

The Rise of Online Shopping with Augmented Reality, for the New Hope of Indonesian Economics Rebound

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ABSTRACT

Indonesian economics growth is in the lowest position at the Q1 of 2020 due to pandemic Covid-19, including in business sector. Now, business sector is starting to raise up by maximizing online channel and develop their technology. E-commerce/Marketplace in Indonesia has involved AR technology in process of online shopping. This technology is new for consumer of marketplace in Indonesia. Aim of this research is to find out the possibility behaviour of consumer in online shopping with Augmented Reality technology based on gender and age. This research is using primary data by distributing questionnaires to 62 respondent domiciled in Palembang with non-probability sampling method and convenience sampling technique. Data analyse with crosstab using SPSS. This research found that almost all consumers base on gender and age are interested in using AR technology on online shopping. It also found that possible behaviour most of the consumer after using AR is to add the product on chart.

Keywords: *Augmented Reality, Possibility Behaviour, Demography, Online Shopping, Marketplace,.*

1. INTRODUCTION

Since Indonesia was hit by the Covid-19 Pandemic, people began to form new behaviours, especially in terms of shopping. At the beginning of the Covid-19 pandemic in early 2020, the government imposed a WFH policy which caused the decrease of income for many businesses companies. Decreasing of income has even forced business owners to close their businesses. The decreasing of income in several sectors made Indonesia experience turmoil, especially in the economic field. Badan Pusat Statistik (BPS) stated that economic growth in the first quarter of 2020 was the lowest position since 2001 [1]. Covid-19 has caused the Indonesian economics experiences a slump in the second quarter of 2020, until the real GDP contracted and its value became IDR 2,590 trillion [2].

One of the triggers for this condition is the decline of income from business sector. Many business companies have to close due to the restriction of activity policy that implemented during pandemic. Many activities should be done from home makes the fulfilment of community needs is now starting to be done via online in Indonesia.

This new behaviour makes many companies and small business who used to wait for their consumers come to the store, have to do something to “find” their consumers. The companies that were “down” since the beginning of the pandemic starting to raise up by maximizing their online channels to meet their consumers. Improvements to the distribution system through online media are carried out to provide solutions to the obstacles faced by consumers during shopping online.

Regarding to this improvement, marketplace in Indonesia has started to developed features that assist consumers to visualize and match their target product with themselves via the camera phone. This technology was called Augmented Reality (AR). Augmented Reality is an interactive combination of 3D forms between real image and virtual images in real time [3].

Marketplace in Indonesia that already developed this technology are Shopee Indonesia and JD.ID. Shopee implemented this technology since July 2019 on the beauty product [4]. While, JD.ID started to use of AR technology in October 2020 which also used in beauty products [4].

AR technology expected to be helpful in raising up the online shopping and bringing the new hope for economics rebounds. Since this technology is new for consumer of marketplace in Indonesia, it would be necessary to figure out the consumer behaviour in online shopping and how will they responds this technology based on their demographic characteristic. The result of this study could be used as the source of information for further research of Augmented Reality in marketplace and also will help business companies to determine what steps need to be taken to improve their online channel and raise up for the new hope of Indonesian economics rebound.

2. LITERATURE REVIEW

2.1. Unified Theory of Acceptance and Use of Technology

UTAUT theory is a development of Technological Acceptance Model (TAM) on the technology acceptance process. Based on UTAUT theory, there are differences effects that occur on technology acceptance based on gender. This theory says that men are more affected by perceived usefulness and women are more affected by perceived convenience. It can be concluded that if the target user of the application is women, it is necessary to increase the perception of convenience and if the target user is men, it would be necessary to increase the perception of usefulness This theory supports many research that study about the differences behaviour of consumer based on their characteristics.

The differences in behaviour that occur in new users of technology based on demographic characteristics such as gender and age need to be studied by each company in order to assist in designing marketing strategy to gain profit. Marketing strategy will be effective if it's know the exact segmentation and learn their behaviour.

Regarding to previous research in Augmented Reality, research study has found that there are differences behaviour occur between groups such as gender, previous experience, type of application [5]. Another research in Augmented Reality found that there are significant differences between the experiences based on gender and different ages while using AR for playing Pokémon Go [6]

3. RESEARCH METHOD

Preliminary research was conducted by distributing questionnaires to respondents to see how they behaved with online shopping. The population taken is consumers who have shopped online during the pandemic in Palembang with a sample of 62 respondents. The questioner items designed to see the shopping behaviour in ecommerce/marketplace and possibility behaviour with Augmented Reality technology as initial study for

further research. The sample method uses is non-probability sampling. Sampling were taken using a convenience sampling technique with the following characteristics:

1. E-commerce/marketplace users
2. Domiciled in Palembang
3. Have been shopped online at e-commerce/marketplace

Research data analysed using crosstab with SPSS 22 to find consumer behaviour in online shopping according to their characteristics which are gender and age.

