Role of Augmented Reality and Virtual Reality in Online Retail Shopping

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Abstract*: This study explores the impact of Augmented Reality (AR) and Virtual Reality (VR) on online retail shopping in Mumbai, examining consumer awareness, usage, and perceptions of these technologies. Utilizing a descriptive research design, the study gathered data from 50 respondents through an online questionnaire, focusing on their shopping habits, awareness, understanding, and attitudes towards AR/VR. The analysis reveals a moderate level of awareness and appeal of AR/VR, with varied understanding and actual usage among consumers. Most respondents believe that AR/VR can enhance the online shopping experience, though concerns about usability, privacy, and accessibility are evident. The findings suggest potential opportunities for e-commerce platforms to integrate AR/VR more effectively, addressing consumer concerns to enrich the online shopping experience and adapt to evolving market trends*

Keywords: Retail banking

I. INTRODUCTION

AI (Artificial Intelligence) is the most advanced information technology and is employed in every aspect of human existence. AI is the ideal blend of human and machine psychology to create an automated environment where most customers operate. Most people assume AI means robots that work for humans, but this is not true. Artificial intelligence is the blending of MIS (management information system) terminology like DSS (Decision Support System), ES (Expert System), KM (Knowledge Management), DW (Data Warehouse), andDM (Data Mining), but this terminology is technical jargon for the average person.

Artificial intelligence is used in government and private management systems and virtual imaging in Hollywood and Bollywood movies like Matrix, Mission Impossible, Die Hard Series, Robot, Bahubali, etc., but AI and VR are not limited to the film industry. Sophia, a beautiful, lovely robot, is the greatest illustration of artificial intelligence in the fast-changing world of WhatsApp, Facebook, Twitter, Instagram, YouTube, and Google. Sophia the robot was launched in an international symposium and received her uncommon national citizenship as a machine. Nobody has given a robot national citizenship before. Sophia may remind many Indian viewers of the popular Indian film 'Robot' starring Rajnikant as Chitty, a robot who could perform any task in seconds, including giving birth at the hospital. South Indian film director Raja Mouli brilliantly used virtual imaging to create a real-life environment for the audience. However, space technology expert Professor Hawkins warned of the dangers of AI. He predicted that AI will destroy human society when a machine with artificial intelligence refuses to follow its creator's orders. These robots will reproduce their numbers like the Bollywood robot, endangering humanity.AI has been around since 1956, but corporations have just lately started employing it for advertising to improve consumer experience. You may have seen semi-automatic or fully automatic washing machines, which are the second stage of artificial intelligence technology used in business. Many of you have used automatic vending machines for tea, coffee, soups, etc. Many organizations have implemented AI technology to handle customer inquiries and complaints 24/7, boostingTheir consistent customer service has earned them the trust of current and future consumers. Most major businesses provide AI-enabled automated customer care services that allow clients to ask complicated inquiries and receive more empathic and relevant responses. AIchatbots make online shopping delivery tracking easier. Marketers used to spend a lot of money on research to understand consumer behavior and preferences, but now AI algorithms analyze user reactions to recommend the best product.

Mr. SundarPichai, Google's global CEO, recently introduced a Google Assistant that makes and receives calls on behalf of an individual in a virtual environment that sounds like a genuine person. Google map is used by most people for

navigation, route finder, shortest route, best route, trip time using many modes of transportation like vehicle, bus, auto, bike, etc. This example illustrates how artificial intelligence may be used in daily life.Virtual Reality is an interactive computer-simulated experience. This immersive atmosphere may be genuine or fictional. It mostly uses aural and visual input but may use additional sensory feedbacks.

Users enter a computer-generated virtual world with this technology. Users can sometimes move and hear in digital surroundings. VR experiences can be improved with hand controllers. A sensory VR headset is needed for VR interaction. A computer or game console may connect to this VR system. No computer or game console is needed to use Google Cardboard, a popular standalone gadget.Augmented reality (AR) uses computer-generated display, sound, text, and effects to improve the user's real-world experience.Augmented reality blends actual and computer-generated pictures to improve worldview.

