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Augmented Retail Marketing: Comprehending Customer Satisfaction by AR Marketing Media

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ABSTRACT

This research aims to explore the role of Augmented Reality (AR) as a marketing medium in the context of the post-pandemic retail sector. This research adopts a quantitative approach using the SEM - PLS model. Data was obtained through an online survey using a Google Form-based questionnaire filled out by 100 respondents who had used the AR feature to purchase retail products more than twice. Research findings indicate that AR has great potential to increase customer satisfaction and influence consumer purchasing behavior in the post-pandemic retail sector. The implication of this research is that retail companies can utilize AR technology as an effective marketing tool to improve consumer experience, customer satisfaction and business growth. This research also contributes to the AR-based marketing literature, especially in the post-pandemic retail sector, which can be called "Augmented Retail Marketing". Thus, this research illustrates the important role of AR in shaping the future of retail marketing.

Keywords: marketing, customer satisfaction, interactivity, purchase experience.

1. INTRODUCTION

The presence of a global pandemic in the last two years has had a significant impact on the global economy, as well as affecting different sectors of society (Laato et al., 2020). Lockdown conditions and social distancing due to the pandemic limit shopping choices, encourage consumption from home and give rise to changes in consumer behavior that are studied to understand permanent changes or returns to old habits (Wilder-Smith MD & Freedman MD, 2020; Venkatesh, 2020). Significantly, pandemic conditions have also affected the retail sector with physical stores being closed and retailers facing a dilemma between essential and non-essential goods, as well as shifting consumer behavior from offline to online (Briedis et al., 2020; Pantano et al., 2020).

A study that McKinsey has conducted on companies and the results show that the growth rate of online sales has increased from 14% annually to 25% weekly., however, pre-pandemic consumers preferred to visit physical stores (Briedis et al., 2020). Therefore, retailers must increase their investments online and digitally to offset the decline in consumer traffic to their physical stores (Sheth, 2020).

Online shopping allows consumers to buy goods anywhere and save time, although processing information is still difficult. Through product images and descriptions, it can help consumers make purchasing decisions, such as Augmented Reality technology used by retailers to facilitate the purchasing process during the social distance period (Kumar, 2021). Social distance is a concept that refers to the social distance felt between customers and sellers. This perception of social distance can influence customer behavior in purchasing products or services (Yusup et al., 2020).

The results of research conducted by Kumar et al. (2020), stated that social distance can influence customers' perceptions of brands and their desire to buy products. This research also measures social distance based on differences in social status between customers and product brands. The research results show that the higher the social distance, the lower the customer's perception of the brand and the lower their desire to buy the product. Meanwhile, similar research results by Hidayat (2022) state that social distance conditions can influence customers' trust in brands and their tendency to buy products. In his research, social distance was measured based on gender differences between customers and product brands. The results show that the higher the social distance, the lower the customer's trust in the brand and the lower their tendency to buy the product. Therefore, a marketing strategy is needed that can optimize social distance but can still maintain customer trust and desire to buy products (Pantano et al., 2020). The business cycle must be able to create a plan that involves employees and consumers, and can develop a business model that focuses on online delivery and pickup. In addition, companies must remain flexible and able to provide different services to meet consumer needs (Sheth, 2020).

AR in e-commerce has grown rapidly, with the AR market expected to reach USD 88.4 billion by 2026 (Pacholczyk, 2022). The AR concept itself has been around for a long time, but only in the last few years has this technology really begun to develop and be widely used in various industries, including the retail sector (Kumar, 2021; Tan et al., 2022). Although the application of AR in e-commerce is still limited, AR has become an important component for leading retailers such as IKEA, Sephora, L'Oréal, and Ray-Ban (Song et al., 2020; Hsu, 2021; Wang et al., 2023) AR enhances user perception and influences ecommerce behavior by providing authentic product experiences. The development of AR services for mobile devices has enhanced the online shopping experience, making it more accessible to a wider audience (Song et al., 2020)

The aim of this research is to reveal how the role of AR as a marketing medium in the retail sector works in generating satisfaction for customers. In research conducted by Yusup et al. (2020), the use of AR on retail websites can provide a better level of consumer participation and improve consumer perceptions about products, which in turn can increase consumer purchase intentions. Meanwhile, Du et al. (2022) in their research shows the results that the use of AR in retail advertising can increase the level of advertising interaction and the level of consumer purchase intention. In addition, AR can help consumers understand products better, such as visualizing products in their home environment or consumers can try various color and design options without having to actually visit a physical store. Meanwhile, similar research was also conducted by Tan et al. (2022) whose results show that the use of AR in retail applications can improve consumers' shopping experience and influence purchase intentions. This means that AR can also help retailers increase sales and reach a wider range of consumers.

Pantano et al. (2020) in their research results also stated that the use of AR in retail applications in Italy helped retailers increase sales and reduce new product development costs. Saprikis et al. (2021) showed that factors such as performance expectations, enjoyment, and rewards directly influence users' intention to adopt AR technology in shopping malls. Meanwhile, a study conducted by Voicu et al. (2023) explored the factors that influence consumer experience and satisfaction when using AR to shop for makeup online. This study found that factors such as belief in suitability, innovativeness, feelings of involvement, social value, perceived hedonic value, and perceived utilitarian value all influence consumers' intention to use AR applications. Among these factors, social value, belief in suitability, perceived utilitarian value, and feeling involved were identified as the most significant direct influences on customer behavior when using AR apps to shop for makeup online.

Based on the phenomena and research results above, new research opportunities in the field of AR-based marketing can open up, especially in the retail sector. Several studies have discussed AR-based marketing. However, there is not much research that specifically explores the effectiveness of AR-based post-pandemic marketing in the retail sector.

2. LITERATURE REVIEW

Academic definitions of various new reality formats still do not meet structural standards well and tend to be inconsistent, often clashing with terminology used in industry (Rauschnabel et al., 2022). However, this framework

has some significant drawbacks. One is the limited use of new terms such as “Mixed Reality” or “XR,” which may more accurately describe emerging reality formats. Additionally, use of the term "Mixed Reality" in these frameworks does not always align with its use in industry, often relying on technical criteria rather than user-focused criteria that may be more relevant.