4. RESULTS AND DISCUSSION

4.1. Results

This initial research study was conducted by distributing questionnaires regarding shopping behaviour in e-commerce/marketplace and what behaviour might occur if they use Augmented Reality technology when shopping online in e-commerce/marketplaces. The following is the demographic profile of the respondents.

No	Characteristic	Description	Frequency	%
1.	Gender	Male	15	24%
		Female	47	76%
			62	100%
2.	Age	15-24 y.o	50	81%
		25-34 y.o	5	8%
		35-49 y.o	7	11%
			62	100%
3.	Occupation	Civil Servant /BUMN/BUMD	6	10%
		Housewife	2	3%
		Private Employee	2	3%
		Student/ Job Seeker	50	81%
		Entrepreneur/ Professional	2	3%
			62	100%

The survey data is then processed using crosstab in SPSS 22 to get data in the form of consumer behaviour in shopping online at E-commerce/marketplaces and how the behaviour is possible when using augmented reality technology. According to UTAUT, there should be behavioural differences in technology acceptance according to consumer demographic characteristics such as gender and age.

Consumer behaviour in online shopping was carried out as a preliminary study of the use of Augmented Reality technology which was started to be used by marketplaces such as Shopee, JD.ID.

Item	Description	M	F	Total
E-Commerce/ Marketplace frequently used	Shopee	12	45	57
		80%	96%	92%
	Tokopedia	3	2	5
		20%	4%	8%
Total		15	47	62
		100%	100%	100%

Shopping Preference	Offline	10	14	24
		67%	30%	39%
	Online	5	33	38
		30%	70%	61%
Total	15	47	62	
	100%	100%	100%	
Difficult to visualize the online product	No	5	16	21
		33%	34%	34%
	Yes	10	31	21
		67%	66%	66%
Total	15	47	62	
	100%	100%	100%	
Interested in using AR Technology in online shopping	No	0	5	5
		0%	11%	8%
	Yes	15	42	57
		100%	89%	92%
Total	15	47	62	
	100%	100%	100%	
Possible behaviour after using AR Technology	Buy Now	3	5	8
		20%	11%	13%
	Add to chart	5	27	32
		33%	57%	52%
	Share	1	3	4
		7%	6%	6%
	Add to list/Favourite	6	12	18
		40%	26%	29%
Total	15	47	62	
	100%	100%	100%	

Based on the data, both male and female have similarities in the selection of the marketplace. Almost all respondents, both male (80%) or female (96%) choose to shop in Shopee. more than half of men (67%) and women (66%) based on data analysis turned out to face obstacles in visualizing the products they want to buy via online channel. Respondents were informed about AR technology which can assist in visualizing products when shopping online and based on data analysis, all males (100%) and almost all females (89%) expressed their interest in using AR technology. Respondents were then asked about their possible behaviour or possible action after using AR technology. 40% male will add the product to their list or favourite, 33% will add to chart, 20% will buy it directly and 7% will share this experience to others. In the female side, 57% of them will add the product to chart, 26% add to wish list/favourite, 11% will buy it directly and 6% will share the experience to others.

This study also analysed the consumer behaviour related with age. The results of the analysis can be seen through the following table:

Item	Description	15-24 y.o	25-34 y.o	35-49 y.o	Total
E-Commerce/ Marketplace frequently used	Shopee	46	5	6	57
		92%	100%	86%	92%
	Tokopedia	4	0	1	5
		8%	0	14%	8%
Total	50	5	7	62	
	100%	100%	100%	100%	
Shopping Preference	Offline	22	0	2	24
		44%	0%	29%	39%
	Online	28	5	5	38

	Total	56%	100%	71%	61%
		50	5	7	62
Difficult to visualize the online product	No	15	3	3	21
		30%	60%	43%	34%
	Yes	35	2	4	41
		70%	40%	57%	66%
Total	50	5	7	62	
	100%	100%	100%	100%	
Interested in using AR Technology in online shopping	No	3	1	1	5
		6%	20%	14%	8%
	Yes	47	4	6	57
		94%	80%	86%	92%
Total	50	5	7	62	
	100%	100%	100%	100%	
Possible behaviour after using AR Technology	Buy Now	5	0	3	8
		10%	0%	43%	13%
	Add to chart	24	4	4	32
		48%	80%	57%	52%
	Share	4	0	0	4
		8%	0	0	6%
Add to list/Favourite/Like	17	1	0	18	
	34%	20%	0	29%	
Total	50	5	7	62	
	100%	100%	100%	100%	

