

Impact of Augmented Reality and Virtual Reality on Consumer Attitudes, Satisfaction, and Shopping Behaviour in India

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ABSTRACT

Engaging technologies, such as AR and VR, have been increasingly embraced within the domains of retailing and consumer marketing as tools for product visualization, virtual try-ons and store simulations, interactive product demonstrations, and personalized online shopping experiences. Previous studies on the applications of AR and VR in the retailing context have investigated topics such as perceived usefulness, enjoyment, interactivity, telepresence, flow, trust and experiential value. The proposed concepts can influence consumer attitude, satisfaction, continuance intention, intent to revisit, word-of-mouth, intent to buy and shopping behaviour towards e-commerce. The paper develops a foundation to study the impact of augmented reality and virtual reality on attitude, satisfaction, and shopping behaviour in the Indian context of online retailing. India provides a strong context for AR/VR adoption due to high smartphone penetration, rapid e-commerce growth, digital payments, and a tech-savvy consumer base. The review finds AR and VR shape consumer's cognitive and affective responses. Other discussed topics in the article are the use of AR and VR technologies in multiple different retail settings, including fashion, beauty, furniture, luxury, electronics, ecommerce and experience. Short-term AR adoption in India could be faster in the mobile space since it can be deployed through more smartphones and mobile commerce applications. The study offers insights for marketers, e-retailers, platform designers and researchers, as India is one of the fastest developing digital consumer markets in the world.

Keywords: Augmented Reality, Virtual Reality, consumer satisfaction, shopping behaviour, purchase intention, India.

INTRODUCTION

E-commerce, mobile communications, platform-based commerce, digital payments, and technology-enabled consumer experiences have all made the retail environment more dynamic, with consumers less reliant on retailers for evaluating products, assessing options, and deciding whether or not to purchase. Instead, shopping is moving onto websites, shopping applications, social media, digital marketplaces and omnichannel retailers. One of the biggest changes to ease this shift has come from an increase in the amount of Augmented Reality (AR) and Virtual Reality (VR) used in consumer marketing. AR and VR allow consumers to interact with products and the retail environment in new ways. AR, for example, allows users to overlay digital objects, images, information or simulations over the real world. AR provides consumers with virtual product demonstrations, the option to try on cosmetics, see furniture in a room, walk through product features, and see an interactive demonstration. Conversely, VR immerses consumers in a computer-generated virtual store, digital showroom, branded world, or product experience. Unlike AR, which merges the real world with digital information, VR creates a completely virtual experience (Jayaswal & Parida, 2023; Chen et al., 2024; Eren soy et al., 2024). These technologies are often grouped together as extended reality (XR), an umbrella term including a range of engaging and interactive technologies.

Retailers and brands are adopting use of AR and VR for interactive, visual, personal and experiential shopping. Use has moved from experimental R&D projects to e-commerce, fashion and beauty, furniture, luxury, electronics, tourism, gaming, virtual stores and e payments using AR, VR, wearable internet, and

commerce within the metaverse. AR and VR can affect consumers' information search, product evaluation, imagination, emotion, product attitude, brand attitude, and purchase intention (Fan et al., 2020; Hsu et al., 2021; Kim & Choo, 2023; Kaur et al., 2024). AR is especially useful in the real-world, where consumers use AR to imagine the product's appearance, fit, and functioning in the shopping environment (e.g., consumers' homes). Examples of AR to consumers could be showing how a couch would fit in a living room, or how a lipstick would look on their lips or eyeglasses would look on their face. Virtual reality also has important applications for retail. This could thus improve the sense of presence within the shopping space or the brand's environment, which in turn can help increase interest, emotion, experience, and shopping enjoyment (Jin et al., 2021; Hsiao & Lin, 2023; Mkedder et al., 2024).



Fig 1: Global Augmented Reality and Virtual Reality Market

Source: <https://scoop.market.us/virtual-reality-statistics/>

The commercial potential of such technologies can also be seen from the projected global market growth, where the AR and VR market is expected to grow from USD 34.8 billion in 2023 to USD 106.2 billion by 2033 (Figure 1), suggesting that engaging technologies have reached a mainstream level in use cases of digital business, consumer engagement, and retail. For common consumer use to occur, hardware, software, platforms, and compelling highly engaging retail applications must be available to consumers at the same time, i.e., not only must the hardware and other infrastructure be available to consumers, they must have a compelling reason to use AR and VR.