The reality-virtuality continuum generally groups formats based on the comparison between real and virtual content or the embedding of real content with virtual elements. However, these differences may not be that significant or obvious to consumers. Therefore, based on qualitative research conducted by Rauschnabel et al. (2022), a new model is proposed. This model uses the term "XR" as an umbrella concept that encompasses all forms of reality, both established and emerging, with "X" being an all-purpose label for each new form of reality. Importantly, the umbrella term “extended reality” for “XR” may cause confusion as it appears to exclude Virtual Reality (VR) rather than expand the understanding of reality. Moreover, in the view of Rauschnabel et al. (2022), Augmented Reality (AR) and VR should not be included in one continuum because of fundamental differences. They argue that the distinction between VR and AR should be based on the extent to which the physical environment is visually incorporated into the user's experience (Augmented Reality) or not (Virtual Reality).

Furthermore, in their conceptual framework, AR experiences can be divided into different levels of presence, ranging from “Assisted” to “Mixed Reality,” while VR experiences can be classified on a “telepresence” continuum that spans the range from “atomistic” to “holistic.” The high level of presence in AR creates the user's perception that the virtual content is within their physical environment, supported by a high level of realism or immersive immersion. In contrast, lower attendance rates indicate the integration of more “functional” virtual content, such as text information. In other respects, the concept of telepresence in VR describes the extent to which users feel immersed in a virtual world without being linked to their actual physical location.

3. RESEARCH METHODS

This research applies a quantitative approach with the Structural Equation Modeling-Partial Linear Squares (SEM - PLS) model which utilizes factor analysis to gain an understanding of the factors that influence each other and estimate the relationship between the variables involved (Ringle et al., 2016) . The use of this method was chosen because it is the optimal option in situations where there is a limited number of samples, but still must comply with the minimum requirements for the number of samples required. In this research, the sample size was set at 100 data (Williamson & Johanson, 2017).

The data collection process in this research involved an online survey method using a Google Form-based questionnaire for three months (March - May 2023). The questionnaire was designed with various questions and statements according to the distribution of variables (see Table 1), with the aim of obtaining data and information from the intended respondents. The sampling method in this research is Purposive Sampling (Levy & Lemeshow, 2013; Sudaryono, 2017; Gulo & Hardiwati, 2017), where data from respondents who meet the criteria for experience in purchasing retail products using the Augmented Reality feature more than twice will be selected. the data for analysis.

The measurement of indicators in this research questionnaire uses an interval scale of 1 to 10. This type of scale was chosen because it provides flexibility in interpreting the results (Neuman, 2013; Gulo & Hardiwati, 2017). The data structure in this paper contains four variables based on Augmented and Virtual Reality Marketing theory in Blokdyk (2018), including X1 (Consumer Acceptance), X2 (Purchase Experience), Y1 (E-WOM), Y2 (Customer Satisfaction). Next, these variables will be distributed into indicators (Table 1) so that they can be measured in the questionnaire.

Tabel 1. Variable Distribution

Variable	Indicator	Relevant Research
X1 (Consumer Acceptance)	X1.1. Ease of shopping using AR applications	(Du et al., 2022; Voicu et al., 2023)

	X1.2. Convenience of shopping using AR applications	(Tjiptono & Chandra, 2019)
	X.1.3. Consumer decisions to shop after using AR	(Kumar, 2021; Saprikis et al., 2021)
	X.1.4. Consumer perception of products after using AR	(You et al., 2022)
X2 (Purchasing Experience)	X2.1. Customer response to AR features	(Hackl & Wolfe, 2017; Yoo, 2023)
	X2.2. Customer affection when using AR features	(Yusup et al., 2020; Hsu, 2021)
	X2.3. Digital interactivity while shopping	(Voicu et al., 2023)
Y1 (E-WOM)	Y1.1. Customer trust in AR-based services	(Yusup et al., 2020)
	Y1.2. Product credibility	(Wassom, 2014; Smink et al., 2020; Song et al., 2020)
	Y1.3. Use of AR in choosing products	(Jung, 2019; Kumar, 2021)
Y2 (Customer Satisfaction)	Y2.1. Make a repeat purchase	(Poushneh & Vasquez-Parraga, 2017; Tjiptono & Chandra, 2019)
	Y2.2. Recommend to others	(Blokdyk, 2018; Alves & Reis, 2020)
	Y2.3. Provide positive reviews of services and products	(Kotler et al., 2016; Briedis et al., 2020; Hörtreiter, 2020)

Source: Author's elaboration, 2023

The relationships between variables to be tested (see Figure 1) in this study are as follows:

1. Influence of X1 (Consumer Acceptance) on Y1 (E-WOM)
2. Influence of X2 (Purchasing Experience) on Y1 (E-WOM)
3. The Influence of X1 (Consumer Acceptance) on Y2 (Customer Satisfaction)
4. Influence of X2 (Purchasing Experience) on Y2 (Customer Satisfaction)
5. Influence of Y1 (E-WOM) on Y2 (Customer Satisfaction)

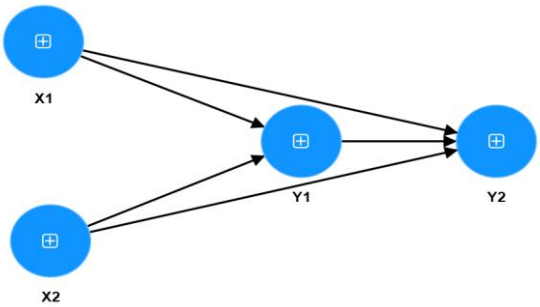

Figure 1.Variables in Path Models
Source: Author's Elaboration, 2023

Furthermore, the indicators mentioned above are translated into questions and statements that will be used in the research questionnaire as follows (Table 2):

Table 2. Research Questionnaire

Question and Statement Items
1. I find it easy to shop using AR
2. How comfortable are you when using AR applications for shopping?
3. The use of AR influences My decision to make a purchase
4. What is your perception of the product after using the AR application?
5. How do you respond to the AR features provided by the service?
6. How do you feel when you use AR features while shopping?
7. What level of digital interactivity do you experience when shopping?
8. How much do you trust AR-based services?
9. How important is product credibility in your purchasing decision?
10. To what extent does using AR help you in choosing the desired product?
11. AR service features influence my decision to make a repeat purchase
12. AR services have enhanced my shopping experience
13. I would recommend this service and product to others
14. To what extent do you provide positive reviews of services and products presented through AR applications?

