

Consumer Purchase Intentions Influenced through Marketing in Metaverse

Kushagra Pratap Singh

Jagan Institute of Management Studies, Delhi, India

Vidushi Singh

Jagan Institute of Management Studies, Delhi, India

Aayushi Mittal

Jagan Institute of Management Studies, Delhi, India

Dr Bhavneet Kaur

Professor

Jagan Institute of Management Studies, Delhi, India

Abstract- Virtual reality technology is a new media technology. On the one hand, virtual reality technology has brought a brand-new impact on consumers. On the other hand, our understanding of virtual reality is far from enough, a lot of research had been done on this subject matter but nothing in Delhi and NCR which need to be further explored. In the process of this market segmentation being considered, Online surveys have been conducted to research on this market segmentation. Based on the data collected through online surveys, this paper uses regression and Anova as research methods to establish consumer purchase intentions Influenced through marketing in metaverse. Based on the application of VR technology in marketing from the perspective of customer experience, the results show that after using VR, it increased the chances for consumers to buy the products and potential future purchases.

Keywords- Virtual reality; augmented reality marketing; consumer behavior; purchase intention; immersive technology; metaverse.

I. INTRODUCTION

Metaverse is an umbrella term, which comprises of technologies like AR (Augmented Reality), VR (Virtual Reality), MR (Mixed Reality). When talking about metaverse one also talks about web 3.0 and its interconnectivity with metaverse. A metaverse is a three-dimensional environment in which an individual can create their own avatar and move around in a virtual world, similar to what can be done in games like GTA (Grand Theft Auto) or on platforms like Second Life. Different brands are using AR, VR, and MR technologies in today's world to give their customers a real-time experience of the product they want to buy but are hesitant to buy because they don't know how the product feels or how it will look on them, or if the product (here furniture) will fit in the space intended or will match the color of their room's walls. All of this is now feasible because of cutting-edge technology such as augmented reality, virtual reality, and mixed reality. Brands are also advertising in the metaverse, such as during events. For example, a company called YUGVERSE, an Indian startup, recently held a wedding ceremony in the metaverse, and one might be astonished to learn that a brand like Coke was one of their marketing partners. In the Second Life platform, one can have a virtual shop in the shape of their business-related products, for example, if a person owns a music store in the real world, they can also own a virtual shop in the metaverse in the shape of a guitar or any other music instrument, and the user can find out that it is a music store without reading any billboards, and can enter this virtual store and view the products displayed there, and if they want, they can also make a purchase, which will be delivered to them at their house in real world.

II. LITERATURE REVIEW

A fresh wave of metaverse development promises to mainstream the technology, bringing an intriguing new platform for consumers with it. This provides a framework for understanding the impact of virtual reality on consumers, integrating individual, technology and social levels, and focusing upon the central role of presence, consumer VR experiences and socialness in driving changes in consumer engagement and their purchase intention. (Barnes, 2016). Virtual worlds, mirror worlds, augmented reality, and lifelogging are the four main components of the Metaverse's future. All four are in the early stages of development, and the conditions

under which they will completely mature are unknown. (JEON,2021). A built worldview on a device with a combination of reality and added or augmented themes connecting with five sense organs (like eyes and ears) and experiences is known as augmented reality marketing.

Individuals or customers are seen to benefit from augmented reality by having greater flexibility in finding, viewing, selecting, and purchasing items or services with quality assurance. Thus, in the future, virtual reality and its application in industries such as tourism and hospitality will assist in the development of efficient marketing strategies for better consumer involvement. This is due to the increased availability and ease of use of computer and Smartphone devices for various client segments. This information communication and technological (ICT) changes are creating a new ecosystem dissolved in virtual technologies and expanding into various sectors such as online gaming, banking, social communities and particularly tourism and hospitality industry (Dadwal and Hassan, 2021). Virtual commerce, on the other hand, applies immersive technologies like augmented reality and virtual reality with e-commerce to move customer perception away from 2D product catalogues and toward 3D immersive virtual places (Shen et al., 2021). It is a form of commercial activity that occurs in a virtual environment. It's one of the most recent e-commerce breakthroughs in the previous two decades, a superb commercial instrument fueled by technological developments, business innovation, and social adoption. In order to apply immersive technology, such as augmented reality, in virtual commerce apps, findings in consumer behavior are necessary. (Shen et al., 2021), attempted a systematic literature review on consumer behaviors and design of virtual commerce applications. Precisely, this paper targets consumer purchase intention as the behavior outcome.

