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How does Augmented Reality (AR) impact on Consumer buying behavior? A Study in Indian E commerce Industry

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ABSTRACT

In the era of digital marketing, Augmented Reality is playing a crucial role in enhancing and promoting the brand, its products and services. Augmented Reality is the promising development of the technology which is paving its way for marketers to extend their reach to the consumers with a unique and better experience in a homely familiar environment. The Indian E-Commerce Industry is the booming sector of Indian marketplace which is utilizing the Augmented Reality to the fullest in extending its reach. Its serves various consumer segments across the various geographical and demographical variations. The E-Commerce platforms offers a holistic gamut of services with its segments ranging from the Home Furnishing to Paint Industry, Eyewear to Fashion Industries. Almost every industry ranging from the Product to Services segments are utilizing the maximum extent of Augmented Reality features to enhance their promotion strategies, thus maximizing reach to the consumers. Consumers on the other hand is delighted to have the services being offered in a homely environment, with the capability for trial and decision making before purchasing the final product. Apart from the personal and socio-demographic characteristics, age, lifestyle, occupation, and other personal factors of the consumer plays a pivotal role significantly which influences the buying behavior. This study focuses on how the consumer buying behavior is influenced with the advent of Augmented reality considering age as a significant factor in making buying decision.

Methods: Systematic statistical methods were implemented to analyze the valid data set which were selected across the sample data gathered on pan India basis to get a clear picture of the Indian market.

Results: Since the introduction of augmented reality (AR) in the marketing landscape, there has been very few studies which focused on the analysis of the implementation of AR in the E-commerce industry in India. Hence, this study shows the impact of the demographic traits on consumer buying decisions and the impact of AR in the Indian E-commerce industry.

Discussions: This study highlights the association of the demographical trait in consumer buying decision along with the impact of AR in consumer buying decision.

Keywords: Digital Marketing, E-commerce, Marketplace, Demographic variables, Augmented Reality

INTRODUCTION

Ecommerce, also known as the Electronic Commerce or internet commerce refers to the buying and selling of goods or services using the internet and the exchange of money or data to execute these transactions. It is conducted over and operated from the computers, tablets, smartphones and other smart electronic gadgets. The ability to connect, communicate, buy and sell over the internet has changed the way of business being performed. Due to the inception of Ecommerce, price of the commodities has lessen and high returns on products are possible. Nearly all imaginable products and services are available through Ecommerce transactions. Ecommerce has helped businesses gain access to and establish a wider market presence by providing cheaper and more efficient distribution channels for their products and services. The rise in the number of people using smart devices and the latest gadgets to connect to the info space is a proof of the reach of the internet as the most effective medium of trade and business in this era. Soon the boundaries

between "conventional" and "electronic" commerce will become increasingly blurred as more and more businesses move sections of their operations onto the Internet.

In present times of keeping up with the latest, newer marketing strategies are being explored by the businessmen and entrepreneurs. Augmented Reality (AR) is one such technology which solves the problems and ease the requirements of the businesses. Augmented Reality is the enhanced version of the real physical world that is achieved using the digital media such as digital visual elements, sound or other sensory stimuli inputs and being processed by the technology. AR enhances one's current perception of reality. AR uses the existing real-world environment and tops it with virtual reality to enhance the experience. Research explores that application of computer-generated imagery in live-video streams to enhance the perception of the real world. AR ideally included head-mounted displays and virtual retinal displays for visualization purposes, and construction of controlled environments containing sensors and actuators. Augmented Reality may be considered as an extension of Virtual Reality. AR involves video capture tracking of the real world to combine with the interaction of virtual objects and provided a 3D graphics that could be overlaid on any OS platform, be it on a desktop, tablet, or a Smartphone. All that is required is a device with a camera and an internet connection to bring AR to the masses.