Source: Author's elaboration, 2023

Finally, the collected data will be analyzed using smartPLS 4.0 software in order to carry out variable analysis. In this analysis three testing models were used. These include evaluation of measurement models, evaluation of structural models, and testing of relationships between variables.

4. RESULT AND ANALYSIS

Respondent Profile

The profiles of 149 respondents have been analyzed to provide an overview of the data distribution, as seen in Table 3. From this table, it can be seen that the respondents are almost evenly divided between men and women, with a difference of around 16.78%. There is a significant dominance of respondents who have made purchases using the Augmented Reality (AR) feature, with results of more than 95%. Demographically, respondents were dominated by individuals from East Java Province and DKI Jakarta Province, who each contributed more than 10% of the total respondents. This shows that the use of AR is more familiar in the two provinces. Purchase intensity with AR-based features also shows good results, with an average purchase of two to four times, with a difference of around 8.73% from the more frequent purchase intensity, which is more than four times. Nearly 50% of respondents reported that they purchased fashion products such as clothes, shoes, dresses, and the like using AR features. Apart from that, the dominance of purchases via the AR feature is made through social media such as Instagram for Business, Tiktok and other platforms. Overall, the results of this analysis provide a clearer picture of the characteristics of respondents in the context of using AR in product purchases.

Table 3. Respondent Profile

Profile	Classification	Numbers	Percentage
Gender	Male	62	41,61%
	Female	87	58,39%
Have you ever made a purchase using the AR feature?	Once	143	95,97%
	Never	6	4,03%

Residence	Aceh	0	0,00%
	North Sumatra	1	0,67%
	South Sumatra	0	0,00%
	West Sumatra	1	0,67%
	Bangka Belitung	2	1,34%
	Bengkulu	1	0,67%
	Riau	0	0,00%
	Riau islands	2	1,34%
	Jambi	6	4,03%
	Lampung	4	2,68%
	West Kalimantan	7	4,70%
	East Kalimantan	4	2,68%
	South Kalimantan	4	2,68%
	Central Kalimantan	3	2,01%
	North Kalimantan	5	3,36%
	Banten	2	1,34%
	DKI Jakarta	22	14,77%
	West Java	9	6,04%
	Central Java	12	8,05%
	Special Region of Yogyakarta	7	4,70%
	East Java	38	25,50%
	Bali	9	6,04%
	East Nusa Tenggara	0	0,00%
	West Nusa Tenggara	1	0,67%
	Gorontalo	0	0,00%
	West Sulawesi	0	0,00%
	Central Sulawesi	1	0,67%
	North Sulawesi	1	0,67%
	Southeast Sulawesi	0	0,00%
	South Sulawesi	0	0,00%
	North Maluku	1	0,67%
	Maluku	0	0,00%
	West Papua	0	0,00%
	Papua	1	0,67%
	Central Papua	0	0,00%
	Papua Mountains	2	1,34%
	South Papua	1	0,67%
	Southwest Papua	0	0,00%
	WNA/Foreign	2	1,34%
Purchase Intensity Using AR Features	Only once	2	1,34%
	2 - 4 times	77	51,68%
	More than 4 times	64	42,95%
Type of Goods Purchased	Cosmetics (Lipstick, Powder, Etc.)	34	22,82%
	Fashion (Clothes, Shoes, Dresses, Etc.)	70	46,98%
	Accessories (Watches, Glasses, Jewelry, Etc.)	39	26,17%
Shopping Media Using AR Features	E-Commerce Marketplace (Shopee, LazLive, Amazon Fashion's, Dll)	43	28,86%
	Application from Retail Stores	16	10,74%
	Media Social (Instagram for Business, Tiktokshop, Dll)	84	56,38%

Source: Author's elaboration, 2023

Evaluation of Measurement Models

This research evaluates the measurement model (inner model) through a convergent validity test by looking at the Convergent Validity Test value with a minimum Average Variance Extracted (AVE) value >0.5, Reliability Test with a Composite Reliability value >0.7.

Table 3. Results of Convergent Validity Test and Reliability Test

Variable	Composite Reliability	AVE
Consumer Acceptance (X1)	0.870	0.626
Buying Experience (X2)	0.806	0.581
E-WOM (Y1)	0.848	0.651
Customer Satisfaction (Y2)	0.878	0.643

Source: Author's elaboration, 2023

The convergent validity test (see Table 3) shows that the AVE results for all variables are >0.5, so the data obtained for this research is valid. Meanwhile, the Composite Reliability results show that the value of each variable has a value of >0.7, so it can be concluded that this research has good data reliability and validity.

Table 4. Hasil Uji Discriminant Validity-Heterotrait-monotrait Ratio

	X1	X2	Y1	Y2
X1				
X2	0.808			
Y1	0.576	0.923		
Y2	0.589	0.705	0.841	

Source: Author's elaboration, 2023

Furthermore, table 4 shows that the discriminant validity test results were found to be appropriate because the value of variable Y2 was correlated with all variables (X1, X2, and Y1). So that valid data has been obtained in this research.

Structural Model Evaluation (Outer Model)

Table 5. Structural Model Evaluation Results Based on the R-Square Test

	R-Square	R-Square Adjusted
Y1	0.408	0.396
Y2	0.480	0.463

Source: Author's elaboration, 2023

Also presented is an evaluation of the structural model with the R-Square test (see Table 5) which shows a number close to 1 but not yet exceeding the middle value of the R-Square test criteria, namely 0 to 1. So, the variability in the dependent variable in this study has an adequate model. Good. Overall, the results of the analysis show that this study has good data reliability and validity, with a model that is quite good at explaining variability in the dependent variable.