<u>Variables</u>	<u>Source</u>
Simulated experience	Applied Sciences Free Full-Text How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application Design HTML (mdpi.com)
User engagement	The Effects of User Experience-Based Design Innovativeness on User-Metaverse Platform Channel Relationships in South Korea.pdf
Graphics	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
Color vividness	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
3D authenticity	https://www.researchgate.net/publication/282673345_The_Augmented_Reality_Marketing_A_Merger_of_Marketing_and_Technology_in_Tourism
Ease of use	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
Layout	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
3D environment	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
Creativity	https://www.researchgate.net/publication/356495797_How_to_Promote_User_Purchase_in_Metaverse_A_Systematic_Literature_Review_on_Consumer_Behavior_Research_and_Virtual_Commerce_Application_Design
Quality assurance	Applied Sciences Free Full-Text How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application Design HTML (mdpi.com)

Purchase Intention	Applied Sciences Free Full-Text How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application Design HTML (mdpi.com)
--------------------	---

III. PROPOSED ALGORITHM

Objective

The objective of this paper is to find out the factors affecting consumer behaviour while they engage in virtual reality for their usual purchases like shopping for mobile phones, clothes, etc. and how virtual reality affects their decision or purchase intention for those products and their overall experience.

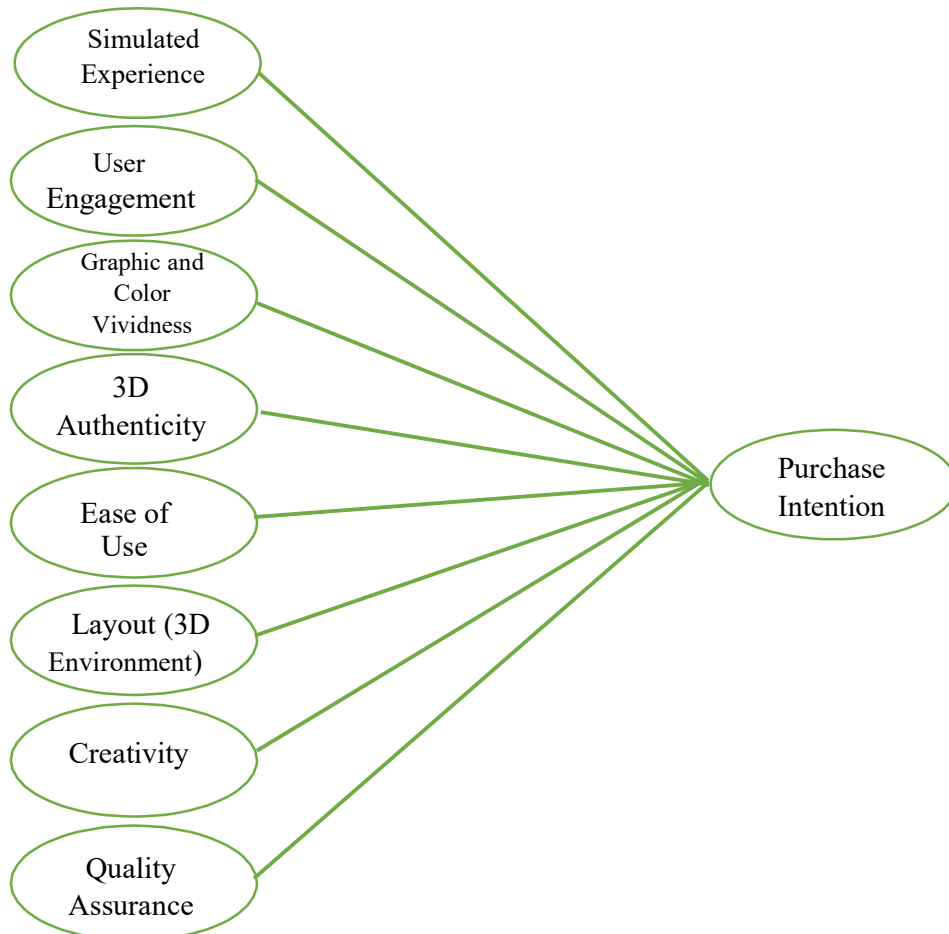
Gap Identified

Based on the identified research gaps, we recommend five research avenues

1. Research on the Diversity of Boundary Factors (3D authenticity, 3D information quality or perceived informativeness), Control, Ease of use (or challenge, skill), Experienced realism, Layout (3D environment) etc.)
2. An Organic Behavior–Design Research Circle.
3. Investigation on the Diversity of Immersive Technology (visual, auditory, haptic, olfactory, and gustatory).
4. Paying more Attention to Virtual Consumption.
5. Consideration of Metaverse Evolution Trends.

And also, these studies are not conducted in India on platform like Lenskart, Asian Paints, IkeaIndia etc. so we are looking forward in doing these studies on Indian consumer perspectives.