Augmented reality lets consumers engage with digital material in real life. The most famous example of augmented reality is Pokemon Go, where players run in real life to find little virtual critters.AR and VR are transforming consumer shopping experiences. Former automobile purchasers had to visit five to ten showrooms before buying, which was uninteresting and time-consuming. VR allows customers to enjoy personalized service without fuss.Social and Life Sciences Research Journal, Vol. XXVIII, Year-14, Eng-I June, 2019. 8.1 Experience the shop through virtual test drive. According to YouVisit COO and Co-founder EndriTolka, BMW, Audi, Porche,KIA,Volkswagen,Lexus,ChevoletandHonda have all used virtual reality in their marketing. This helps purchasers create and imagine various models with varied colors and interiors and helps carmakers avoid stockpiling automobiles in their showrooms. Virtual showrooms at shopping malls and other venues are being planned by the producers.

But AR can help buyers perceive items in context. Retailers in several sectors have adopted AR technology into their stores. Lacoste's LCST AR smartphone app let shoppers virtually test on shoes. The software creates window display AR experiences. Clothing businesses have employed AR mirrors to make product trials easier. Timberland used Kinect to build a virtual fitting room. They made the fitting room a prime window exhibit. Passersby may virtually try on all the clothes in the store using hand gestures. Web and Facebook applications employ a PC's camera and AR to provide home users a comparable experience.

In India, Myntra employed AR to provide clients a 360-degree experience. Gap.inc released the DressingRoom app to let clients try on items remotely. Height and weight are used to generate a 3D mannequin by the software. It depicts the model from all angles and how a garment will look on it.Besides retail and gaming, India's education industry uses VR. Virtual reality is helping Byju, an EdTech business, reinvent experiential learning. More and better technology will rapidly change consumer purchase experiences, with more and more experiences sought through mediated technologies than physical presence.

Study Importance:

This study will examine customers' existing involvement with these technologies and their experiences will assist decision makers and marketers make necessary modifications to make AI-enabled marketing more popular and sustainable.

II. LITERATURE REVIEW

M-commerce has developed regularly in emerging nations (Credit Suisse 2016) due to increasing internet access, especially among lower-income groups, and smartphone use (Bandi et al. 2018).

However, Deb and Lomo-David (2014) and Heinze and Matt (2018) found considerable customer resistance to m-commerce in emerging markets, resulting in ROPO behavior. In emerging nations, cash on delivery (COD) is popular because consumers trust retailers less and expect to return items (Bandi et al. 2018; Odoom and Kosiba 2020). Despite its accessibility, customers oppose m-commerce (Al-Khalaf and Choe 2020; Chi 2018; Thongpapanl et al. 2018).

To contextualise this conclusion, other researchers have found that developing economy consumers have different expectations to adopt new technologies (Chaouali, Souiden, and Ladhari 2017). Scholars contend that it is unclear which elements drive m-commerce adoption aspirations in emerging economies. Due to considerable variability within and across developing economies, a small number of research papers on some cannot be generalised to others (Sinha and Sheth 2018). These factors suggest that emerging markets should be studied separately for consumer behavior and

technology adoption (Hussein and Kais 2020; Odoom and Kosiba 2020). This study builds on previous research and speculates about AR-mediated m-commerce's potential to boost Indian internet shopping.

The next parts build a conceptual model based on anthropomorphism, behavioral reasoning theory, and other variables that impact customers' attitudes and intentions to embrace AR-mediated m-commerce, concluding in hypotheses. After describing the quantitative methods employed to evaluate this model, we provide the findings and comment. Finally, we discuss this research's theoretical and practical consequences, limits, and future directions.

III. RESEARCH METHODOLOGY

Gender Distribution

This bar chart shows the distribution of respondents' genders. It provides insights into the gender diversity of the survey participants.