Table 6. Structural Model Evaluation Results Based on the F-Square Test

	X1	X2	Y1	Y2
X1			0.013	0.052
X2			0.352	0.007
Y1				0.292
Y2				

Source: Author's elaboration, 2023

Table 6 shows the results of the F Square test indicating the relative contribution of the independent variable to the dependent variable in the structural model. The contribution of the independent variables as a whole has quite a significant influence as proven by variable X1 on Y1 and variable X2 on Y2 which has a less contributive value.
Hypothesis testing

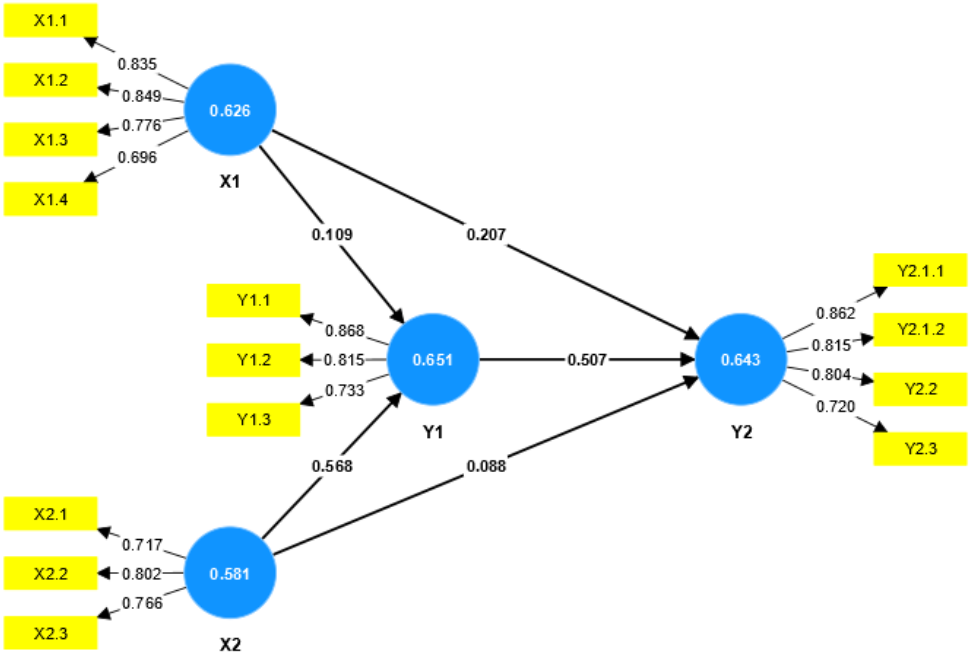

Figure 6.Analysis Results
Source: Author's Elaboration, 2023

Hypothesis testing is carried out by observing the Path Coefficients value (see table 7) which describes the relationship between variables X1 and Y1 with a path coefficient of 0.138, indicating that X1 has an influence of 0.138 units on Y1. Likewise, X2 has a path coefficient of 0.556 on Y1, indicating an influence of 0.556 units on Y1. In addition, a stronger relationship is seen between Y2 and Y1 with a path coefficient of 0.656, indicating a contribution of 0.656 units of Y1 to the increase in Y2. Apart from that, hypothesis testing was also carried out by looking at the value of the total effects (see table 8).

Table 7. Path Coefficients

	X1	X2	Y1	Y2
X1			0.138	
X2			0.556	
Y1				0.656
Y2				

Source: Author's elaboration, 2023

Tabel 8. Total Effects Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P Values
X1 -> Y1	0.109	0.116	0.105	1.038	0.299
X1 -> Y2	0.262	0.258	0.125	2.102	0.036
X2 -> Y1	0.568	0.561	0.085	6.695	0.000
X2 -> Y2	0.376	0.378	0.102	3.686	0.000
Y1 -> Y2	0.507	0.515	0.102	4.973	0.000

Source: Author's elaboration, 2023

The results of the total effect analysis on the original sample provide an overview of the relative influence of the independent variables (X1 and X2) on the dependent variables (Y1 and Y2) in the model. It was found that X1 had a less significant influence on Y1, but had a significant influence on Y2, with a relevant p-value. Meanwhile, X2 has a very significant influence on Y1 and Y2, with a very low p-value. Apart from that, the relationship between Y1 and Y2 is also very significant. These results provide a deeper understanding of the relative contribution of each variable to the other variables in the model, which can aid in understanding the relationships in this study.

Discussion

How AR Can Reveal Marketing Optimization

The increasingly rapid development of digitalization has indirectly made Augmented Reality (AR) technology provide a unique experience for consumers, which allows them to "animate" the digital world in their real world. The importance of easy access in shopping using AR applications cannot be ignored. The findings of this research show that this convenience aspect has a significance of 83.5% in influencing consumers' decisions to make repeat purchases. When consumers feel that using AR applications makes shopping easier for them, they are more likely to return and make repeat purchases. This indicates that the ease of accessibility and use of AR applications has a positive impact on consumers' shopping experience (Blokdyk, 2018; Jung, 2019). Apart from the convenience aspect, comfort is also an important factor in consumer acceptance of AR which has a significance of 84.9% in influencing consumers' decisions to make repeat purchases. When consumers feel comfortable using AR technology during the shopping process, they are more likely to return and make repeat purchases (Du et al., 2022). This convenience creates a positive and satisfying shopping experience for consumers.

Consumers' decisions to shop after using AR also have a significant impact on shopping behavior. This decision influenced 77.6% of consumers' decisions to make repeat purchases. When consumers feel that the experience of using AR positively influences their shopping decisions, they are more likely to return and make repeat purchases (Alves & Reis, 2020). This shows that AR can be used as an effective tool in influencing consumers' decisions to shop repeatedly (Jung, 2019).

Finally, the influence on consumer perceptions of products after using AR is also a crucial aspect. The significance level of influence reached 69.6% in this research, which has an impact on consumer decisions in making repeat purchases. When consumers experience that AR has improved the way they view products, they are more likely to return and make repeat purchases (Kumar, 2021). AR provides an opportunity to provide additional information about products and influence consumer perceptions with positive effects (Yoo, 2023). With a deeper understanding of how consumers perceive AR, retail companies can optimize their marketing strategies and campaigns, and can take advantage of digitalization opportunities to achieve success that aligns with their vision.

Retail Opportunities In Purchasing Interactivity

Interactivity in indirect purchasing has opened up new opportunities for retail companies to interact with consumers, influence purchasing decisions, and increase consumer loyalty. As the findings from this research reveal the extent to which AR enables deeper interactions between consumers, products and retail companies (Briedis et al., 2020). One important element in the consumer experience when making purchases using AR is the extent to which this technology makes the shopping process easier. When consumers respond that using AR applications makes the shopping process easier and smoother (Ayman, 2023), they tend to give positive recommendations to others (Tan et al., 2022; King & Murillo, 2023). This form of consumer response indirectly creates a positive form of interactivity through product recommendations.