Variables Listed –



*Methodology:**Data Collection*

Data was collected through online surveys. Respondents were recruited through message posting on different WhatsApp groups and on LinkedIn posts. These online groups consist of members from Delhi/NCR and those who use online platform to make their day-to-day purchases on regular basis. A brief message asking for participation in this academic survey was posted and was conducted through google form. No incentives were offered for completing the survey.

Sample

Our sample consisted of 105 responses. Of all respondent we have 52.4% Male and 47.6% Female and out of which the respondent from age between 18-25 were 81.9%, respondent from age of 26-40 were 16.2% and the respondent above the age of 40 were only 1.9%.

Measures

All scales were in Likert format and asked for respondents' agreement to the items on a five-point scale (where 1 – strongly disagree and 5 – strongly agree). Other basic demographic and usage questions were also included. Table 1 shows all the questions based on all the independent and dependent variables which were identified earlier during the literature review.

Variable 1	The virtual try on feature used by me on the website/app made me want to make a calculated decision on whether the product which I am thinking to buy will fit my requirement.
Variable 2	The color vividness of the product was great which I tried virtually.
Variable 3	The graphics used in the virtual try on feature was looking like a real product.
Variable 4	The layout of the platform was easy to understand and easy to navigate through the website/app.
Variable 5	The 3D representation of the virtual product was looking like an actual product.
Variable 6	The platform was easy to use.
Variable 7	The platform was very engaging and made me stick to the website/app longer than usual, because of which I tried more products.
Variable 8	The product displayed on the website/app was very creatively placed and fun to try on.
Variable 9	While using the website/app, I hardly felt any lag or delay while using the virtual try on feature.
Variable 10	When I tried the product using virtual try out, it made me think of buying the product.
Variable 11	The Virtual Try Out Feature was one of the reasons for me to buy the product.

Table 1.

