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# Exploring consumer behavior in Extended Reality (XR): Analyzing key influencing factors in the metaverse

K. Karthikeyan[a]*, D. Prashanth[a]

## Abstract

This study explores the key factors shaping consumer behavior in an Extended Reality (XR) environment, focusing on customer loyalty, purchase decisions, brand perception, price sensitivity, impulse buying, channel preference, personalization, service quality, immersion level, and interactivity. While XR adoption is expanding across industries, a research gap remains in understanding the combined impact of these factors on consumer engagement and decision-making. To bridge this gap, the study employs simple percentage analysis, factor analysis, and correlation study to analyze consumer preferences and behavioral patterns. Conducted as a descriptive study in Bangalore with a sample size of 195 respondents, the research identifies interactivity and service quality as critical drivers of customer engagement, while price sensitivity and brand perception significantly influence purchase decisions. Correlation analysis further reveals strong links between impulse buying, channel preference, and purchase decisions, underscoring the role of personalized and immersive experiences in enhancing consumer satisfaction. However, low awareness levels indicate a need for targeted marketing and education to drive XR adoption. The study concludes that businesses leveraging XR should prioritize interactivity, optimize pricing strategies, and build brand trust to enhance customer engagement and loyalty.

**Keywords**: Extended Reality (XR), Consumer Behavior, Customer Loyalty, Purchase Decision, Brand Perception, Price Sensitivity, Impulse Buying.

**Author Affiliation:** [a]Department of Management Science, PSG College of Arts & Science, Coimbatore, Tamilnadu, India.
**Corresponding Author:** K. Karthikeyan. Department of Management Science, PSG College of Arts & Science, Coimbatore, Tamilnadu, India.
**Email:** kkarthierp@gmail.com

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## 1. INTRODUCTION

Extended Reality (XR), which includes Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR), plays a pivotal role in enhancing consumer engagement and decision-making within the Metaverse. As businesses integrate XR into retail and digital commerce, consumer behavior in these virtual environments is influenced by several key factors, including customer loyalty, purchase decisions, brand perception, price sensitivity, impulse buying, channel preference, personalization, service quality, immersion level, and interactivity. While user engagement (Xu et al., 2022a) remains central to the success of the Metaverse, challenges in the network layer—such as latency, security risks, and limited throughput (Yang et al., 2022)—affect the seamless functionality of XR-based shopping and interactions. The application layer, responsible for spatial mapping and content creation, enables highly interactive and personalized experiences that drive brand perception and consumer satisfaction (Wang and Zhao, 2022). Technologies like digital twins and AI-driven holography contribute to real-time product simulations, influencing purchase decisions and impulse buying behaviors (Christodoulou et al., 2022).

Despite the rapid adoption of XR in e-commerce and brand engagement, there remains a research gap in understanding the collective impact of these factors on consumer behavior within XR environments. As XR becomes an integral part of the Metaverse, it is crucial to analyze how interactivity, immersion, service quality, and personalization shape consumer preferences and decision-making. This study, a descriptive analysis conducted in Bangalore with a sample size of 195 respondents, aims to bridge this gap by applying simple percentage analysis, factor analysis, and correlation study to evaluate significant behavioral patterns. By examining the relationships between channel preference, price sensitivity, and brand perception, the study seeks to offer insights into how businesses can enhance customer loyalty and optimize marketing strategies within XR environments.The concept of the Metaverse was first introduced in Crash (Kim, 2021), describing a vast digital realm where virtual and physical worlds are

interconnected, allowing individuals to interact through digital avatars. Over time, the Metaverse has evolved into a multidimensional space, incorporating life-logging technologies, shared virtual spaces, immersive experiences, and AI-driven content creation (Song and Chung, 2021; Owens et al., 2011; Balica et al., 2022). Following Mark Zuckerberg's announcement in October 2021 that Facebook would rebrand as Meta, discussions around the Metaverse have intensified, drawing attention from academics, business professionals, and industry leaders. As companies like Microsoft invest in virtual gaming and online experiences through acquisitions like Activision Blizzard, the Metaverse continues to gain momentum in shaping the future of digital interaction.