Gender Distribution
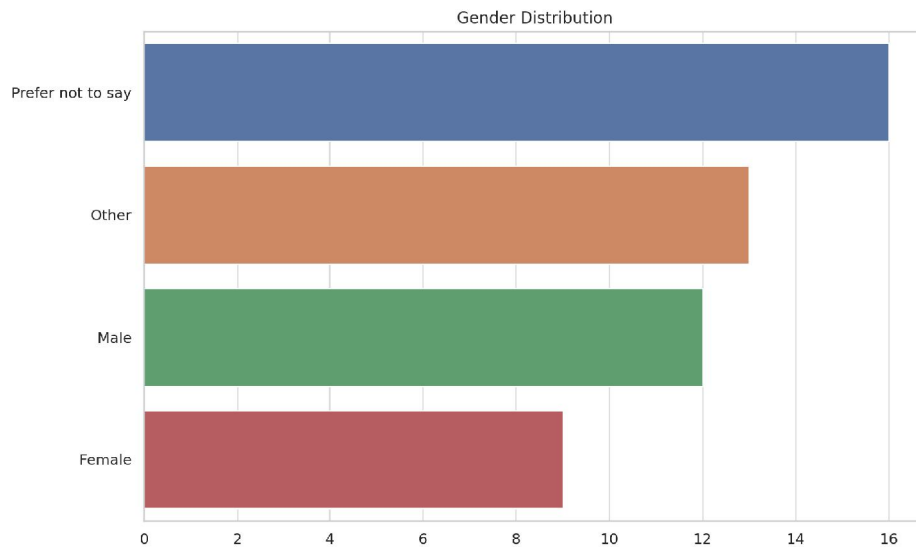
Occupation Distribution

This bar chart illustrates the variety of occupations among the respondents. It helps in understanding the professional background of the participants.


Occupation Distribution
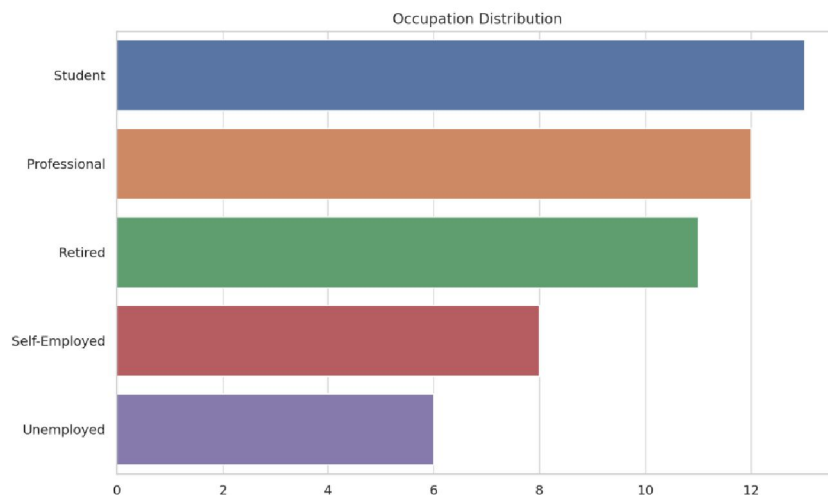
Shopping Frequency Distribution

This bar chart represents how frequently respondents shop online. It's crucial for understanding shopping habits in the context of online retail.
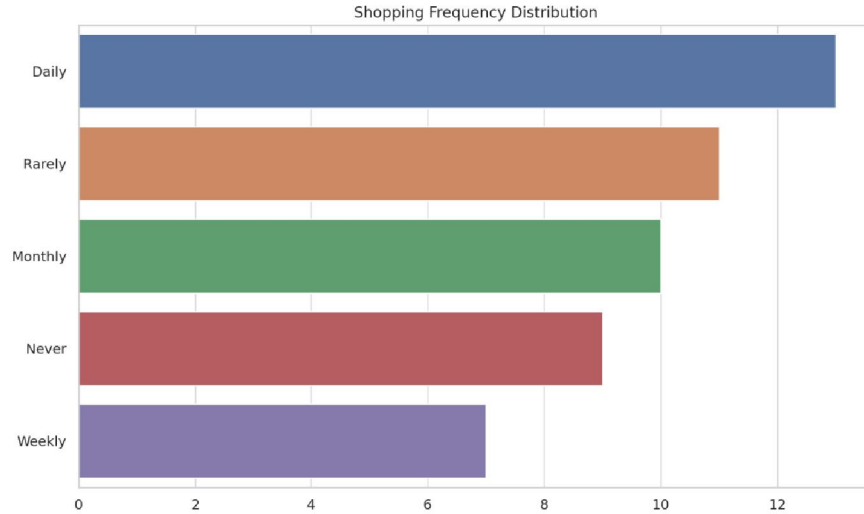