***Variable from 1 to 9 are independent and 10,11 are dependent.

IV. EXPERIMENT AND RESULT

Statistics

		Age (Years)	Gender (Male, Female)
N	Valid	105	105
	Missing	0	0

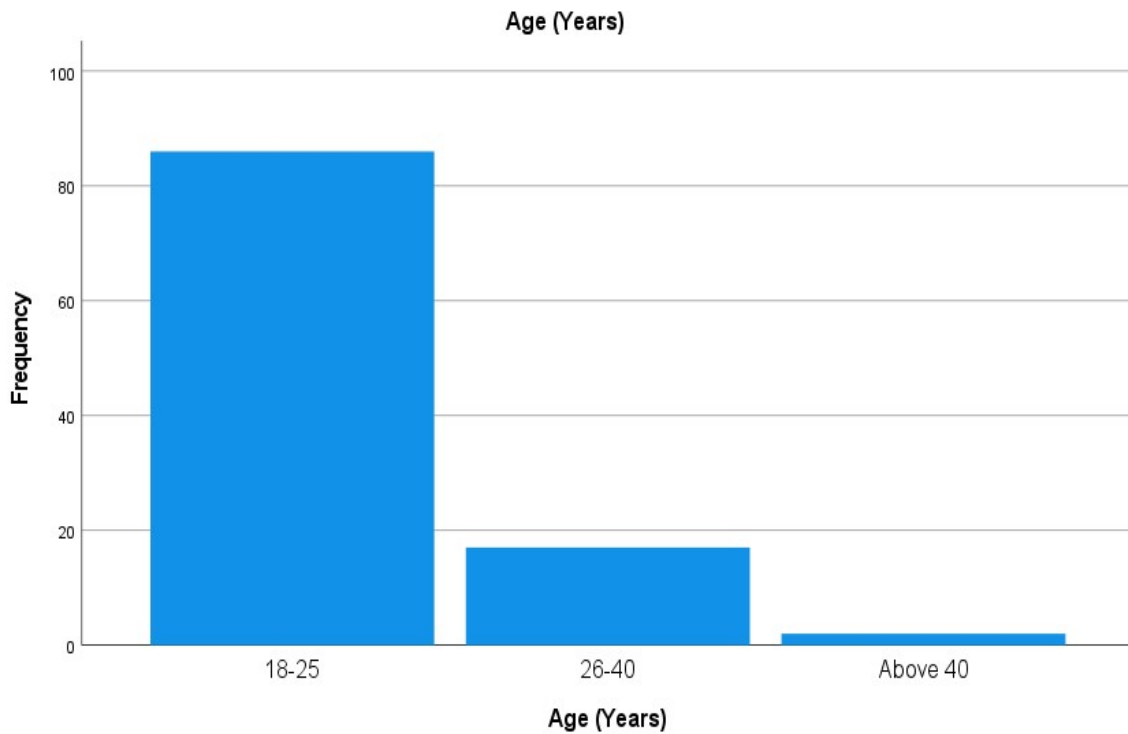
***The sample we took of 105 and there is no missing and invalid data as you can see on the above table.

Age (Years)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	86	81.9	81.9	81.9
	26-40	17	16.2	16.2	98.1
	Above 40	2	1.9	1.9	100.0
Total		105	100.0	100.0	

***From the above table it can be interpreted that out of the sample of 105, 86 which is 81.9% were of the age 18-25 yrs., 17 of them were of the age 26-40 yrs.

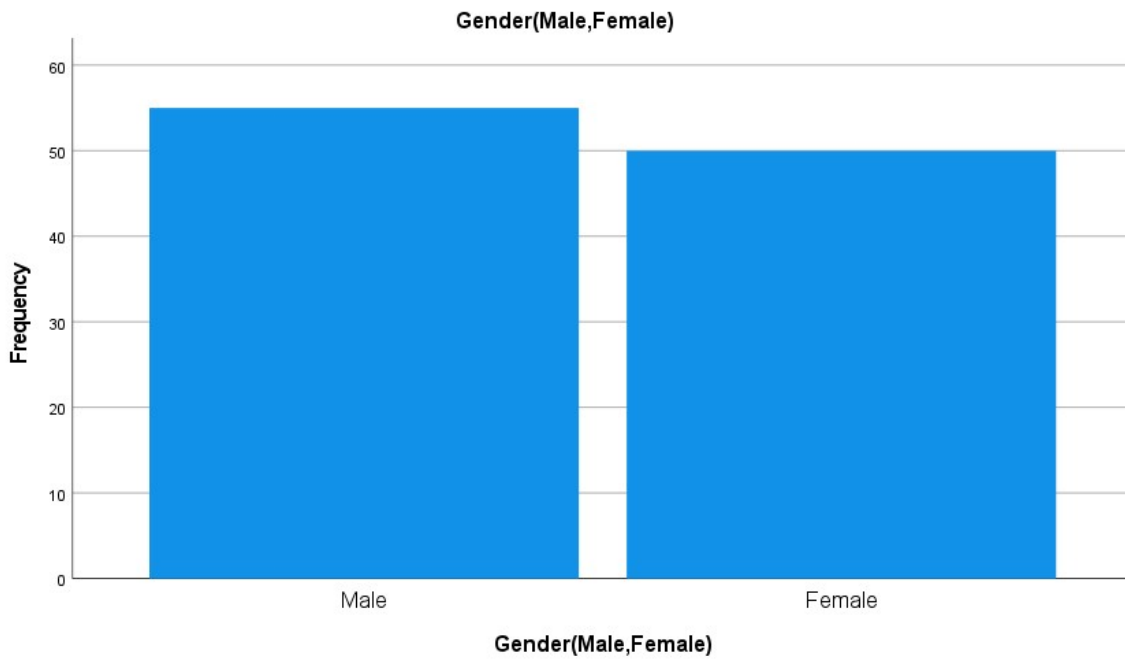
Which makes them 16.2% of our total sample and only 2 respondents were above 40 which makes them 1.9% of the total sample.