There are three age groups obtained from the distribution of the questionnaire. These three groups are 15-24 years old (Group I), 25-34 years old (Group II) and 35-49 years old (Group III). Based on data analysis by age grouping, it is known that all age groups are dominated by Shopee users. Group I 92% use Shoppe and 18% Tokopedia, group II 100% use Shopee, while group III 86% Shopee, 14% Tokopedia. Shopping preference for group I, 56% prefer to shop online, 46% offline. Whereas in group II, all of the respondents prefer to shop online (100%). Group III, 71% prefer to shop online, 29% offline. As for the problem of product visualization difficulties when shopping online, 71% of respondents from group I and 57% from group III find it difficult to imagine the products they will buy online. Unlike the others, in group II 60% of the respondents did not even find it difficult when imagining the product, they would buy online. Possible behaviour of each group if they use AR technology and feel that it fits the product to be purchased, almost half of group I (48%) will add the product to chart, 34% will add to wish list/favourite, 10% will buy directly and 8% will share the experience. Group II, 80% of respondents will add the product to chart, 20% will add to wish list/favourites. Group III, 57% will add the product to wish list and 43% will buy the product directly.

4.2. Discussion

Differences in behaviour in online shopping can be seen from the demographic characteristics of consumers. Data showed that most of the respondent with all characteristic prefer to use Shopee for shopping online. This finding is very reasonable because Shopee is marketplace with the highest number of active visitors in

Indonesia on Q4 2020 [7]. In terms of AR technology, Shopee has become the marketplace pioneer in Indonesia that involving AR on the process of online purchase.

Involvement of AR technology in the process of online purchase decision will be very helpful to encourage online transactions. It is known that almost half of the respondents (66%) have difficulty in visualizing products when shopping online. This finding also found in other research which state that 54% consumer in the world prefer to shopping offline due to their difficulty in visualizing the product that they will be buy in E-commerce/marketplace [8]. A different finding where found in consumer with group age 25-34 y.o, it showed that more than half of the respondent has no difficulty on visualizing target product in online shopping. This finding is very significant with the preference of shopping in this group age. All consumer with this group age prefer to shopping online than offline. It means that they are used to be shopping online and their experience has make them having no difficulty in visualizing their target product.

Opportunity for this technology being used by the customer is quite high. Data shown that consumer from all characteristic have a high interest in using technology AR in online shopping. It means that it would be an advantage for e-commerce/marketplace in Indonesia if they applying this technology for their customers. Internet users in Indonesia are increasing and has reach 73.7 % from population [9]. It means that Indonesia will become a potential market for e-commerce/marketplace to use this technology.

Beside the interest in using AR, this research also digging the information about consumer possibility action if they are using this technology. Research data found that dominant behaviour that male possibly do after using AR in online shopping is to add the product to their wish list or favourite (40%) whereas the female dominantly add the product in the chart (57%). Difference behaviour also has been found in consumer based on age. Dominant possible action in group age between 24-35 is to added the product to chart and the other action is to add them to wish list. Dominant possible action with the age group between 35-49 y.o is to add product to chart or buy now. Consumer with age > 24 is raising less behaviour than the youth <24 y.o. It's seem that the more mature consumer is, the more assertive he/she is in acting.

5. CONCLUSION

Implementation of AR technology in the process of purchase decision will give a new hope to raise the online shopping transaction. E-commerce/marketplace in Indonesia should consider to use this technology to give

solution for many consumers that having difficulty in visualizing their target product while shopping online. Since AR technology is new for internet user in Indonesia, companies should consider the behaviour of their target market based on characteristic demographic.

Companies can effectively influence consumers to make transactions in their marketplace by designing marketing strategy that in line with the behaviour of its target market. Companies should start to clean up and improve their online services in order to obtained profit through the online channel The increase of transaction in online shopping will give a new hope for Indonesian economic rebound.

This research is only preliminary research that could be developed for further research. Future research should consider to examines the process that occurs when consumers are exposed with AR technology in e-commerce/marketplace by developing several variables based on relevant theories.

AUTHORS' CONTRIBUTIONS

All the authors were participated in in designing the draft of manuscript, processing research data and presenting it into a manuscript.

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