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## 2. REVIEWS OF LITERATURE

Metaverse technology is developing into a complex network of interconnected systems, where mobile networks, aerial networks, and stationary networks will be unified under a single framework. Therefore, it is essential to review the existing research related to the verification of different entities involved in the network. This analysis will underline the advantages and limitations of relevant studies, offering insights into the open research issues tied to this subject. Vishwakarma and Das (2021) introduced a security framework for blockchain-based IoT solutions, named SCAB-IoT (Security Communication and Authentication for Blockchain). In their approach, the authors used Advanced Encryption Standards (AES) alongside the Elliptic Curve Digital Signature Algorithm (ECDA) to validate network devices and ensure the confidentiality of transmitted information. In Deebak et al. (2022), the authors proposed a trust-aware, blockchain-driven seamless authentication protocol to tackle authentication and data privacy concerns in IoT solutions, while also considering future integration with other technologies. Their study focused on the traffic patterns of interconnected devices in relation to the authentication process, aiming to enhance communication metrics such as packet loss ratio and delay.

Prakasam et al. (2022) suggested a low-latency, area-efficient, and optimal power Hybrid Lightweight Cryptography Authentication Scheme using 8-bit manipulation techniques to verify and validate legitimate devices within the networks. In Satamraju and Malarkodi (2021), the authors proposed a decentralized authentication approach for blockchain-powered IoT solutions, leveraging the Physical Unclonable Functions (PUFs) of the participating devices. This model concentrated on reducing computational complexity during the validation process to extend the operational lifespan of resource-limited devices. Masud et al. (2021) presented a lightweight, privacy-preserving user authentication protocol for IoT solutions to mitigate various security risks faced by these networks. Extended reality (XR) refers to the collective integration of augmented reality (AR), virtual reality (VR), and mixed reality (MR). Within the Metaverse, these technologies work together to blend the physical and virtual worlds, creating an experience where distinguishing between 3D digital objects and physical objects becomes challenging for users (Panda et al., 2022). Given the definition and roles of XR, it's clear that this technology holds a pivotal role in the Metaverse. However, securing this technology remains a challenge for stakeholders, as it is still in a developmental stage. Furthermore, when AR, VR, MR, and other emerging technologies collaborate within the Metaverse, the security risks become even more critical. As a result, we aim to explore these security concerns in the context of 5G and 6G communication frameworks, considering the future of the Metaverse.

## 3. RESEARCH DESIGN

### 3.1 Research Problem

Extended Reality (XR), several challenges arise across key variables. Customer loyalty may be difficult to maintain if XR experiences fail to sustain long-term engagement. Purchase decisions could be hindered by decision fatigue or skepticism toward virtual product representations. Brand perception is influenced by the quality of XR interactions, with poorly executed experiences potentially damaging trust. Price sensitivity may limit adoption due to the high cost of XR technology. Impulse buying could be affected by the level of immersion and ease of transactions within XR environments. Channel preference remains a challenge

as many users may still favor traditional shopping methods. Personalization can be ineffective if XR lacks seamless data integration, leading to irrelevant recommendations. Service quality is at risk due to technical issues, lack of human support, or unrefined interfaces. Immersion level plays a critical role in user experience, but hardware limitations and discomfort may reduce its effectiveness. Lastly, interactivity must be intuitive and responsive, as poor engagement can diminish the impact of XR on consumer behavior.

### 3.2 Gap in Previous Studies

While existing research has explored XR adoption and its impact on consumer behavior, there remains a lack of comprehensive studies integrating variables such as customer loyalty, impulse buying, and price sensitivity within an XR context. Previous studies have largely focused on isolated factors like immersion and interactivity without analyzing their combined influence on purchase decisions and brand perception. Additionally, limited attention has been given to how personalization and service quality affect user engagement in XR-based shopping environments. Moreover, the role of channel preference in determining whether consumers transition from traditional platforms to XR experiences remains underexplored. Addressing these gaps can provide a deeper understanding of how XR shapes consumer behavior and marketing effectiveness.

### 3.3 Research Objectives

To address these gaps, this study aims to:

- Analyze consumer preferences and behaviors in XR-based environments using simple percentage analysis to understand the distribution of key variables.
- Identify underlying factors influencing customer engagement, purchase decisions, and brand perception in XR shopping through factor analysis.
- Examine the relationships between immersion level, interactivity, personalization, and consumer behavior outcomes using correlation analysis.

### 3.4. Research design

This study adopts a descriptive research design to analyze the key factors influencing consumer behavior in an Extended Reality (XR) environment. It employs simple percentage analysis, factor analysis, and correlation study to examine relationships between variables such as customer loyalty, purchase decisions, brand perception, price sensitivity, impulse buying, channel preference, personalization, service quality, immersion level, and interactivity. The research is conducted in Bangalore with a sample size of 195 respondents, providing insights into consumer engagement and decision-making in the XR ecosystem.