Gender (Male, Female)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	55	52.4	52.4	52.4
	Female	50	47.6	47.6	100.0
Total		105	100.0	100.0	

*** From the above table it is interpreted that out of the sample of 105 the number of males were 55 which makes them 52.4% of the total sample and the number of females were 50 which makes them 47.6% of the total sample size.



Regression for 1st Dependent Variable (Variable 10)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.677 ^a	.458	.406	.728

a. Predictors: (Constant), variable 9, variable 4, Variable 1, variable 7, variable 6, variable 5, Variable 2, variable 8, variable 3. (Refer Table 1 for variables name)

***In the above model summary, our adjusted R square is decreased to .406 or 40.6% which means our independent variables can appreciably predict the movement of the dependent variable.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.540	9	4.727	8.914	<.001 ^b
	Residual	50.374	95	.530		
	Total	92.914	104			

a. Dependent Variable: variable 10

b. Predictors: (Constant), variable 9, variable 4, Variable 1, variable 7, variable 6, variable 5, Variable 2, variable 8, variable 3

***We will check for the significance value and here it is less than 0.05 from which we can say our model is a good fit.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.656	.492		1.333	.186
	Variable 1	.017	.107	.015	.155	.877
	Variable 2	.142	.110	.139	1.296	.198
	variable 3	.000	.103	.000	.003	.997
	variable 4	.051	.114	.043	.452	.652
	variable 5	.199	.102	.200	1.953	.054
	variable 6	-.094	.094	-.092	-1.003	.318
	variable 7	.185	.098	.190	1.877	.064
	variable 8	.071	.113	.067	.626	.533
	variable 9	.275	.085	.316	3.254	.002

a. Dependent Variable: variable 10

***If there is one IV and one DV then we will look for R square and if IVs are more than 1 than we will look for Adjusted R square value.

Regression for 2st Dependent Variable (Variable 11)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729 ^a	.532	.488	.796

a. Predictors: (Constant), variable 9, variable 4, Variable 1, variable 7, variable 6, variable 5, Variable 2, variable 8, variable 3 (Refer Table 1 for variables name)

***In the above model summary, our adjusted R square is decreased to

.488 or 48.8% which means our independent variables can appreciably predict the movement of the dependent variable.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	68.360	9	7.596	11.995	<.001 ^b
	Residual	60.154	95	.633		
	Total	128.514	104			

a. Dependent Variable: variable 11

b. Predictors: (Constant), variable 9, variable 4, Variable 1, variable 7, variable 6, variable 5, Variable 2, variable 8, variable 3

***We will check for the significance value and here it is less than 0.05 from which we can say our model is a good fit.

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	-.191	.538		-.355	.723
	Variable 1	.243	.116	.183	2.086	.040
	Variable 2	.206	.120	.171	1.723	.088
	variable 3	-.239	.113	-.219	-2.114	.037
	variable 4	-.022	.124	-.016	-.179	.859
	variable 5	.510	.111	.436	4.575	<.001
	variable 6	-.206	.103	-.170	-2.008	.047
	variable 7	.081	.107	.071	.750	.455
	variable 8	.247	.123	.198	2.003	.048
	variable 9	.200	.093	.195	2.161	.033

a. Dependent Variable: variable 11

***If there is one IV and one DV then we will look for R square and if IVs are more than 1 than we will look for Adjusted R square value.

