

TRANSFORMING THE E-COMMERCE LANDSCAPE: EXPLORING THE BENEFITS AND APPLICATIONS OF AUGMENTED REALITY

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ABSTRACT

Purpose: The goal of processing this concept is to get vivid hands on the future of E-commerce industry with the inclusion of Augmented Reality, which has resulted in changing the whole scenario of the E-Commerce industry and to examine its life in future.

Approach: This research is carried out in order to understand the end-user's preference and inclination towards the well-suited experience in E-Commerce in the matter of fashion & apparel, furniture & home-décor, automotive & transportation, how much brick & mortar stores have been impacted of AR tech.

Findings: AR is not affected by the gender of any individual, consumers are more inclined towards buying products via AR as they own better experience via this tech & they do believe that demonstration should be made available to them priorly, social media & fashion & apparel are the most preferred medium by the end-users.

Originality Value: This study provides in detail comprehension on the thinking of the end-users how AR can impact the brick & mortar stores, what products it may suit well with, main benefits, how e-commerce companies can improve their use on AR to get benefit & drive sales.

Keywords: Augmented Reality, E-commerce Landscape, Brick & Mortar Outlets etc.

INTRODUCTION

The e-commerce sector is rapidly expanding in an upward trend, especially since cutting-edge technology have been included into the marketing channels. The e-commerce industry has seen a dramatic transformation because to the usage of digital tools like augmented reality, which now offers customers an immersive experience like never before.

The distance between customers and online retailers has been closed with the use of augmented reality in e-commerce. A distance that had become even wider during the outbreak prevented people from physically travelling to shopping centres and purchasing their preferred goods.

Since 71% of consumers prefer to shop at merchants that offer AR-based experiences, using augmented reality in e-commerce has shown to be a wise business decision. Even from the comfort of their homes, these AR applications give your consumers a more thorough and in-depth grasp of your goods and services.

NEED OF THE STUDY

- There is a need to transform the e-commerce landscape by exploring the benefits and applications of augmented reality because customers are increasingly expecting a more personalized and interactive shopping experience. With the rise of online shopping, customers are missing out on the ability to physically see and touch products before making a purchase, which can lead to uncertainty and hesitation in the buying process.

- Augmented reality technology can help bridge this gap by allowing customers to interact with products in a more immersive and engaging way, providing a more realistic representation of what they are purchasing. This can lead to increased customer satisfaction, as well as decreased product returns.

- Additionally, the COVID-19 pandemic has accelerated the shift towards online shopping, and businesses that are able to provide a more seamless and interactive online experience are likely to see increased success in this

new era of retail.

- Finally, the benefits of augmented reality in e-commerce go beyond just providing a better shopping experience for customers. It can also provide businesses with valuable data and insights into customer behavior and preferences, which can help them better understand and target their audience.

OBJECTIVES OF THE STUDY

- To study the awareness of the Artificial and Virtual reality among the consumers.
- To evaluate the impact of AR and VR on the overall e-commerce landscape.
- To study the co-relation between the adoption of AR and the purchase of products.
- To study the relationships between the improvements recommended by the consumers and their age.

RESEARCH METHODOLOGY

Research Methodology:

Both primary and secondary data were gathered for this study. Primary data is information that has been gathered using original or first-hand data collection methods such as surveys, interviews, and questionnaires. On the other hand, secondary data is information that has already been gathered by a user other than the main user. Examples include blogs, journals, articles, etc.

Research Design:

Descriptive Research Design has been carried out for this survey.

Sample Area:

Location selected by the researcher is Gujarat State, India.

Research Design:

The sample size for this research is 203.

Sampling Technique:

A Convenient Sampling Method was used and a Structured Questionnaire was prepared and was circulated among the respondents.

LITERATURE REVIEW

Natasha Moorhouse, M. Claudia tom Dieck & Timothy Jung (2017) Incorporated their thoughts by discussing that emerging technology into the entire retail process, the integration of the online and physical worlds must concentrate on promoting the experiential benefits that the in-store environment offers. The paper that follows offers some information on recent technology developments that are drastically altering how consumers interact with products. Following a summary of the potential future effects of such technologies, suggestions for practitioners for the strategic application of augmented reality (AR) and virtual reality (VR) technologies are made.

Shalini Chandra & Karippur Kumar (2018) concluded that. Analysis of organizational adoption of AR for e-commerce will bring out important factors

organizations should focus on while considering the implementation of AR technologies to enhance the shopping experience of their consumers and also focused on the role of technological factors, organizational factors and environmental factors in influencing an organization's adoption of AR for e-commerce.