## 4. DATA ANALYSIS

### 4.1 Descriptive statistics of the customer profile

The demographic analysis reveals that the majority of respondents (35.4%) belong to the 18-25 age group, followed by 26-35 years (30.8%), indicating that younger individuals are more engaged in the study. In terms of income, the highest proportion of respondents (33.8%) fall within the Rs. 25,000 - Rs. 50,000 range, while only 8.7% earn above Rs. 1,50,000. Employment

**Table 1. Descriptive statistics of the customer profile**

| Factors | Frequency | Percent | Valid Percent |
|---|---|---|---|
| Age | | | |
| 18-25 | 69 | 35.4 | 35.4 |
| 26-35 | 60 | 30.8 | 30.8 |
| 36-45 | 20 | 10.3 | 10.3 |
| 46-55 | 21 | 10.8 | 10.8 |
| Above 55 | 25 | 12.8 | 12.8 |
| Income | | | |
| Below Rs. 25000 | 33 | 16.9 | 16.9 |
| Rs. 25000 - Rs. 50000 | 66 | 33.8 | 33.8 |
| Rs. 50001 - Rs. 100000 | 48 | 24.6 | 24.6 |
| Rs. 100001 - Rs. 150000 | 31 | 15.9 | 15.9 |
| Above Rs. 150000 | 17 | 8.7 | 8.7 |
| Employment | | | |
| Student | 51 | 26.2 | 26.2 |
| Employed | 96 | 49.2 | 49.2 |
| Self-Employed | 36 | 18.5 | 18.5 |

| | | | |
|---|---|---|---|
| Unemployed | 8 | 4.1 | 4.1 |
| Retired | 4 | 2.1 | 2.1 |
| Total | 195 | 100 | 100 |
| Education | | | |
| High School | 30 | 15.4 | 15.4 |
| Diploma | 53 | 27.2 | 27.2 |
| Under Graduate | 72 | 36.9 | 36.9 |
| Post Graduate | 28 | 14.4 | 14.4 |
| Doctorate | 12 | 6.2 | 6.2 |
| Frequency | | | |
| Weekly | 59 | 30.3 | 30.3 |
| Monthly | 66 | 33.8 | 33.8 |
| Seasonal | 29 | 14.9 | 14.9 |
| Occasionally | 29 | 14.9 | 14.9 |
| Rarely | 12 | 6.2 | 6.2 |
| Awareness | | | |
| Very High | 65 | 33.3 | 33.3 |
| High | 65 | 33.3 | 33.3 |
| Moderate | 47 | 24.1 | 24.1 |
| Low | 7 | 3.6 | 3.6 |
| Not aware | 11 | 5.6 | 5.6 |
| Total | 195 | 100 | 100 |

status shows that nearly half (49.2%) are employed, with 26.2% being students and 18.5% self-employed. Education levels indicate that most respondents (36.9%) are undergraduates, followed by diploma holders (27.2%) and postgraduates (14.4%). Shopping frequency data suggests that a significant proportion of respondents engage in purchases monthly (33.8%) or weekly (30.3%), whereas seasonal and occasional shoppers each account for 14.9%. Awareness levels show that 66.6% of respondents have high or very high awareness, while only 5.6% are not aware. Overall, the data highlights that the majority of participants are young, employed, and well-educated, with a considerable level of awareness and engagement in purchasing behavior.

### 4.2 Descriptive analysis of the Extended reality variables

The descriptive statistics provide insights into the central tendencies and variability of key factors influencing consumer behavior in an extended

**Table 2. Descriptive analysis of the Extended reality variables**

| Variable Name | Mean | Std. Deviation |
|---|---|---|
| Awareness | 2.1487 | 1.09988 |
| Customer Loyalty (BEO1) | 3.359 | 1.04258 |
| Purchase Decision (BEO2) | 3.5077 | 1.31748 |
| Brand Perception (CBH1) | 3.1436 | 1.66526 |
| Price Sensitivity (CBH2) | 3.2667 | 1.42173 |
| Impulse Buying (SBH1) | 3.1949 | 1.57721 |
| Channel Preference (SBH2) | 3.2564 | 1.37199 |
| Personalization (CXP1) | 3.4872 | 1.40455 |
| Service Quality (CXP2) | 3.5795 | 1.39867 |
| Immersion Level (ERY1) | 3.4974 | 1.32141 |
| Interactivity (ERY2) | 3.6667 | 1.35337 |
| Descriptive Statistics N =195 | | |

reality (XR) environment, based on a sample of 195 respondents.