AR Shopping is considered as an extension of AR included in Ecommerce, allows customers to virtually try, test products through a smart devices such as a smartphone or virtual reality headset. AR can benefit the customers by giving them a feel like they are in a brick-and-mortar store interacting with the products or showcase them how products will look in their homes or, in the case of fashion, on their bodies. AR lends itself to marketer applications by allowing consumers to engage in pre-buying behaviors like virtually trying on clothing or makeup, or overlaying furniture into a living area to gauge its size and suitability with the rest of their home furnishings. This paper is to understand the role the demographic traits in consumer buying process along with the impact of the Augmented Reality as a technological impact on the consumer buying decision. It might help the marketers in their analysis of the Indian markets to understand the scenario of the usage of AR backed features across their platform and could act as a decisive medium to deicide on the investment of AR in their platform.

REVIEW OF LITERATURE

There are many business models and several ways to capture the consumer segments. Of all those, Ecommerce being the most effective one with a distinct success rate.

a. Ecommerce and Online Market

Sheth and Parvatiyar (1995) showed there are various kinds of business models used in online shopping and are primarily based on the type of the consumer a brand wants to target. Different types of consumer segments react in different ways to different efforts marketers. The relationship marketing suggests that the consumer characteristics plays an important role in a consumers urge to engage in the online transactions. The literature also suggests that consumer characteristics are important indicators of the probability of making purchase decisions on the Internet. (Ghosal, et al, 2015) suggested that the buying behavior has a social and psychological origin that classified consumer into four types: economic, the personalizing, the ethical and the apathetic.

Innovative marketers have recently used augmented reality (AR) to build more interactive experiences that let customers interact with products and environments in fresh ways (such heightening the sense of presence). Although the published research widely acknowledges the effectiveness of AR in mediating the customer experience (Jain et al., 2021; Pantano and Di Pietro, 2012; Scholz and Smith, 2016; Yim et al., 2017; Lecointre-Erickson et al., 2018; Bonetti et al., 2019), the majority of studies examining factors influencing the use of augmented reality in retail are built on online shopping contexts (Poushneh and Vasquez-Parraga, 2017; Elboudali et al., 2020; Chiu et al., 2021; Arghashi and Yuksel, 2022; Hoffmann and Mai, 2022) Moreover, little is understood about the elements that influence consumers' acceptance of this technology as a channel for point-of-sale transactions (Holdack et al., 2020; de Amorim, Guerreiro, Eloy and Loureiro, 2022; Hoffmann et al., 2022). Such prevalence of online AR studies reflects a stronger utility of AR solutions via handheld devices in distant contexts. Given its substantial penetration into customers' daily lives, the creation and inclusion of AR features on these devices is successful. (Riar et al., 2022). The interaction element that defines retail shopping experiences is enhanced by the addition of augmented functions, such as extra product information and personalization at the point of sale (de Amorim et al., 2022; Riar et al., 2022).

'Why e-commerce works, and why now more than ever' (Aliya Khan, 9 Sept, 2010, business.wikinut.com) focuses on the upper side of the trading in online mode. Firstly, it is being able to offer the products and services online instantly and multiplies the market reach for the company to a beyond neighborhood or city to take in the whole of the country. Another is the significant amount of capital is not needed in this case and even payments made in online businesses are received quickly. Ecommerce offers a playground to the bigger players of the market online at a single place making them showcase their abilities to audience.

Compared to brick-and-mortar sales, an internet commerce platform aids businesses in better understanding consumer behavior (Alpert et al. 2003), to further segment their market environment based on product and customer preferences, e-commerce companies are implementing technology advancements (Guo & Poole 2009). The store learns that a customer is interested in a product the moment they click on it on the website. In addition to providing immediate information, e-commerce websites simulate models and patterns to learn about consumer behavior through transaction data. Additionally, retailers struggle to draw customers' attention using current technologies and are searching for new technologies that will give their customers a more enjoyable experience (Kallweit et al. 2014).

b. Introduction to Augmented Reality(AR)

Technology known as Augmented Reality (AR) blends virtual data with the physical world. Multimedia, 3D modeling, real-time tracking and registration, intelligent interaction, sensing, and other technical tools are used. The idea behind it is to simulate the real world before applying computer-generated virtual information, such as text, photos, 3D models, music, and video, to it.