Noureddine Elmqaddem (2019) described the thoughts by stating that Virtual and augmented reality are not brand-new technologies. Yet, a number of obstacles made their implementation impossible. In many fields, including education, AR and VR are now more feasible and desirable thanks to recent technology advancements combined with the spread of affordable gear and software. They have also been relaunched with fresh promises that were before unthinkable. The nature of AR and VR promises new teaching and learning paradigms that more effectively address the demands of the student of the twenty-first century.

Tao Zhan , Kun Yin, Jianghao Xiong , Ziqian He , Shin-Tson Wu (2020)prescribes about the perception and interaction of varied digital information could be revolutionised by augmented reality (AR) and virtual reality (VR). While this is happening, current developments in optical and display technology, as well as the quickly evolving digital processors, present fresh development directions for the near- eye display systems. In this perspective article, we first analyse the optical specifications for near-eye displays as posed by the human visual system, and then we compare them to the specifications of cutting-edge devices, which ostensibly reveal the primary

obstacles in near-eye displays at the moment.

Yashvi Desai; Naisha Shah; Vrushali Shah; Prasenjit Bhavathankar & Kaisar Katchi (2021) concluded that Customers find it challenging to shop with only a static image view accessible; this type of experience is impersonal and can occasionally result in poor purchasing decisions. Consumers are unable to precisely forecast how a product will fit in their living space. Because of this, many consumers return or exchange the item they buy. These problems are fixed by AR. Therefore, a technique for inserting a virtual object in the real environment with merely a real-time camera has been suggested.

Candy Lim Chiu, Han-Chiang Ho, Tiancheng Yu, Yijun Liu & Yuwen Mo (2021) stated that ARRAs, or augmented reality retail applications, are a rapidly evolving, futuristic retail innovation utilised in both brick-and-mortar and online stores to enhance the shopping environment and consumer experience. It has essentially remained constant due to two key factors: the creation of user satisfaction and user retention intention as explanatory variables within the quality perspective. In all of the proposed interactions, both mediating factors are observed positively playing mediating roles

Yogesh Shelke & Chinmay Chakraborty (2021) discussed about a comprehensive analysis of the state-of-the-art in augmented reality (AR) and virtual reality (VR) for spinal navigation, where preliminary clinical validations have revealed promising results in terms of accuracy and scalability parameters. The goal of their study is to assess the clinical applicability of AR-VR enabled spinal surgical technologies and provide a model of economic viability for stakeholders involved in technology adoption, such as patients, hospitals, and research organisations.

Sheetal Soni; Usha Yadav; Abhishek Soni (2022) described about being positive advancements, the managers lack visions for how AR might boost consumer engagement in many industries and create more lasting customer experiences. Current research and reports also suggest that there are costs and experience associated with installing the AR & VR. Our goal is to promote this innovative topic in the technology stream and highlight the knowledge gaps because there hasn't been enough study on this emerging field. They have also worked on coming to conceptual and management conclusions and discussing the field of potential future studies.

Ahmad Helmy Mohamad, Ghada Farouk Hassan & Ahmed S. Abd Elrahman (2022) describes about Consumer behaviour towards traditional commercial activities will unavoidably shift as e-commerce adds new aspects to commercial activity. It goes further to look into how changes brought on by the growth of commercial activity based on informatics-derived qualities present themselves. A unique proposed method for the planning and design of commercial activities was produced after reviewing pertinent literature. In order to create a more acceptable model for consumers' needs under the influence of informatics, this method ensured the sustainability and integration of traditional commercial operations in urban areas and e-commercial activities in virtual environments.

Chintalapati, S., & Pandey, S. K. (2022). Artificial intelligence in marketing: A systematic literature review. This article examines the emerging field of marketing research that uses AI. The study divides marketing into five separate functional themes—integrated digital marketing, content marketing, experiential marketing, marketing operations, and market research—and 19 sub-functional themes (activity levers) based on conclusions drawn from past studies. The study further integrates into and discovers 170 prominent use cases of the existing literature where AI is leveraged by marketing to create higher quality outcomes and experiences across the selected topics and sub-themes.

ANALYSIS:

Normality Test:

H0: Data follows the normal distribution.

H1: Data does not follow the normal distribution.

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Age	.353	203	.000	.777	203	.000
Gender	.381	203	.000	.678	203	.000

Occupation	.236	.203	.000	.869	.203	.000
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a. Lilliefors Significance Correction

Source: SPSS Output

INTERPRETATION: From the above Normality Test for checking the perception of influence of advertisement on consumer buying behaviour in apparel Industry, it has been noticed that P value for all the variables are less than 0.05 which indicates the rejection of null hypothesis due to which they are normally not distributed among each other and hence the researcher needs to go with the Non Parametric version of testing for further analysis as a part of proving inferential statistics.