Product Type Preference

This pie chart shows the types of products respondents usually shop for online. It indicates the popular product categories in online shopping among the participants.
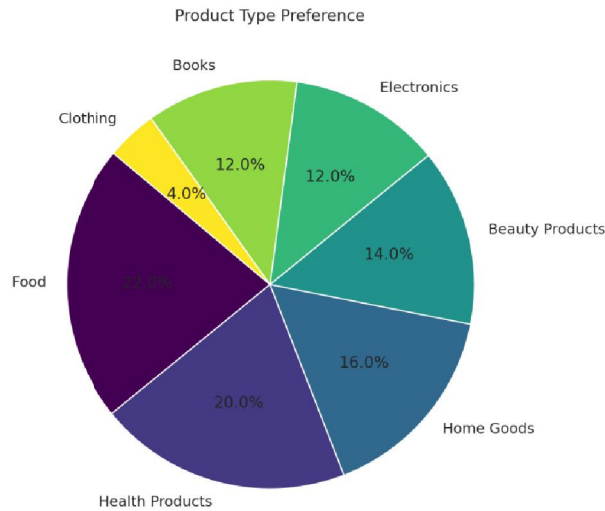

Awareness of AR/VR

This bar chart displays the level of awareness of AR and VR technologies among respondents. It's an important metric to gauge the current knowledge and potential interest in AR/VR technologies in online shopping.
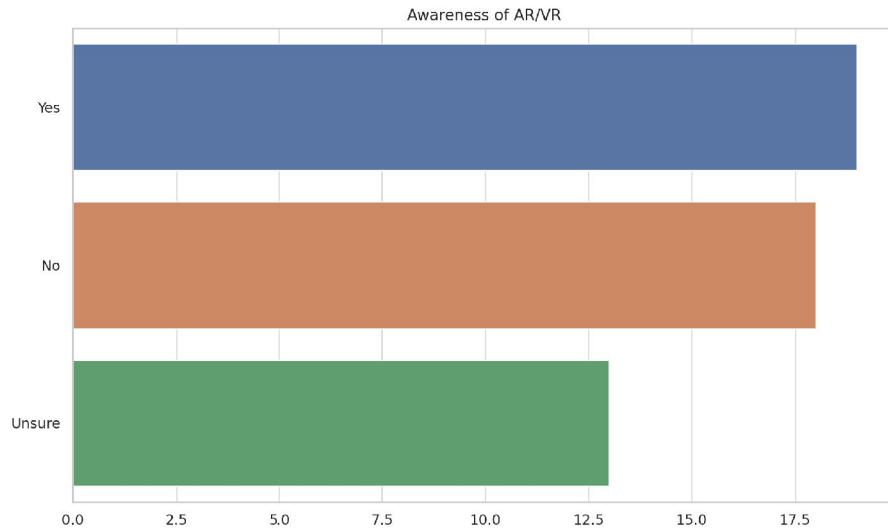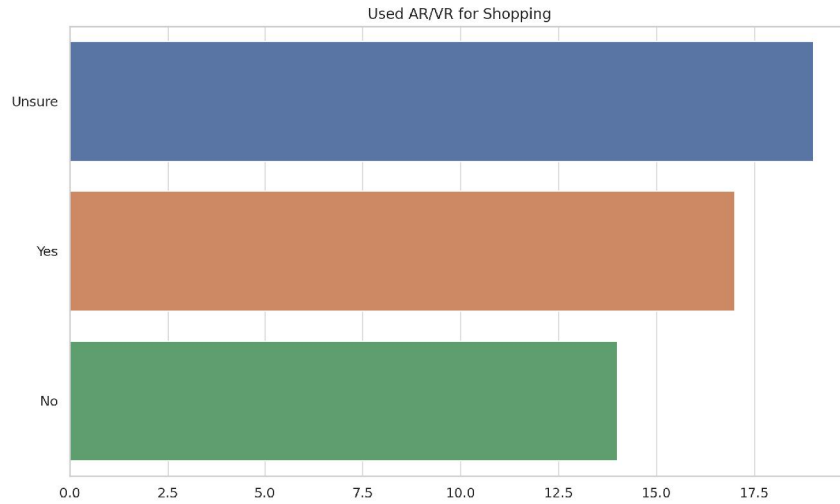
Awareness of AR/VR