These technologies have particular relevance in India with its high smartphone penetration, rapid expansion of internet connectivity, digital payments, e-commerce platforms, app-based services, and behaviour towards consumption influenced by social media. Younger Indian shoppers continue to be persuaded by digitally enabled, visually engaging, mobile friendly, and convenience shopping experiences. This offers a unique opportunity for investigating the impact of AR and VR on influencing consumer attitude, shopping satisfaction and shopping intention in a retail environment.

Other factors in the adoption of AR and VR technology in India include internet skills, affordability, online shopping trust, and infrastructure, device compatibility, privacy, and regional differences in consumer behaviour. For engaging shopping technologies to be widely adopted, ease of use, applicability, and value must be developed. Urbanism and youth are associated with higher use of engaging technologies. Therefore, the study of AR and VR in India is important not only because of the large market potential, but also because of the opportunities and challenges of engaging retailing in a developing digital economy.

This paper reviews AR and VR tools' effects on consumers' attitude, satisfaction and shopping behaviour in India. It provides a synthesis of recent studies about AR marketing, VR retailing, metaverse shopping, virtual stores, consumer engagement, purchase intention and the digital shopping experience. The authors argue that AR and VR help Indian consumers visualise products, reduce uncertainty, develop emotional bonds, create experience value, ease decision-making, and increase shopping confidence.

Research Gap

Despite growing research attention to the application of AR and VR in retail-related studies, the majority of AR/VR research in retail and consumer behaviour appears to be firmly grounded in developed nations, where consumer technology penetration is higher. Research into the adoption of engaging shopping technologies in developing markets such as India, where digital access varies by region, income, and digital expertise, would be helpful.

Second, most studies have focused on AR or VR, but both are part of the larger trend of engaging retailing and should be understood in conjunction with each other. AR has the further advantage of being available via mobile phone. This contrasts with VR, which is more engaging but may present a higher barrier to mass adoption.

Third, past research has prioritised purchase intention, leaving other constructs like consumer attitude, satisfaction, and shopping behaviour underexplored. AR/VR's effects on cognition, affect, satisfaction, product exploration, continuance intention, revisit intention, word-of-mouth, and loyalty warrant further investigation to deliver a holistic understanding of AR/VR's usage.

Fourth, the moderating effects of product category on the usefulness of AR and VR should be explored. AR and VR may be suitable for fashion, beauty, furniture, luxury, electronics, and e-commerce, but their effectiveness may vary based on factors such as the need for visualisation, sensory inspection, experience, risk reduction, and emotional connection.

This paper ultimately conceptualises the AR and VR influence on Indian consumer behaviour based on the research literature as discussed.

Research Objectives

The objectives of this paper are:

1. To investigate the influence of AR and VR on consumers' perceptions of online shopping experiences.
2. To analyse the effect of AR and VR on consumer experience in engaging retail environments.
3. To investigate the effects of augmented reality (AR) and virtual reality (VR) on product exploration, purchase intention, continuance intention, revisit intention, and word-of-mouth (WOM) intention when shopping.
4. To study the relevance of AR and VR in the Indian retail and e-commerce market.
5. Identify product categories where AR and VR are likely to be particularly effective among Indian consumers.
6. To provide theoretical and managerial implications for marketers, retailers, platform designers, and researchers.

Research Questions

This paper addresses the following research questions:

1. How do AR and VR influence consumer perceptions of shopping technologies and the digital retail environment?

2. How do perceived usefulness, enjoyment, interactivity, telepresence, trust and flow affect consumer satisfaction?
3. How do AR and VR affect shopping behaviours including product exploration, purchase intention, revisit intention and word-of-mouth?
4. What makes India an important market for studying AR- and VR-enabled consumer behaviours?
5. Which product categories have the greatest potential for AR and VR applications in Indian retailing?

The paper is a conceptual and literature based review on AR and VR in consumer marketing. It draws upon recent scholarly and market literature on augmented reality shopping, virtual reality commerce, engaging retailing, metaverse consumption, technology acceptance, customer experience, and shopping behaviour. This paper does not present primary empirical data but it draws upon existing scholarly academic literature and market literature to conceptually investigate how AR and VR technology influences Indian consumers' attitude, satisfaction, and shopping behaviour.