The level of consumer affection when shopping using AR applications, apart from the form of response, also shows a significant influence of 80.2% on consumer decisions in recommending services and products to other people. When consumers feel ease, comfort and satisfaction in using AR applications during the shopping process. They are more likely to give positive recommendations to others (Kumar, 2021). This convenience creates a pleasant shopping experience and motivates consumers to share this experience with others (Hackl & Wolfe, 2017; Alves & Reis, 2020).

Having a choice of retail products during the shopping process using the AR feature also plays a role in purchasing interactivity. 76.6% of product choices influence consumer recommendations to other people regarding a product or service. This means that when consumers feel that the experience of using AR with a choice of products can have a positive influence on their decision to shop, they are more likely to provide recommendations for products that they tend to like to other people (Smink et al., 2020). This confirms that AR can be used as an effective tool in guiding consumers' decisions (Hörtreiter, 2020) in choosing products and encouraging them to share their positive experiences (Blokdyk, 2018; Kumar, 2021).

AR Performance in Achieving Customer Satisfaction Levels

Rapid technological developments have indirectly shaped competitive business conditions. Understanding the factors that influence customer satisfaction is very vital for companies. Customer satisfaction is no longer just the ultimate goal in efforts to maintain or increase market share, but is also the basis for building sustainable relationships with customers (Ayman, 2023). Currently, retail companies are increasingly active in exploring the potential of new technologies such as AR, as a tool for understanding consumer behavior and as a way to increase customer satisfaction levels (King & Murillo, 2023). This research will also explore the hidden dimensions of customer satisfaction that emerge through shopping experiences using AR technology (Yoo, 2023). This research will reveal a comparison between how consumer acceptance of AR technology and purchasing experiences using AR can influence the level of customer satisfaction. In this way, a deeper understanding of the extent to which AR technology can influence customer perceptions and behavior will be gained, as well as how this impacts customer satisfaction levels.

The significance results between the variables of consumer acceptance of AR technology and purchasing experience using AR reveal interesting differences. The variable consumer acceptance of AR technology has a total influence of 20.7%. That is, this reflects that factors for consumers in accepting and adopting AR technology in

shopping such as ease of shopping, comfort, shopping decisions, and perceptions of products after using AR have contributed to consumer acceptance of this technology and have a significant effect on the level of customer satisfaction. . The purchasing experience variable using AR has a total influence of 8.8%, which can be said to be quite significant. This highlights the extent to which customers' experiences when shopping with AR can influence customer satisfaction levels (Tan et al., 2022). Customer response to AR features, customer affection when using AR, and digital interactivity when shopping all play a role in shaping a positive shopping experience.

The competitive advantages of each variable such as indicators that influence consumer acceptance of AR technology are "Convenience of shopping using AR applications" and "Ease of shopping using AR applications" which have the highest influence values, namely 84.9% and 83.5% respectively. This indicates that the comfort and ease of using AR technology in retail shopping plays a major role in influencing customer satisfaction (Jung, 2019; Kumar, 2021). Meanwhile, in the Purchase Experience variable using AR, the indicator "Customer affection when using the AR feature" (80.2%) has the highest significance, indicating that the level of affection or positive feelings felt by customers when using the AR feature significantly influences the level of customer satisfaction (Furht & Furht, 2011; Hörtreiter, 2020).

“Digital interactivity when shopping” (76.6%) and “Customer response to AR features” (71.7%) also had a positive impact on customer satisfaction, although their levels of significance differed. It can be interpreted that digital interactivity when shopping can stimulate a certain aspect of satisfaction for customers. These results suggest that shopping experiences powered by AR technology are not only about the technical or visual features provided by AR, but also about the extent to which consumers can interact with this technology and the extent to which companies respond to their needs and desires. Creating a comprehensive and satisfying shopping experience for customers will create a positive impact on customer retention and business growth for retail entrepreneurs. Indicators in the level of customer satisfaction such as making repeat purchases (86.2%), improving the shopping experience (81.5%), recommending to others (80.4%), and providing positive reviews of services and products (72%), all have significant impact results. tall. This means that shopping using AR service features provides a certain level of satisfaction for customers (Hörtreiter, 2020). Thus, a deeper understanding of how AR plays a role in creating a unique level of satisfaction for customers can be an invaluable basis for companies, especially in reviewing and improving their marketing strategies (Tjiptono & Chandra, 2019). This effort aims to increase customer satisfaction and achieve a superior position in business competition which is increasingly fierce and changing along with the use of AR-based services (Alves & Reis, 2020; Du et al., 2022).

This research also presents an element of novelty in science, especially in understanding the role of AR in the world of marketing, "Augmented Retail Marketing". Although AR technology has been around for some time, its impact on customer satisfaction levels is still a relatively new area and not yet fully understood, especially in the retail sector. Through an in-depth comparison between consumer acceptance of AR technology and purchase experiences using AR, this research illustrates the extent to which AR can contribute to higher levels of customer satisfaction. Therefore, this research provides a valuable contribution in understanding how to effectively integrate AR technology in order to increase customer satisfaction and how to incorporate it in a company's marketing strategy.

The development of an increasingly competitive business era encourages this research to provide insights that are of high value for companies that want to utilize AR technology as a tool to increase their customer satisfaction. It also forms the basis for further research into how AR technology can be optimized across various industrial sectors to achieve better results. With a deeper understanding of the hidden dimensions that emerge through the use of AR in influencing customer satisfaction, companies can take more effective steps in building long-term relationships with their customers and achieve sustainable success in the ever-evolving digital era.