Understanding of AR/VR

This bar chart shows respondents' self-rated understanding of AR/VR on a scale of 1 to 5. It helps in assessing the general awareness and knowledge level about these technologies among the participants.


Understanding of AR/VR
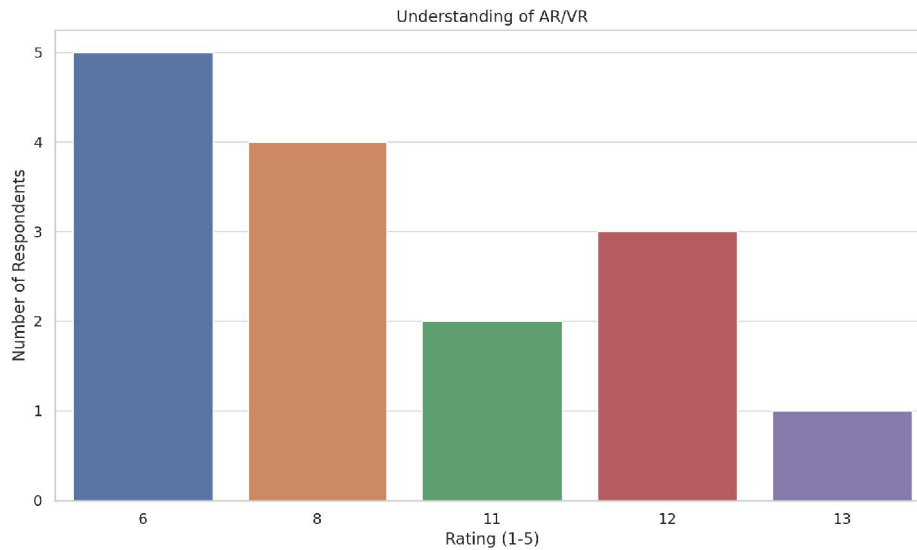
Used AR/VR for Shopping

This bar chart indicates whether respondents have used AR/VR for shopping. It shows the practical application and exposure of participants to AR/VR in the shopping context.

AR/VR Appeal in Shopping

This bar chart reflects how appealing respondents find the use of AR/VR in online shopping on a scale from 1 to 5. It provides insights into the attractiveness of AR/VR features for consumers.
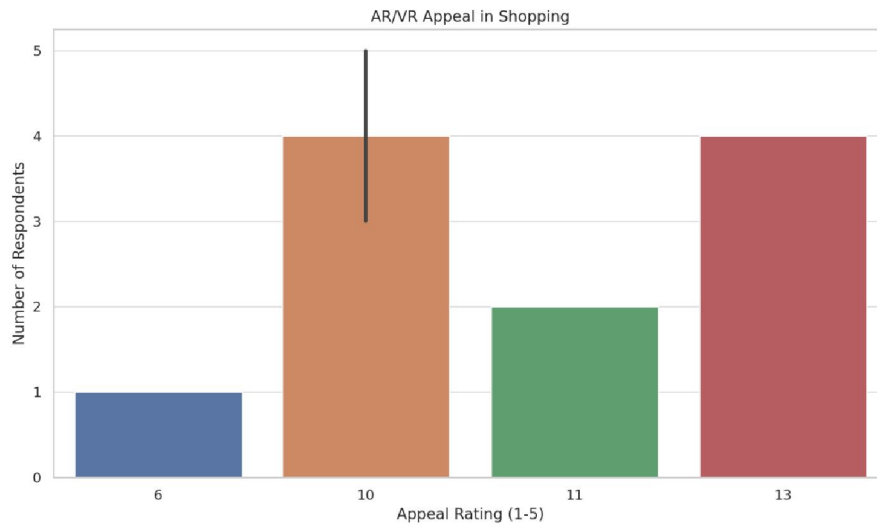

Belief in AR/VR Enhancement for Online Shopping

This bar chart illustrates the respondents' belief in whether AR/VR can enhance the online shopping experience. It indicates the perceived potential of AR/VR in improving online retail.