In recent years, several articles and scientific study findings have been published on AR by an increasing number of universities, research institutions, and businesses of international repute. These findings support the viability and inventiveness of augmented reality as a tool for human-computer interaction. As computer software and hardware have become more powerful, augmented reality (AR) has gradually moved from the theoretical research stage of the laboratory to the stage of mass and industry application. As a link between the digital and physical worlds, AR gives people a new way to perceive and interact with their surroundings. Additionally, reputable organizations like the American Times Weekly have listed it as one of the top ten most promising technologies for the future.

One of the major forces propelling the tech sector is augmented reality, or AR. That's because augmented reality (AR) software, headsets, and smart glasses have the potential to improve almost every sector of the economy, from retail to manufacturing.

Here are some of teh top use cases for augmented reality technologies that are about to take off, ranging from remote work to education:

I. Medical Training.
The use of AR technology has the potential to improve the breadth and efficiency of medical education in a variety of fields, from operating MRI machines to carrying out intricate procedures.

II. Retail Environment
Customers are utilizing their cellphones more frequently than ever in today's physical retail environment to compare prices and find out more details about the things they are perusing.

III. Repair & Maintenance
Repair and upkeep of sophisticated equipment is one of the most prevalent industrial uses of augmented reality. Repair and maintenance personnel are starting to employ augmented reality (AR) headsets and glasses while performing their tasks to give them vital information on the spot, suggest potential remedies, and point out potential trouble spots, whether it be a car motor or an MRI machine.

IV. Design & Modelling
AR is assisting professionals in seeing their finished projects during the creative process in fields including interior design, architecture, and construction. With the aid of headgear, architects, engineers, and design experts may enter their structures immediately to see how they might look and even make adjustments in real time.

V. Business Logistics

In many sectors of corporate logistics, AR offers a number of chances to improve efficiency and reduce costs. Transportation, storage, and route optimization are all included in this.

c. Augmented Reality in Ecommerce Industry

One such immersive technology that enables consumers to virtually interact with specific products is augmented reality (AR) (Pous et al. 2013). A total of $1.7 billion was invested in augmented reality technology, with major investments made by firms like Google, Apple, and Facebook as well as Alibaba, Microsoft, HTC, Sony, and Samsung who built their own augmented reality systems, Widmer (2017). To improve the purchasing experience for their customers, forward-thinking online merchants like Zugara and LazyLazy.com have incorporated augmented reality motion capture technology into their e-commerce websites (Kang 2014).

Customer perspectives have been examined in recent research on augmented reality in e-commerce, with a focus on how AR supports customer experiences, consumer engagement, and consumer awareness while online buying (O'Brien 2010). For instance, various studies (Huang & Benyoucef 2013; Kang 2014) have highlighted how AR might make online buying enjoyable for consumers. The role of augmented reality (AR) in promoting consumer awareness for goal-oriented and logical consumers who visit the site with a clear understanding of the goods to be purchased has been covered in other studies (Parboteeah et al. 2009). The largest challenge for online shoppers is deciding whether a product is good for them, but AR technology removes this obstacle by allowing customers to interact with their possible purchase, which enhances consumer confidence.

Few e-commerce companies are utilizing AR technology, despite the fact that it has been demonstrated to enhance human perception and imitate traditional buying habits (Tutunea 2013). Additionally, there hasn't been much research done on augmented reality in online purchasing, despite the enormous promise of the technology(Ghosal, et al. 2014). In addition, rather than examining user behavior and the acceptance of AR technologies, AR research is typically focused on developing or reviewing AR technologies (Harborth 2017). Despite research on customer acceptability of AR technology and awareness of the poor adoption of AR technologies by e-commerce enterprises, researchers in the field of e-commerce have mostly ignored this issue. Research is therefore required in this area of interest.