CHI SQUARE TEST

H0: There is no significant association between the recommendations for E-commerce companies to improve their AR technology and the age.

H1: There is no significant association between the recommendations for E-commerce companies to improve their AR technology and the age.

Test Statistics						
	Age	Improve_Customizat ion_and_Personalize Services	Improve_ d-Accuracy - and_Quality	Improve_ Easy_Access	Improves _Learnin_g_ and_Education	Simplifies_D ecision_Making
Chi - Sq uar e	195 .94 1a	134.660 ^a	163.330 ^a	79.438 ^a	45.892 ^a	40.473 ^a
df	4	4	4	4	4	4
As ym p. Sig	.00 0	.000	.000	.000	.000	.000

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 40.6.

Source: SPSS Output

INTERPRETATION: Here all the P values are $0.00 < 0.05$. Thus it states that the null hypothesis H0 is rejected and there is a significant association between the recommendations for E-commerce companies to improve their AR technology and the age.

CO-RELATION TEST

Correlations			
		Used_AR	Purchase
Used_AR	Pearson Correlation	1	.502**
	Sig. (2-tailed)		.000
	N	203	203
Purchase	Pearson Correlation	.502**	1
	Sig. (2-tailed)	.000	
	N	203	203

N	203	203
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** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Output

INTERPRETATION: A Pearson's correlation was run to determine the relationship between the usage of AR for online shopping and the product purchase after using AR. There was a strong, positive correlation between the usage of AR and the product purchase, which was statistically significant ($r_s = 0.502$, $p = 0.00$).

KRUSKAL WALLIS TEST

H0: There is no significant association between the well-suited products for VR and AR experience in E-commerce and the gender.

H1: There is no significant association between the well-suited products for VR and AR experience in E-commerce and the gender

Test Statistics ^{a,b}	
	Products_well_suited_for_AR_VR
Chi-Square	.434
Df	2
Asymp. Sig.	.805
a. Kruskal Wallis Test	
b. Grouping Variable: Gender	

Source: SPSS Output

INTERPRETATION: Here the P value is $0.805 > 0.05$. Hence H0 is accepted which states that the alternative hypothesis H1 is rejected and there is no significant association between the well-suited products for VR and AR experience in E-commerce and the gender.

IMPACT OF AR ON OVERALL E-COMMERCE LANDSCAPE

Impact Ecommerce					
		Frequency	Percent	Valid Percent	CumulativePercent
Valid	It will significantly disrupt traditional e-commerce models and create new opportunities for growth and innovation	69	34.0	34.0	34.0
	It will have a minor impact on e-commerce, primarily benefiting niche industries and products	107	52.7	52.7	86.7
	It will have no significant impact on e-	27	13.3	13.3	100.0

commerce and will remain a niche technology				
Total	203	100.0	100.0	

Source: SPSS Output

INTERPRETATION: Here from the above chart, it can be clearly seen that 53% of the respondents believe that it will have a minor impact on e-commerce, primarily benefiting niche industries and products, where as 34% of the respondents believe that it will totally disrupt the traditional e-commerce models and create new opportunities for innovation and the remaining respondents believe that there will be no significant impact on e-commerce.

FINDING:

- The well-suited products for VR and AR experience in E-commerce does not vary based on the gender.
- There is a strong co-relation between the consumers using AR technology and purchasing the products after experiencing through AR.
- The recommendation and suggestions by the consumers for improvements in AR technology such as customisation and personalised services, easy access, learning and education, etc are directly associated with the age of respondents.
- Social media proved to be the best marketing strategy for e-commerce companies to promote and increase the adoption of AR technology.
- Fashion and apparel proved to be the best well suited products for AR and VR experiences in E-commerce.

CONCLUSION:

- There is awareness among the consumers regarding the AR and VR being used by the companies. The consumers who experience the AR and VR technology are more likely to purchase the products.
- Companies are using social media, email marketing and in-app or in store demonstrations to promote and increase the adoption of augmented reality.
- Fashion and apparel are the most preferred products which are well suited for VR and AR experiences in E-commerce followed by furniture and home decor and automotive and transportation.
- Majority of the respondents believe that augmented reality will become a mainstream feature of e-commerce websites and apps.
- The main benefits that AR provides to its consumers are improved customer engagement, enhance product visualisation and increased conversions rate.

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