty. *International Journal of Retail and Distribution Management*, 51(5), 629–652. <https://doi.org/10.1108/IJRDM-04-2021-0165>
- Butt, A., Ahmad, H., Muzaffar, A., Ali, F., & Shafique, N. (2022). WOW, the make-up AR app is impressive: a comparative study between China and South Korea. *Journal of Services Marketing*, 36(1), 73–88. <https://doi.org/10.1108/JSM-12-2020-0508>
- Butt, A. H., Ahmad, H., & Muzaffar, A. (2024). Augmented reality is the new digital banking – AR brand experience impact on brand loyalty. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-11-2022-0522>
- Chiu, C. M., Cheng, H. L., Huang, H. Y., & Chen, C. F. (2013). Exploring individuals' subjective well-being and loyalty towards social network sites from the perspective of network externalities: The Facebook case. *International Journal of Information Management*, 33(3), 539–552. <https://doi.org/10.1016/j.ijinfomgt.2013.01.007>
- Cruz-Jesus, F., Figueira-Alves, H., Tam, C., Pinto, D. C., Oliveira, T., & Venkatesh, V. (2023). Pragmatic and idealistic reasons: What drives electric vehicle drivers' satisfaction and continuance intention? *Transportation Research Part A: Policy and Practice*, 170. <https://doi.org/10.1016/j.tra.2023.103626>
- Dick, A. S., & Basu, K. (1994). Customer Loyalty: Toward an Integrated Conceptual Framework.
- Ferguson, R. J., Paulin, M., & Leiriao, E. (2007). Loyalty and positive word-of-mouth: Patients and hospital personnel as advocates of a customer-centric health care organization. *Health Marketing Quarterly*, 23(3), 59–77. <https://doi.org/10.1080/07359680802086174>
- Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM) Third Edition (3rd ed.)*. SAGE Publications, Inc.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. In *European Business Review* (Vol. 31, Issue 1, pp. 2–24). Emerald Group Publishing Ltd. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hilken, T., de Ruyter, K., Chylinski, M., Mahr, D., & Keeling, D. I. (2017). Augmenting the eye of the beholder: Exploring the strategic potential of augmented reality to enhance online service experiences. *Journal of the Academy of Marketing Science*, 45(6), 884–905. <https://doi.org/10.1007/s11747-017-0541-x>
- Holdack, E., Lurie-Stoyanov, K., & Fromme, H. F. (2022). The role of perceived enjoyment and perceived informativeness in assessing the acceptance of AR

- wearables. *Journal of Retailing and Consumer Services*, 65. <https://doi.org/10.1016/j.jretconser.2020.102259>
- Islam, M. F., Mofiz Uddin, M. M., & Rahman, M. M. (2024). Factors affecting retailer social responsibility: a PLS-SEM approach in the context of Bangladesh. *Social Responsibility Journal*, 20(3), 605–625. <https://doi.org/10.1108/SRJ-04-2023-0192>
- Issock Issock, P. B., Mpinganjira, M., & Roberts-Lombard, M. (2020). Modelling green customer loyalty and positive word of mouth: Can environmental knowledge make the difference in an emerging market? *International Journal of Emerging Markets*, 15(3), 405–426. <https://doi.org/10.1108/IJOEM-09-2018-0489>
- Jean Harrison-Walker, L. (2001). The measurement of word-of-mouth communication and an investigation of service quality and customer commitment as potential antecedents the primary focus of these studies is not on measure level. *Journal of Service Research*, 4(1).