‘AR marketing strategies: the how to guide for marketers’, a report by Hidden in March 2011, provides a complete understanding of the use, opportunities and creative ideas on using augmented reality in marketing products and services. Statistics published by Hidden show that for the digital marketing campaigns, augmented reality delivers on average 55,000 unique users per month with onsite dwell times averaging seven minutes 45 seconds. AR can link the augmented content to practically anything by providing a robust interactivity, portability and mobile ‘on-the-go’ experiences, while collating the business intelligence through point of sale interactions and giving the measurable ROI manifesting in conversion to direct sales, dwell time, brand awareness and PR for the brand.

(Dogra, et al .2023) have stated that findings showed customers' attitudes and behavioral intentions towards AR-based e-commerce websites are highly influenced by technology phobia and virtuality. Interactivity and innovation, nevertheless, are nonetheless not noteworthy. Additionally, non-significant moderating effects for the moderators, namely need for contact and trust, were found. However, only the relationship between technological anxiety and attitude towards AR-based e-commerce websites is significantly moderated by gender.

d. Investment on Augmented Reality as a technology for Ecommerce in India

As per the Ecommerce Industry Report published on December 2022 by the IBEF (Indian Brand Equity Foundation), he Indian online grocery market is estimated to reach US$ 26.93 billion in 2027 from US$ 3.95 billion in FY21, expanding at a CAGR of 33%. India's consumer digital economy is expected to become a US$ 1 trillion market by 2030, growing from US$ 537.5 billion in 2020, driven by the strong adoption of online services such as e-commerce and edtech in the country.

According to Grant Thornton, e-commerce in India is expected to be worth US$ 188 billion by 2025. Indian ecommerce market could outpace more mature markets to become the third largest market in the world with US$ 350 billion by 2030. After China and the US, India had the third-largest online shopper base of 150 million in FY21 and is expected to be 350 million by FY26.

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Indian consumers are increasingly adopting 5G smartphones even before the rollout of the next-gen mobile broadband technology in the country. Smartphone shipments reached 169 million in 2021 with 5G shipments registered a growth of 555% year on year 2021. Indian consumers are increasingly adopting 5G smartphones even before the rollout of the next-gen mobile broadband technology in the country. Smartphone shipments reached 150 million units and 5G smartphone shipments crossed 4 million in 2020, driven by high consumer demand post-lockdown. According to a report published by IAMAI and Kantar Research, India's internet users are expected to reach 900 million by 2025 from ~622 million internet users in 2020, increasing at a CAGR of 45% until 2025.

Thus, considering the above studies, white papers, articles and blog posts it is evident that augmented reality cannot be ignored by marketers. There have been sufficient studies to showcase the increasing propensity of information and the requirement for customized content for consumers in this decade, which AR can deliver in the process of brand exposure through advertisements and campaigns. The benefits thus derived from this technology, if rightly implemented, can affect more than one dimension of a business.

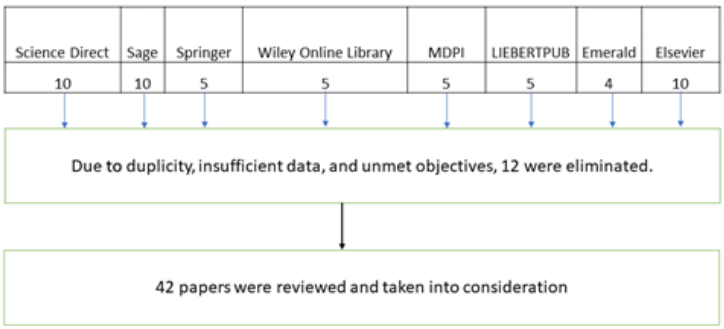
OBJECTIVES OF THE STUDY

The following are the key aspects of this research being focused on:-

- To study the demographical traits of the customer on buying decision being made in the E-Commerce platforms.
- To investigate the influence of Augmented Reality on customer buying decision.