Belief in AR/VR Enhancement for Online Shopping
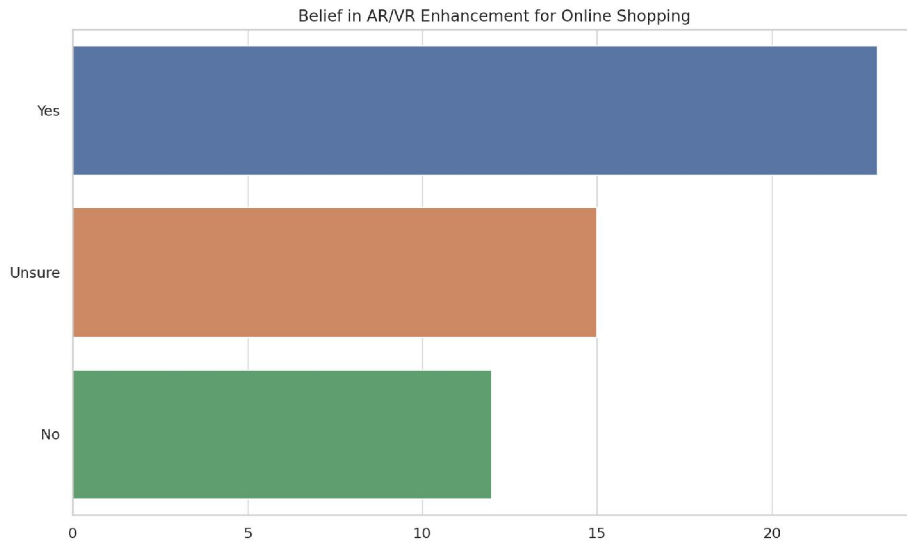
Likelihood of Using AR/VR in Future Shopping

This bar chart shows how likely respondents are to use AR/VR in their future shopping on a scale from 1 to 5. It forecasts the potential adoption of AR/VR technologies in online shopping.

Likelihood of Using AR/VR in Future Shopping
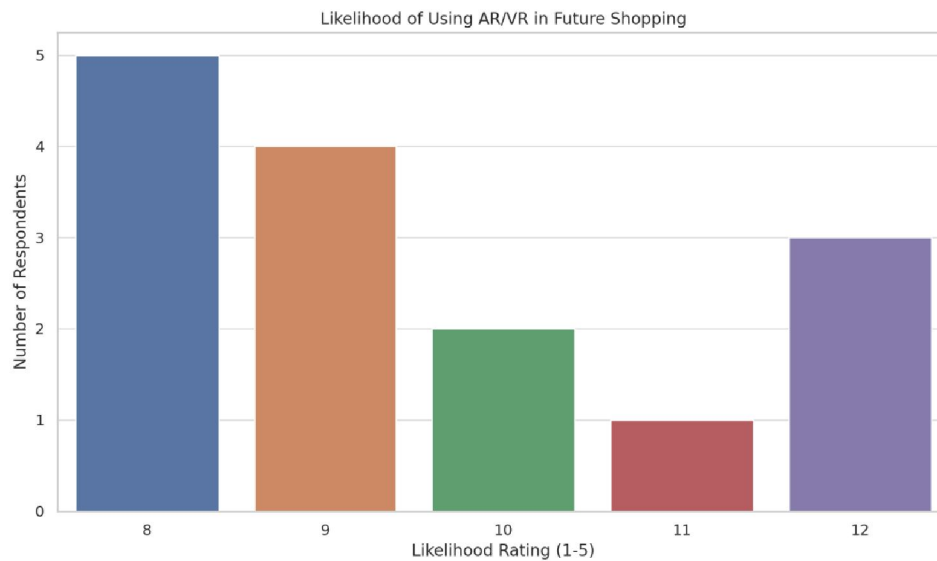
III. RESEARCH METHODOLOGY

Title: Analyzing the Impact of Augmented Reality (AR) and Virtual Reality (VR) in Online Retail Shopping

Objective: The primary objective of this research is to understand the perceptions, experiences, and attitudes of consumers in Mumbai towards the use of AR and VR technologies in online retail shopping. The study aims to assess the level of awareness, appeal, and potential impact of these technologies on consumer behavior and shopping experiences.