- Jones, T. O., & Sasser, W. E. (1995). Why satisfied customers defect. *Harv. Bus. Rev.* 73 (6), 88e99. <http://hbr.harvardbusiness.org/1995/11/why-satisfied-customers-defect/ar/pr>
- Khoirunissa & Rufaidah. (2024). The Role of Virtual Experiential Marketing and Brand Trust on Brand Loyalty. *Sosioteknologi*, 23(1). <https://doi.org/10.5614/sostek.itbj.2024.23.1.7>
- Kim, J. H., Kim, M., Park, M., & Yoo, J. (2023). Immersive interactive technologies and virtual shopping experiences: Differences in consumer perceptions between augmented reality (AR) and virtual reality (VR). *Telematics and Informatics*, 77. <https://doi.org/10.1016/j.tele.2022.101936>
- Kumar, H. (2022). Augmented reality in online retailing: A systematic review and research agenda. *International Journal of Retail and Distribution Management*, 50(4), 537–559. <https://doi.org/10.1108/IJRDM-06-2021-0287>
- Laroche, M., Mcdougall, G. H. G., Bergeron, J., & Yang, Z. (2004). Exploring how intangibility affects perceived risk. *Journal of Service Research*, 6(4), 373–389. <https://doi.org/10.1177/1094670503262955>
- Lavoye, V., Tarkiainen, A., Sipilä, J., & Mero, J. (2023). More than skin-deep: The influence of presence dimensions on purchase intentions in augmented reality shopping. *Journal of Business Research*, 169. <https://doi.org/10.1016/j.jbusres.2023.114247>
- Liu, Y. (2003). Developing a scale to measure the interactivity of websites. *Journal of Advertising Research*, 43 (2), 207–216. <https://doi.org/10.1017/S0021849903030204>
- Mandhachitara, R., & Poolthong, Y. (2011). A model of customer loyalty and corporate social responsibility. *Journal of Services Marketing*, 25(2), 122–133. <https://doi.org/10.1108/08876041111119840>
- Mascarenhas, O. A., Kesavan, R., & Bernacchi, M. (2006). Lasting customer loyalty: A total customer experience approach. *Journal of Consumer Marketing*, 23(7), 397–405. <https://doi.org/10.1108/07363760610712939>
- Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., & Carvajal-Trujillo, E. (2022). The customer retail app experience: Implications for customer loyalty. *Journal of Retailing and Consumer Services*, 65. <https://doi.org/10.1016/j.jretconser.2021.102842>

- Molinillo, S., Navarro-García, A., Anaya-Sánchez, R., & Japutra, A. (2020). The impact of affective and cognitive app experiences on loyalty towards retailers. *Journal of Retailing and Consumer Services*, 54. <https://doi.org/10.1016/j.jretconser.2019.101948>
- Mollen, A., & Wilson, H. (2010). Engagement, telepresence and interactivity in online consumer experience: Reconciling scholastic and managerial perspectives. *Journal of Business Research*, 63(9–10), 919–925. <https://doi.org/10.1016/j.jbusres.2009.05.014>
- Mondello, A., Salomone, R., & Mondello, G. (2024). Exploring circular economy in the cosmetic industry: Insights from a literature review. In *Environmental Impact Assessment Review* (Vol. 105). Elsevier Inc. <https://doi.org/10.1016/j.eiar.2024.107443>
- Niu, B., & Mvondo, G. F. N. (2024). I Am ChatGPT, the ultimate AI Chatbot! Investigating the determinants of users' loyalty and ethical usage concerns of ChatGPT. *Journal of Retailing and Consumer Services*, 76. <https://doi.org/10.1016/j.jretconser.2023.103562>
- Oliver, R. L. (1999). Whence Consumer Loyalty? *Journal of Marketing*, 63(Special Issue 1999), 33–44.
- Pekovic, S., & Rolland, S. (2020). Recipes for achieving customer loyalty: A qualitative comparative analysis of the dimensions of customer experience. *Journal of Retailing and Consumer Services*, 56. <https://doi.org/10.1016/j.jretconser.2020.102171>
- Peng, Y., & Ke, D. (2015). Consumer trust in 3D virtual worlds and its impact on real world purchase intention. *Nankai Business Review International*, 6(4), 381–400. <https://doi.org/10.1108/NBRI-03-2015-0009>
- Peterson, R. A. (2000). A meta-analysis of variance accounted for and factor loadings in exploratory factor analysis. In *Marketing Letters* (Vol. 11, Issue 3). Kluwer Academic Publishers.