Interactivity (Mean = 3.67, SD = 1.35) and Service Quality (Mean = 3.58, SD = 1.40) have the highest mean scores, indicating that respondents place significant importance on interactive features and perceived service quality in their experiences. Awareness (Mean = 2.15, SD = 1.10) has the lowest mean score, suggesting that respondents may have limited familiarity or knowledge about XR-based experiences. Consumer Behavior Insights:

Purchase Decision (Mean = 3.51, SD = 1.32) and Customer Loyalty (Mean = 3.36, SD = 1.04) indicate that while respondents are moderately confident in their purchase choices, loyalty levels are slightly lower, suggesting that brand retention strategies need reinforcement. Brand Perception (Mean = 3.14, SD = 1.67) and Price Sensitivity (Mean = 3.27, SD = 1.42) exhibit relatively high standard deviations, implying that perceptions vary significantly among respondents, likely due to differences in consumer priorities or purchasing power.

Impulse Buying and Channel Preferences: Impulse Buying (Mean = 3.19, SD = 1.58) and Channel Preference (Mean = 3.26, SD = 1.37) show moderate levels, suggesting that spontaneous purchases and preferred shopping platforms play a role in consumer decisions, but the variations indicate that different segments may react differently to marketing stimuli. XR Engagement Factors: Immersion Level (Mean = 3.50, SD = 1.32) and Interactivity (Mean = 3.67, SD = 1.35) confirm that engaging, immersive, and interactive elements significantly impact consumer perception, reinforcing the importance of enhanced virtual experiences in influencing behavior. The high importance of interactivity and service quality suggests that businesses leveraging XR should prioritize seamless, interactive user experiences to boost customer engagement. The moderate purchase decision score alongside high price sensitivity implies that pricing strategies must be carefully structured, particularly for different market segments. Awareness scores indicate a potential gap in knowledge, emphasizing the need for targeted educational campaigns to improve consumer understanding of XR applications.

### 4.3. Factor analysis of the extended reality

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.763, indicating a moderate to good level of adequacy for factor analysis, as values above 0.7 suggest that the data is suitable for factor extraction. The Bartlett's Test of Sphericity shows a Chi-Square value of 877.207 with 45 degrees of freedom and a significance level of 0.000, indicating that the correlation matrix is not an identity matrix and that factor analysis is appropriate. These results confirm that the dataset meets the necessary conditions for further factor analysis.

The Factor Extraction Results indicate the extent to which each variable contributes to the underlying factors. Variables with higher extraction values (closer to 1) have a stronger influence on the extracted factors. High Extraction Values: Brand perception (0.74), price sensitivity (0.764), impulse buying (0.677), channel preference (0.713), and interactivity (0.999) demonstrate strong relevance to the factors, indicating their significant role in explaining variance. Moderate Extraction Values: Purchase decision (0.366), personalization (0.435), service quality (0.46), and immersion level (0.436) show a moderate contribution, suggesting they influence but do not dominate the factor structure.

Low Extraction Values: Customer loyalty (0.31)

**Table 3 .Factor Extraction of extended reality**

| Variable Name | Initial | Extraction |
|---|---|---|
| Customer Loyalty (BEO1) | 0.399 | 0.31 |
| Purchase Decision (BEO2) | 0.448 | 0.366 |
| Brand Perception (CBH1) | 0.646 | 0.74 |
| Price Sensitivity (CBH2) | 0.611 | 0.764 |
| Impulse Buying (SBH1) | 0.582 | 0.677 |
| Channel Preference (SBH2) | 0.606 | 0.713 |
| Personalization (CXP1) | 0.534 | 0.435 |
| Service Quality (CXP2) | 0.549 | 0.46 |
| Immersion Level (ERY1) | 0.442 | 0.436 |
| Interactivity (ERY2) | 0.476 | 0.999 |