AR Vs Pre-Existing Marketing Practices

In the context of the early stages of AR Marketing as a stand-alone discipline, there may still be differences that have not yet been fully revealed. However, in this study, we will discuss some significant examples. First of all, reality is generally three-dimensional (3D) and not limited by artificial boundaries. For example, we can consider a sports fan whose home is decorated with branded items that can be combined with almost any other physical object, such as furniture. Therefore, "normal reality" includes what we experience, and have always experienced, in the physical

world. On the other hand, digital media content is usually abstract and flat in 2D form. Although “traditional online marketing” provides various advantages over “offline marketing,” including interactivity, viral effects, or user-generated content, such content is generally limited by the type/size of hardware used and regardless of the user's physical environment. For example, branded sports team experiences on Instagram can only be displayed on the device's screen, for example, photos of players and matches. Compared to "normal reality," the size restrictions and isolation of physical objects place limitations on the experience itself. Additionally, interface technologies generally do not fully match natural behavior for example, using a mouse to select and move virtual objects rather than moving physical objects with the hand. Therefore, we argue that this kind of experience can be called “reduced reality” (Hackl & Wolfe, 2017). When we talk about pervasive AR through AR glasses or AR contact lenses worn throughout the day, digital content can be spatially embedded in the real world (Rauschnabel et al., 2022). For example, sports fans can embed virtual objects, including 3D holograms of their favorite players or virtual mascots, in places they frequently visit, such as their home, their commute to work, or their office. Multi-user AR and metaverse AR also allow different users to share and experience these hybrid worlds together, thereby creating a community experience, which may reflect these enriched worlds into the VR space to reach separate people physically. With the exception of AR glasses' field of view, screen size is no longer a limitation. Advances in interface technology allow users to interact with AR content as if they were interacting with physical objects. These new functions also increase the user's perceived control over their environment (enriched reality). For example, a sports fan may rarely have a live mascot in the room. However, with the presence of anthropomorphized holograms in AR (Rauschnabel et al., 2019), this has become possible. In other words, AR can combine the benefits of “reduced reality,” such as interactivity or accessibility, with the benefits of “normal reality,” such as unlimited space, three dimensions, or natural interaction with objects. While we recognize that this kind of AR scenario is not yet common, recent advances in technology, such as effective tracking hardware, precise object recognition algorithms, and accurate satellite navigation, show such potential.

Second, AR is concerned with embedding virtual information in specific consumption situations and contexts. For example, customers of cosmetic brands can virtually try new makeup on their faces via AR when they are curious about how it will look on them. Traditional marketing typically cannot target specific content to specific users and contexts. For example, the same cosmetics brand can target consumers via social media based on estimates of consumer needs that vary in relevance across different situations. However, traditional promotional materials in print or social media may include photos of how their makeup looks on models rather than on individual customers. While many digital channels provide various means of engagement for example, comment or like functions, AR's engagement potential is much greater, for example, by allowing consumers to play with brands with interactivity like makeup on one's face. Additionally, the physical context in which an AR experience occurs may be more relevant in AR than in many other marketing approaches (Gatter et al., 2022). Instead of imagining in a physical store how a particular product would fit in a person's home, AR allows consumers to virtually explore different styles. The integration of AR features into social media shows potential and is on the strategic agenda of many social networks. This development requires research that measures and explains how to retain customers through increased engagement and loyalty (Smink et al., 2020; Saprikis et al., 2021; Du et al., 2022).

Third, most marketers create content to promote existing products or services. For example, promotional videos, advertisements, or product information are common content in online stores, and competitors are generally companies that offer similar products or services. The role of content can change drastically in AR Marketing. Media producers can create AR versions of physical products that serve as virtual alternatives to physical products (e.g., AR TV apps replacing TV sets) and consumers appear to be quite open to such alternatives (Rauschnabel et al., 2022). Therefore, marketers should treat AR content as a new product category (Lemon & Verhoef, 2016; Saprikis et al., 2021). We propose various challenges regarding the ownership of virtual and physical objects. With advances in sensor technology (e.g., 3D scanners), people can scan physical objects (e.g., statues in museums) and place hologram versions in AR in their homes, which may have undergone changes. Likewise, ownership of virtual products in a shared space may be challenging. Can brands place branded content on someone else's physical property without permission? Can other users copy virtual objects? How can these elements be protected? Non-Fungible Tokens (NFT) could be a potential solution. AR extensions, such as those offered by Lego (Rauschnabel et al., 2019; Smink et al., 2020), can provide value to customers during use by adding additional features to the product. This AR feature is

digital and not part of a physical product, so new revenue models may emerge such as pay per use, joint promotions, external banner advertising.

Fourth, contemporary marketing approaches use a lot of data originating from consumers' online activities which are used by companies to estimate product preferences (Saprikis et al., 2021; Tan et al., 2022). In AR Marketing, the amount of data can be much larger, if not legally limited. More specifically, AR technology works by using multiple sensors such as GPS and cameras that track not only the user, but also the user's environment (Song et al., 2020; Yoo, 2023). AR enables the collection of data about a user's physical and social environment such as products owned, activities, or interactions with other people (Song et al., 2020; Tan et al., 2022; Wang et al., 2023). This might even work in situations where the camera reaches its limits, for example due to darkness. (Wang et al., 2023) demonstrated the possibility of estimating RGB photographs of human faces from data acquired via standard depth sensors. As our definition of AR Marketing highlights ethical implications, marketers must also consider the privacy of others (Voicu et al., 2023).

5. CONCLUSION

This research has provided in-depth insight into how Augmented Reality (AR) technology influences customer satisfaction in shopping. The findings from this research reveal that AR has a significant impact of consumer acceptance, and purchasing experience on customer satisfaction (Blokdyk, 2018). The results of this research also reveal that factors such as ease of shopping and comfort in using AR technology play a key role in influencing consumers' decisions to make repeat purchases (Jung, 2019). This indicates that retail companies can utilize AR as an effective tool to create a better shopping experience for customers and encourage customer retention (Hörtreiter, 2020; Du et al., 2022). Furthermore, digital interactivity while shopping and customer response to AR features, although with different levels of significance, also have a positive impact on customer satisfaction. This shows that the shopping experience supported by AR technology is not only about technical aspects (Kumar, 2021), but also about the extent to which consumers can interact with this technology and the extent to which companies respond to their needs (Tan et al., 2022; King & Murillo, 2023).

Based on the findings of this research, the following are the recommendations proposed from this research. First, retail companies should focus on increasing the ease and convenience of using AR technology in their application development. such as a more intuitive interface, better user guidance, and improved visual quality. The easier and more comfortable it is for consumers to use AR, the more likely they will return and make repeat purchases. Furthermore, the company's response to customer input and needs when using AR technology is also necessary. Companies must ensure that they quickly respond to customer feedback, resolve issues, and provide necessary support. This will help in forming a positive customer perception of the company. Apart from that, retail companies are expected to be able to educate customers about the benefits and potential of AR technology in shopping. The more consumers understand how to use this technology to have a better shopping experience, the more likely they will take advantage of it. Lastly, more research into the use of AR technology in the retail sector is needed. This research can help companies better understand how to optimize their marketing strategies and measure the impact of AR technology on customer satisfaction in greater detail.