- Plotkina, D., Dinsmore, J., & Racat, M. (2022). Improving service brand personality with augmented reality marketing. *Journal of Services Marketing*, 36(6), 781–799. <https://doi.org/10.1108/JSM-12-2020-0519>
- Rahi, S. (2017). Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. *International Journal of Economics & Management Sciences*, 06(02). <https://doi.org/10.4172/2162-6359.1000403>
- Rahman, S., Fadrul, F., Yusrizal, Y., Marlyna, R., & Momin, M. (2022). Improving the Satisfaction and Loyalty of Online Shopping Customers Based on E-Commerce Innovation and E-Service Quality. *Gadjah Mada International Journal of Business*, 24(1), 56–81. <http://journal.ugm.ac.id/gamaijb>
- Rijal, M., & Rufaidah, P. (2023). Testing Virtual Experiential Marketing: Scale Measurement. *Sosioteknologi*, 22(2). <https://doi.org/10.5614/sostek.itbj.2023.22.2.10>
- Rouibah, K., Lowry, P. B., & Hwang, Y. (2016). The effects of perceived enjoyment and perceived risks on trust formation and intentions to use online payment systems: New perspectives from an Arab country. *Electronic Commerce Research and Applications*, 19, 33–43. <https://doi.org/10.1016/j.elerap.2016.07.001>

- Song, H. K., Baek, E., & Choo, H. J. (2020). Try-on experience with augmented reality comforts your decision: Focusing on the roles of immersion and psychological ownership. *Information Technology and People*, 33(4), 1214–1234. <https://doi.org/10.1108/ITP-02-2019-0092>
- Srinivasan, S. S., Anderson, R., & Ponnnavolu, K. (2002). Customer loyalty in e-commerce: An exploration of its antecedents and consequences.
- Statista. (2024). Market share of makeup market based on monthly e-commerce sales in Southeast Asia in 2022, by country. SEA: e-commerce makeup market share by country 2022 | Statista (oclc.org), accessed on 25 Maret 2024
- Sun, J., Wang, Y., Miao, W., Wei, W., Yang, C., Chen, J., Yang, F., Ren, L., & Gu, C. (2023). A study on how to improve users' perceived playfulness in and continuance intention with VR technology to paint in virtual natural landscapes. *Heliyon*, 9(5). <https://doi.org/10.1016/j.heliyon.2023.e16201>
- Suphasomboon, T., & Vassanadumrongdee, S. (2023). Multi-stakeholder perspectives on sustainability transitions in the cosmetic industry. *Sustainable Production and Consumption*, 38, 225–240. <https://doi.org/10.1016/j.spc.2023.04.008>
- Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2022). Augmented reality in retail and its impact on sales. *Journal of Marketing*, 86(1), 48–66. <https://doi.org/10.1177/0022242921995449>
- Thakur, R. (2018). The role of self-efficacy and customer satisfaction in driving loyalty to the mobile shopping application. *International Journal of Retail and Distribution Management*, 46(3), 283–303. <https://doi.org/10.1108/IJRDM-11-2016-0214>
- V. Kumar, Robert P. Leone, David A. Aaker, & George S. Day. (2018). *Marketing Research (13th ed.)*. John Wiley & Sons.
- Wang, Y., Ko, E., & Wang, H. (2022). Augmented reality (AR) app use in the beauty product industry and consumer purchase intention. *Asia Pacific Journal of Marketing and Logistics*, 34(1), 110–131. <https://doi.org/10.1108/APJML-11-2019-0684>
- Weisberg, J., Te'eni, D., & Arman, L. (2011). Past purchase and intention to purchase in e-commerce: The mediation of social presence and trust. *Internet Research*, 21(1), 82–96. <https://doi.org/10.1108/10662241111104893>
- Whang, J. Bin, Song, J. H., Choi, B., & Lee, J. H. (2021). The effect of augmented reality on purchase intention of beauty products: The roles of consumers' control. *Journal of Business Research*, 133, 275–284. <https://doi.org/10.1016/j.jbusres.2021.04.057>
- Yue, M. (2024). Research on the opportunities for Chinese domestic cosmetics to advance into high-end products. In *Business, Economics and Management EMFRM (Vol. 2023)*.
- Zeithaml, V. A., Berry, L. L., & Parasuraman. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60, 31–46.
- Zollo, L., Carranza, R., Faraoni, M., Díaz, E., & Martín-Consuegra, D. (2021). What influences consumers' intention to purchase organic personal care products? The role of social reassurance. *Journal of Retailing and Consumer Services*, 60. <https://doi.org/10.1016/j.jretconser.2020.102432>