Crosstabs

Age (Years) * Gender (Male, Female) Crosstabulation
Count

Age (Years)		Gender (Male, Female)		Total
		Male	Female	
Age (Years)	18-25	44	42	86
	26-40	10	7	17
	Above 40	1	1	2
Total		55	50	105

*** From the above table it can be interpreted that there are 44 males out of total sample of 105 were of the age from 18-25 yrs. and the female respondents were 42 of the age 18-25 yrs. Whereas there were 10 male and 7 female at age of 26-40 yrs. and only 1 male and female were of the age above 40.

V. CONCLUSION

This research was done with the objective of finding the influence of virtual reality on the purchase intention of the consumers. Based on the application of VR technology in marketing from the perspective of customer experience, the results show that after using VR as a method to shop, the most significant factors of virtual reality technology on the consumers are the graphics used in the websites/ apps, 3D representation of products and store layout, ease of use, as an aspect of perceived quality assurance, was believed to influence enjoyment, how creatively the product was demonstrated and smooth functionality of apps and websites. (Kong et al.,) have used factors like customer satisfaction in their paper as well. (Shen et al., 2021) also mentioned in their paper that a virtual store setting, enjoyment, engagement and consumer's perceived quality assurance were identified as direct factors affecting consumer satisfaction and in addition, effect of store layout confirms its influence on consumer's enjoyment and ease of navigation. Although a purchase decision does not necessarily lead to an actual purchase, it is the most appropriate estimator of actual behavior. Persuasion and purchase intention are the dependent factors in this paper as VR persuaded customers to buy the products and solidified their intention to purchase the products and increased the chances of future purchases as well.

REFERENCES

- [1] Stuart J. B., (2016), "Understanding Virtual Reality in Marketing", *Research gate*, 1(4), 4-5.
- [2] Tommi L., Nannan X., Heli H., Nino R., Juho H. (2021), "Virtual technologies in supporting sustainable consumption: From a single-sensory stimulus to a multi-sensory experience", *International journal of information management*, 3(1), 2-3.
- [3] XIANGXI K., DEWEN L., LIANGYU M., (2020), "Virtual technologies in supporting sustainable consumption: From a single-sensory stimulus to a multi-sensory experience", *IEEE Access*, II(A-D), 162581-162584.
- [4] Bingqing S., Weiming Tan Jingzhi G., Linshuang Z., Peng Q., (2021), "How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application Design", *Research Gate*, 2(2), 4-20.
- [5] Muhammet D., (2021), "Metaverse Shape of Your Life for Future: A bibliometric snapshot", *Journal of metaverse*, 1(1), 2-4.
- [6] Cristian G., Sandy P. R., Irma E. C., Washington X. Q., Jaime S., Aldrin G. A., Julio C. T., Victor H. A., (2018), "Augmented Reality as a New Marketing Strategy", *Research Gate*, 2-3, 352-355.
- [7] Sumesh S. D., (2015), "The Augmented Reality Marketing: A Merger of Marketing and Technology in Tourism", *Research gate*, 79-82.
- [8] Diana H., Malaika B., (2015), "Retailing in social virtual worlds: Developing a typology of virtual store atmospherics", *Research gate*, 2(1), 221-222.
- [9] Joo-Eon J., (2021), "The Effects of User Experience-Based Design Innovativeness on User- Metaverse Platform Channel Relationships in South Korea", *Korean distribution science association*, 2(1).