Companies can utilize AR technology effectively to increase their customer satisfaction which can increase their advantage in this increasingly competitive business era. This is not only about how to adopt technology, but also about understanding how this technology influences customer perceptions and behavior and how to utilize it optimally in marketing strategies to achieve customer satisfaction.

Limitation

This study may be limited by the available data. If the data used in a study is limited in demographic coverage such as gender and age, then the results may not be generally applicable. Furthermore, research findings may not be directly generalizable to the entire population or industry because the research did not capture detailed data on specific companies and retail goods. This research may also have limitations in terms of time. If the data used is no longer relevant or if trends in the industry change rapidly, then the research results may have limited value. On the other

hand, this research includes references to several previous studies, however, limitations in access to relevant literature or research can affect the diversity of references to produce good quality research. Finally, research limitations can also be related to limited knowledge and experience in preparing research. This can influence the research point of view and interpretation of research results.

REFERENCE

Alves, C., & Reis, J. L. (2020). The Intention to Use E-Commerce Using Augmented Reality - The Case of IKEA Place. In C. Ferrás, Á. Rocha, V. H. Medina García, & C. E. Montenegro Marin (Eds.), Information Technology and Systems: Proceedings of ICITS 2020. Springer International Publishing. https://doi.org/10.1007/978-3-030-40690-5_12

Ayman, U. (Ed.). (2023). A New Era of Consumer Behavior - In and Beyond the Pandemic. IntechOpen. doi: 10.5772/intechopen.100829

Blokdyk, G. (2018). Augmented and Virtual Reality Marketing a Clear and Concise Reference. Brendale: Art of Service.

Briedis, H., Kronschnabl, A., Rodriguez, A., & Ungerman, K. (2020, May 14). Adapting to the next normal in retail: The customer experience imperative. McKinsey. Retrieved November 19, 2022, from https://www.mckinsey.com/industries/retail/our-insights/adapting-to-the-next-normal-in-retail-the-customer-experience-imperative

Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, r., & Hofacker, C. (2019). Technological disruptions in services: lessons from tourism and hospitality. Journal of Service Management, 30(4), 484-506. https://doi.org/10.1108/JOSM-12-2018-0398

Cocchi, M. (Ed.). (2019). Data Fusion Methodology and Applications (31st ed.). Amsterdam: Elsevier Science.

Du, Z., Liu, J., & Wang, T. (2022, Juni). Augmented Reality Marketing: A Systematic Literature Review and an Agenda for Future Inquiry. Frontiers, 13(2022). https://doi.org/10.3389/fpsyg.2022.925963

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., & Karjaluoto, H. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. International Journal of Information Management, 59, 102168. https://doi.org/10.1016/j.ijinfomgt.2020.102168

Furht, B., & Furht, B. (Eds.). (2011). Handbook of Augmented Reality. New York: Springer.

Gatter, S., Hüttl-Maack, V., & Rauschnabel, P. A. (2022, March). Can augmented reality satisfy consumers' need for touch? Psychology & Marketing, 39(3), 508-523. https://doi.org/10.1002/mar.21618

Gulo, W., & Hardiwati, Y. (2017). Metodologi Penelitian. Jakarta: Rajagrafindo Persada.

Hackl, C., & Wolfe, S. G. (2017). Marketing New Realities: An Introduction to Virtual Reality and Augmented Reality Marketing, Branding, and Communications. Florida: Meraki Press.

Hidayat, A. (2022). Effect of Information Quality, Social Psychological Distance, and Trust on Consumer Purchase Intentions on Social Commerce Shopee. Archives of Business Research, 10(1), 158-172. http://dx.doi.org/10.14738/abr.101.11615

Hilken, T., Chylinski, M., Keeling, D. I., Heller, J., Ruyter, K. d., & Mahr, D. (2021). How to strategically choose or combine augmented and virtual reality for improved online experiential retailing. Psychology & Marketing, 39(3), 495-507. https://doi.org/10.1002/mar.21600

Hinsch, C., Felix, R., & Rauschnabel, P. A. (2020). Nostalgia beats the wow-effect: Inspiration, awe and meaningful associations in augmented reality marketing. Journal of Retailing and Consumer Services, 53, 101987. https://doi.org/10.1016/j.jretconser.2019.101987

Hörtreiter, S. (2020). The Strong Potential of Augmented Reality for Experiential Marketing: An Empirical Examination of the Impact of Augmented Reality Brand Experiences on Consumer-Brand Relationships (1st ed.). Munich: Grin Verlag.

Hsu, S. H.-Y. (2021, September). "Yes, we do. Why not use augmented reality?" customer responses to experiential presentations of AR-based applications. Journal of Retailing and Consumer Services, 62. https://doi.org/10.1016/j.jretconser.2021.102649

Ilhami, Rizky (2023) Strengthening Policy Networks to Create Effective Public Policies. Neo Journal of Economy and Social Humanities (JENESH) 2(3), 216-222

Jung, T. (2019). Augmented Reality and Virtual Reality: The Power of AR and VR for Business (M. C. tom Dieck, Ed.). Berlin: Springer International Publishing.

Jusuf, Dewi Indriani (2023) Utilizing Corporate Social Responsibility. Neo Journal of Economy and Social Humanities (JENESH) 2 (4), 271-277.

King, C., & Murillo, E. (Eds.). (2023). A Research Agenda for Brand Management in a New Era of Consumerism. Cheltenham: Edward Elgar Publishing, Incorporated.

Kotler, P., Kartajaya, H., & Setiawan, I. (2016). Marketing 4.0: Moving from Traditional to Digital. New Jersey: John Wiley & Sons, Inc.