RESEARCH METHODOLOGY

This study focuses on both the primary and secondary data for the evaluation and framing of the research study. The primary data consists of structured questionnaires, focused interviews, and feedback from seminars. The secondary data were composed from different government and non-government reports, publications from various journals, books, websites, newspapers, and magazines.



Secondary data consideration

Selection Strategy

Questionnaire has been framed and distributed across the population and is used as one of the means for data collection. The population consists of respondents from various ages and across various demographical and geographical locations. Respondents in the sample selected were distributed across the country to get a clear understanding of the Indian market. The population selection was based on the personal awareness of the respondents about the E-commerce platforms. The focus group of the study were formed by the respondents who have provided feedback for the active usage of E-commerce platforms and took part of the survey.

Data Extraction

Findings:

I. Out of the total number of respondents framing the focus groups, 84.75% were found to be aware of the E-commerce platform.

II. 58.47% respondents found the AR features appealing to them whereas 58.89% respondents use the AR features to help them decide whether to buy a product or not.
III. 60.5% of the respondents found to buy the product after their experience with the AR enabled E-commerce platform.
IV. Respondents with age 60yrs and above have no awareness about the usage of AR in the E-commerce platform.
V. Gender and Marital status of the respondents does not have significant association with the awareness of the E-commerce platform.

Conclusion

Augmented Reality (AR) is the technology which has taken over every aspect of the marketing industry. Indian E-commerce market is not an exception, rather there has been a huge amount of investment lined up for the deployment of the AR features in the industry. The current study focused on the impact of the AR on consumer buying decision and its demographical impact. The study found that there were no relation of gender and marital status of the customers with their buying decisions. Customers with age 60yrs or more are not likely aware of the implementation of the AR in E-commerce platforms and thus do not purchase any products on the E-commerce platforms. 58% customers in India still prefers offline purchases over the online. This shows there are still more efforts required on the end of the marketers to educate the customer about the implementation of AR in E-commerce platforms and communicate their benefits over the offline stores. Customers aged 20 to 30 years are the most regular customers in the E-commerce platforms. This study shows that still effort is required in Indian market to popularize the E-Commerce industry and the requirement of educating the elderly population about the benefits of the same.

Managerial Impact of AR in Marketing

The Covid-19 pandemic's aftermath has brought about unheard-of changes in the retail sector. Consumers' shopping experiences have changed from being primarily physical to being primarily virtual. Brands have joined in to provide customers the most immersive experience possible. Although consumers valued the convenience of online buying, it soon became clear that virtual storefronts had many drawbacks. As a result, brands began utilizing various technologies to replicate the in-store experience online. One of the effective ways for doing this is augmented reality (AR), which, in addition to removing e-commerce restrictions, improves the experience of online buying by offering thorough product descriptions. This procedure is made easier by augmented reality (AR), which shows users how the product would appear in their personal setup. With AR, there are countless possibilities and space for marketers to creatively present their product.

Consumers are responding positively to AR more and more. The convenience of online buying has made room for greater AR technology development. According to a Deloitte report, 94% of customers are anticipated to continue using augmented reality (AR) for shopping in 2018. Consumers are 41% more inclined to consider brands that provide AR experiences. Another study by Alter Agents found that Snapchat's augmented reality is 1.7 times more immersive than that of any other platform. Tech developers are expanding options for brands to communicate with consumers by innovating and giving users a more immersive experience.

Future Prospect directions of AR in Marketing

Augmented reality (AR) has gained popularity over the past several years among consumers, businesses, and investors. As augmented reality is expected to disrupt several industries, both traditional and internet businesses are investing heavily in the technology. Retail, healthcare, logistics, travel, manufacturing, and other industries are among them. E-commerce is one sector where augmented reality can offer a variety of advantages. In addition to showing the product itself, augmented reality (AR) can also provide clients product details and support subtitles. Customers frequently obtain things that are both larger and smaller in e-commerce circumstances. Here, marketers may reduce loss of money due to returns and improve consumer experience by providing pertinent information.

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