Research Design:

Type of Research: This study employs a descriptive research design, utilizing a survey method to collect quantitative data.

Data Collection Method: The data was collected through an online questionnaire, ensuring a diverse and representative sample of the online shopping population in Mumbai.

Sampling:

Population: The target population for this study consists of individuals residing in Mumbai who engage in online shopping.

Sample Size: A total of 50 respondents participated in the survey.

Sampling Method: Convenience sampling was used, allowing participants to voluntarily complete the questionnaire.

Data Collection Instrument:

The questionnaire was structured with a combination of demographic questions, Likert-scale questions, and multiple-choice questions.

Key areas covered in the questionnaire include general shopping habits, awareness and understanding of AR/VR technologies, personal experiences with AR/VR in shopping, perceptions and attitudes towards these technologies, and future outlook.

Data Analysis:

The collected data was analyzed using basic statistical methods.

Descriptive statistics were employed to summarize the demographic information and to understand the distribution of responses for each question.

Charts and graphs were generated to visually represent the data, facilitating easier interpretation of the findings.

IV. FINDINGS

Discussion

Based on the analysis of the survey data regarding the use of Augmented Reality (AR) and Virtual Reality (VR) in online retail shopping among consumers in Mumbai, the following key findings can be concluded:

Awareness and Understanding of AR/VR Technologies:

A significant portion of respondents are aware of AR and VR technologies, indicating a growing recognition of these technologies in the online shopping landscape.

However, the understanding of AR/VR varied, with an average rating of 2.66 out of 5, suggesting that while aware, many consumers may not fully comprehend the capabilities and applications of these technologies in online shopping.

Usage and Appeal of AR/VR in Shopping:

The use of AR/VR in online shopping showed a mixed response, with some participants having used these technologies while others either haven't used or are unsure about them.

The appeal of AR/VR in online shopping averaged at 3.2 out of 5, indicating a moderate level of interest among consumers. This suggests potential for growth if these technologies are effectively integrated into online retail platforms.

Perceptions Towards AR/VR in Enhancing Online Shopping:

A majority of the respondents believe that AR/VR can enhance the online shopping experience, reflecting a positive perception of the potential benefits of these technologies.

The anticipated improvements include better product understanding, increased engagement, and a reduction in product returns due to a more interactive and informative shopping experience.

Future Outlook and Willingness to Use AR/VR:

The likelihood of using AR/VR in future online shopping experiences had an average rating of 2.86 out of 5. This indicates a cautious optimism about the adoption of these technologies in future shopping endeavors.

Concerns regarding privacy, usability, and accessibility were noted, which could be key factors influencing the future adoption and acceptance of AR/VR in online shopping.

Demographics and Shopping Habits:

The demographic analysis revealed a diverse range of ages, genders, and occupations, illustrating the widespread interest in online shopping across different segments of the population.

The frequency of online shopping and types of products purchased varied, indicating diverse shopping patterns and preferences among the respondents.

V. CONCLUSION

The survey on the role of Augmented Reality (AR) and Virtual Reality (VR) in online retail shopping among consumers in Mumbai reveals a landscape of cautious optimism. While there is notable awareness and moderate appeal for AR/VR technologies, the understanding and actual usage vary among consumers, suggesting an opportunity for growth and education in this area. The belief that AR/VR can enhance the online shopping experience is prevalent, yet concerns about usability, privacy, and accessibility persist. These findings indicate a potential for e-commerce platforms to innovate and better integrate AR/VR technologies, addressing existing concerns to fully harness their capabilities for enriching the online shopping experience and meeting evolving consumer expectations.

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