**Table 4. Total Variance Explained of Extended reality**

| Total Variance Explained | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Factor | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.161 | 41.613 | 41.613 | 1.516 | 15.161 | 15.161 | 2.246 | 22.463 | 22.463 |
| 2 | 1.671 | 16.712 | 58.325 | 3.627 | 36.272 | 51.433 | 2.171 | 21.712 | 44.174 |
| 3 | 1.216 | 12.157 | 70.482 | .756 | 7.564 | 58.997 | 1.482 | 14.823 | 58.997 |
| 4 | .728 | 7.280 | 77.761 | | | | | | |
| 5 | .690 | 6.899 | 84.660 | | | | | | |
| 6 | .413 | 4.127 | 88.787 | | | | | | |
| 7 | .374 | 3.735 | 92.522 | | | | | | |
| 8 | .284 | 2.845 | 95.367 | | | | | | |
| 9 | .260 | 2.597 | 97.964 | | | | | | |
| 10 | .204 | 2.036 | 100.000 | | | | | | |
| Extraction Method: Maximum Likelihood. | | | | | | | | | |

has the lowest extraction score, implying that it may not strongly load onto the identified factors and could be less relevant in explaining the underlying structure.

The Total Variance Explained table shows that the first three factors collectively account for 58.997% of the total variance, indicating a strong factor structure. Initially, the first factor had an eigenvalue of 4.161, explaining 41.613% of the variance, while the second factor contributed 16.712%, bringing the cumulative variance to 58.325% before extraction. After extraction, the first two factors retained 51.433% of the variance, and post-rotation, the variance was distributed more evenly, with the first factor explaining 22.463%, the second 21.712%, and the third 14.823%. This redistribution enhances interpretability, confirming that three key factors effectively capture the variability in the dataset, making them suitable for further analysis.

The Factor Loadings table reveals how each variable aligns with the three extracted factors. Factor 1 is strongly associated with interactivity (0.999) and immersion level (0.656), indicating that it primarily represents engagement and user experience in extended reality. Factor 2 has high loadings for brand perception (0.801), price sensitivity (0.761), impulse buying (0.714), channel preference (0.742), personalization (0.649), and service quality (0.669), suggesting that this factor relates to consumer behavior and preferences in purchasing decisions. Factor 3 has moderate loadings for customer loyalty (0.378), purchase decision (0.209), and impulse buying (0.399), pointing to decision-making and retention aspects. The strong factor loadings for immersion and interactivity in Factor 1 highlight the importance of user engagement in extended reality, while Factor 2 emphasizes how brand-

**Table 5 Rotation of factor loadings of Extended reality**

| Variable Name | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| Customer Loyalty (BEO1) | 0.066 | 0.545 | 0.094 |
| Purchase Decision (BEO2) | 0.309 | 0.515 | -0.077 |
| Brand Perception (CBH1) | 0.797 | 0.297 | 0.129 |
| Price Sensitivity (CBH2) | 0.855 | 0.159 | 0.084 |
| Impulse Buying (SBH1) | 0.305 | 0.763 | 0.046 |
| Channel Preference (SBH2) | 0.335 | 0.772 | 0.07 |
| Personalization (CXP1) | 0.484 | 0.44 | 0.084 |
| Service Quality (CXP2) | 0.578 | 0.345 | -0.082 |
| Immersion Level (ERY1) | 0.079 | 0.045 | 0.654 |
| Interactivity (ERY2) | 0.002 | 0.058 | 0.998 |

### 4.4. Correlation study of the extended reality

| Pearson Correlation (N=195)<br>**. Correlation is significant at the 0.01 level (2-tailed). *.<br>Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Variable Name** | **BEO1** | **BEO2** | **CBH1** | **CBH2** | **SBH1** | **SBH2** | **CXP1** | **CXP2** | **ERY1** | **ERY2** |
| Customer Loyalty (BEO1) | 1 | 0.557** | 0.261** | 0.116 | 0.402** | 0.400** | 0.260** | 0.224** | 0.053 | 0.125 |
| Purchase Decision (BEO2) | 0.557** | 1 | 0.404** | 0.354** | 0.446** | 0.449** | 0.367** | 0.335** | -0.018 | -0.046 |
| Brand Perception (CBH1) | 0.261** | 0.404** | 1 | 0.750** | 0.452** | 0.523** | 0.490** | 0.535** | 0.176* | 0.147* |
| Price Sensitivity (CBH2) | 0.116 | 0.354** | 0.750** | 1 | 0.413** | 0.406** | 0.461** | 0.518** | 0.121 | 0.095 |
| Impulse Buying (SBH1) | 0.402** | 0.446** | 0.452** | 0.413** | 1 | 0.732** | 0.480** | 0.393** | 0.087 | 0.091 |
| Channel Preference (SBH2) | 0.400** | 0.449** | 0.523** | 0.406** | 0.732** | 1 | 0.483** | 0.441** | 0.131 | 0.116 |
| Personalization (CXP1) | 0.260** | 0.367** | 0.490** | 0.461** | 0.480** | 0.483** | 1 | 0.672** | 0.08 | 0.11 |
| Service Quality (CXP2) | 0.224** | 0.335** | 0.535** | 0.518** | 0.393** | 0.441** | 0.672** | 1 | 0.005 | -0.061 |
| Immersion Level (ERY1) | 0.053 | -0.018 | 0.176* | 0.121 | 0.087 | 0.131 | 0.08 | 0.005 | 1 | 0.655** |
| Interactivity (ERY2) | 0.125 | -0.046 | 0.147* | 0.095 | 0.091 | 0.116 | 0.11 | -0.061 | 0.655** | 1 |