Kumar, A., Gawande, A., & Brar, V. (2020). Impact of social distancing on marketing communication. Vidyabharati International Interdisciplinary Research Journal, 11(1), 267-270. http://dx.doi.org/10.5281/zenodo.6666893

Kumar, T. S. (2021). Study of Retail Applications with Virtual and Augmented Reality Technologies. Journal of Innovative Image Processing (JIIP), 3(2), 144-156. https://doi.org/10.36548/jiip.2021.2.006

Laato, S., Islam, A.K.M. N., Farooq, A., & Dhir, A. (2020). Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach. Journal of Retailing and Consumer Services, 57(1). https://doi.org/10.1016/j.jretconser.2020.102224

Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. Journal of Marketing, 80(6). https://doi.org/10.1509/jm.15.0420

Levy, P. S., & Lemeshow, S. (2013). Sampling of Populations: Methods and Applications. New Jersey: John Wiley & Sons, Inc.

Milgram, P., Takemura, H., Utsumi, A., & Kishino, F. (1995, December). Augmented reality: a class of displays on the reality-virtuality continuum. Telemanipulator and Telepresence Technologies, 2351. https://doi.org/10.1117/12.197321

Neuman, W. L. (2013). Social Research Methods: Qualitative and Quantitative Approaches. UK: Pearson Educated Limited.

Pacholczyk, D. (2022, July 28). Virtual Try-On Technology in 2022: Future of E-Commerce. Codete. Retrieved October 2, 2023, from https://codete.com/blog/virtual-try-on-technology-in-2022-can-it-be-the-future-of-e-commerce

Pantano, E., Pizzi, G., Scarpi, D., & Dennis, C. (2020). Competing during a pandemic? Retailers' ups and downs during the COVID- 19 outbreak. Journal of Business Research, 116(1). https://doi.org/10.1016/j.jbusres.2020.05.036

Poushneh, A., & Vasquez-Parraga, A. Z. (2017, January). Discernible impact of augmented reality on retail customer's experience, satisfaction and willingness to buy. Journal of Retailing and Consumer Services, 34, 229-234. https://doi.org/10.1016/j.jretconser.2016.10.005

Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. Journal of Retailing and Consumer Services, 49, 43-53. https://doi.org/10.1016/j.jretconser.2019.03.004

Rauschnabel, P. A., Felix, R., Hinsch, C., Shahab, H., & Alt, F. (2022, Agustus). What is XR? Towards a Framework for Augmented and Virtual Reality. Computers in Human Behavior, 133, 107289. https://doi.org/10.1016/j.chb.2022.107289

Ringle, C. M., Sarstedt, M., Hult, G. T. M., & Hair, J. F. (2016). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). California: SAGE Publications.

Robertson, A. (2016, April 12). Mark Zuckerberg says augmented reality glasses are 'what we're trying to get to'. The Verge. Retrieved July 27, 2023, from https://www.theverge.com/2016/4/12/11415366/mark-zuckerberg-facebook-f8-

virtual-augmented-reality-glasses

Saprikis, V., Avlogiaris, G., & Katarachia, A. (2021). Determinants of the Intention to Adopt Mobile Augmented Reality Apps in Shopping Malls among University Students. Journal of Theoretical and Applied Electronic Commerce Research, 16(3). https://doi.org/10.3390/jtaer16030030

Schein, K. E., & Rauschnabel, P. A. (2021). Augmented Reality in Manufacturing: Exploring Workers' Perceptions of Barriers. IEEE, 70(10), 3344 - 3357. https://doi.org/10.1109/TEM.2021.3093833

Sheth, J. (2020). Impact of Covid-19 on consumer behavior: Will the old habits return or die? Journal of Business Research, 117(1). https://doi.org/10.1016/j.jbusres.2020.05.059

Smink, A. R., Reijmersdal, E. A. v., Noort, G. v., & Neijens, P. C. (2020). Shopping in augmented reality: The effects of spatial presence, personalization and intrusiveness on app and brand responses. Journal of Business Research, 118. https://doi.org/10.1016/j.jbusres.2020.07.018

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 & People, 33(4), 1214-1234. https://doi.org/10.1108/ITP-02-2019-0092

Sudaryono. (2017). Metodologi Penelitian. Depok: Rajawali Pers.

Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2022). Augmented Reality In Retail And Its Impact On Sales. Research Collection Lee Kong Chian School Of Business, 1(2022). https://doi.org/10.1177/0022242921995449

Tjiptono, Fandy, Chandra, Gregorius. (2019). Service, Quality Dan Customer Satisfaction Edisi 5 (5). Yogyakarta: Andi.

Tom Dieck, M. C., Jung, T. H., & tom Dieck, D. (2018). Enhancing art gallery visitors' learning experience using wearable augmented reality: generic learning outcomes perspective. Current Issues in Tourism, 21(17), 2014-2034. https://doi.org/10.1080/13683500.2016.1224818

Voicu, M. C., Sîrghi, N., & Toth, D. M.-M. (2023). Consumers' Experience and Satisfaction Using Augmented Reality Apps in E-Shopping: New Empirical Evidence. Applied Sciences, 13(17), 9596. https://doi.org/10.3390/app13179596

Wang, W., Cao, D., & Ameen, N. (2023). Understanding customer satisfaction of augmented reality in retail: a human value orientation and consumption value perspective. Information Technology & People, 36(6), 2211-2233. https://doi.org/10.1108/ITP-04-2021-0293

Wassom, B. (2014). Augmented Reality Law, Privacy, and Ethics: Law, Society, and Emerging AR Technologies. Amsterdam: Elsevier Science.

Williamson, D. A. (2020, August 26). Augmented Reality in Social Media. Insider Intelligence. Retrieved May 4, 2023, from https://www.insiderintelligence.com/content/augmented-reality-in-social-media

Williamson, K., & Johanson, G. (Eds.). (2017). Research Methods: Information, Systems, and Contexts. UK: Chandos Publishing.

Yoo, J. (2023). The effects of augmented reality on consumer responses in mobile shopping: The moderating role of task complexity. Science Direct, 9(3). https://doi.org/10.1016/j.heliyon.2023.e13775

Yusup, D. K., Badriyah, M., Suyandi, D., & Asih, V. S. (2020). Pengaruh Bencana Covid-19, Pembatasan Sosial, dan Sistem Pemasaran Online Terhadap Perubahan Perilaku Konsumen dalam Membeli Produk Retail. Digital Library Universitas Sunan Gunung Djati, 1(1), 1-10. https://digilib.uinsgd.ac.id/30872/