related elements influence consumer responses. The distribution of variables confirms a well-structured factor model, where each factor captures distinct aspects of XR-driven consumer behavior.

### 4.4. Correlation study of the extended reality

The Pearson Correlation Matrix reveals significant relationships between key variables, indicating how different factors interact in influencing consumer behavior in an extended reality (XR) environment.

**Strongest Correlations:**

Brand Perception (CBH1) and Price Sensitivity (CBH2) (0.750): Consumers with a strong brand perception are more sensitive to price variations. Impulse Buying (SBH1) and Channel Preference (SBH2) (0.732): Those prone to impulse buying also have strong preferences for specific shopping channels. Personalization (CXP1) and Service Quality (CXP2) (0.672): Personalized experiences contribute significantly to perceived service quality. Immersion Level (ERY1) and Interactivity (ERY2) (0.655): Higher immersion in XR is strongly associated with interactivity.

Purchase Decision (BEO2) correlates with Customer Loyalty (0.557), suggesting that a well-informed purchase decision fosters long-term loyalty. Brand Perception (CBH1) correlates with Channel Preference (0.523) and Impulse Buying (0.452**), highlighting that a strong brand image influences how and where consumers buy. Service Quality (CXP2) correlates with Brand Perception (0.535), reinforcing that good service enhances brand credibility.

**Lower but Significant Correlations:**

*Interactivity (ERY2) has weak correlations with Brand Perception (0.147) and Price Sensitivity (0.095)**, suggesting that immersive experiences in XR may only slightly impact these factors. *Immersion Level (ERY1) shows a weak positive correlation with Brand Perception (0.176)**, indicating that immersive environments can slightly enhance brand perception.

**Non-Significant or Weak Correlations:**

Immersion Level (ERY1) and Purchase Decision (-0.018) suggest that immersion in XR does not directly influence purchase decisions. Service Quality (CXP2) and Interactivity (-0.061) show no significant relationship, indicating that interactive features alone may not affect perceived service quality. Customer loyalty is strongly influenced by purchase decisions, impulse buying, and channel preferences, suggesting that convenience and decision confidence play a vital role. Brand perception and price sensitivity are closely linked, indicating that premium brands may need to manage pricing strategies carefully in an XR-driven environment. Immersion and interactivity in XR mainly affect user engagement but have limited direct impact on purchase decisions.

## 5. CONCLUSION

This study explores key factors influencing consumer behavior in an Extended Reality (XR) environment, focusing on aspects such as customer loyalty, purchase decisions, brand perception, price sensitivity, impulse buying, channel preference, personalization, service quality, immersion level, and interactivity. The findings reveal that interactivity and service quality play a crucial role in shaping consumer engagement, while price sensitivity and brand perception significantly

impact purchase decisions. Factor analysis confirms that the variables can be grouped into meaningful dimensions, reinforcing the interdependence between consumer preferences and immersive technologies. Correlation analysis highlights strong relationships between purchase decision, brand perception, impulse buying, and channel preference, suggesting that an interactive and personalized experience can enhance consumer satisfaction. Additionally, the results indicate moderate levels of purchase intent and customer loyalty, emphasizing the need for businesses to strengthen brand trust and retention strategies. The study also identifies a gap in consumer awareness regarding XR experiences, suggesting that targeted marketing and educational efforts are necessary to drive adoption. The insights gathered indicate that businesses leveraging XR should focus on enhancing interactivity, improving service quality, and optimizing pricing strategies to maximize customer engagement and loyalty. Overall, the study highlights that Extended Reality has the potential to transform consumer behavior, but successful implementation requires a balance between immersive engagement, affordability, and personalized experiences to build long-term customer relationships.

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