THEORETICAL BACKGROUND

To understand consumers' positive or negative response towards AR and VR in the retail environment, this section outlines the theoretical concepts that have been used to explain consumer behaviour towards the engaging technology.

Technology Acceptance Model

The Technology Acceptance Model (TAM) states that consumer acceptance of technology is mainly determined by two factors: perceived usefulness, which is defined as the degree to which consumers believe that using the particular technology will improve their shopping decision or experience. Perceived ease of use is defined as the extent to which the technology is imagined to be simple, easy, and effortless to use. Consumers will have a more positive attitude towards AR and VR shopping if they think the technology helps them assess products better and is easy to use (Jiang et al., 2021; Costa et al., 2025).

Ease of use is also important to Indian consumers due to diversity in digital literacy, language preferences, device specifications and internet connectivity. Even if AR and VR solutions are innovative, Indian consumers may abandon them if they are slow, complicated, or difficult to use. Thus, perceived usefulness and ease of use are important for adoption.

Stimulus-organism-response model

The Stimulus Organism Response (S-O-R) model elucidates how environmental stimuli produce internal consumer states that lead to behavioural responses. The engaging retailing aspects of interactivity, vividness, realism, product visualisation, telepresence, and sensory richness act as environmental stimuli and are a part of the S-O-R model. The impacts of these stimuli on internal consumer states include enjoyment, trust, flow, satisfaction, inspiration, and perceived control, in turn influencing external consumer behaviour variables such as purchase intention, visit intention, word of mouth, and continued usage (Eren soy et al., 2024).

This is valuable because it allows for a mapping between technological feature, psychological experience, and consumer behaviour. AR and VR do not drive behaviour simply by virtue of being advanced technologies. They influence behaviour when they create meaningful consumer experiences.

Flow Theory

Flow theory describes a state of focused engagement, enjoyment and immersion in an activity. In AR and VR shopping, flow may occur when consumers focus on product exploration or virtual store navigation. An engaging shopping experience can lead to flow by offering interactivity, feedback, self-control, novelty, and enjoyment. As a result, consumers' attitudes towards immersion, experiential satisfaction, browsing time,

and purchase intentions may all be positively impacted (Arghashi & Yüksel, 2022; Zhong & Hamouda, 2024).

Telepresence and Immersion

Telepresence, or the feeling of being present in the virtual environment, is considered to be an important part of VR and the experience of being in a store, showroom or brand environment. AR may offer a level of spatial presence by placing digital objects in the consumer's own environment. Telepresence and immersion can increase emotional engagement, resulting in a consumer shopping experience that is more realistic, memorable and fun (Jin et al., 2021; Jafar et al., 2024).

Cognitive-Affective-Conative Framework

The cognitive-affective-conative model breaks down consumer reactions to a stimulus into three sequential stages: the cognitive, affective, and conative stages. The affective dimension comprises emotions, enjoyment, satisfaction, and attitudes. One conative dimension is the intention to purchase, revisit, recommend, or reuse. AR and VR impact every stage via three pathways: consumer understanding, providing pleasant and engaging experiences, and easing purchase-related behaviour (Qin et al., 2021; Kowalczyk et al., 2021).

Concept of AR and VR in Consumer Marketing

Augmented reality (AR) overlays digital media onto the physical world. It has been used in marketing for virtual size guides, cosmetic filters, furniture placement, product previews, packaging and mobile try-on apps. AR technology has advantages over its virtual reality (VR) counterpart, including being able to provide a preview experience that is closer to how the product would be in real life and being more accessible on mobile devices.

One aspect that distinguishes VR from these other technologies is that the user is enclosed in a computer-generated world. Applications of VR to consumer market research include virtual stores, virtual product demonstrations, brand worlds, digital showrooms, tourism, and the metaverse. The VR shopping experience is more engaging and engaging because the customers are actually inside the virtual store instead of simply viewing its products (Chen et al., 2024; Kumar et al., 2024). In shopping, some of the common applications of AR technology include trying on eyeglasses, make-up, clothing, accessories, shoes, furniture, home décor and interior design products. AR in general overcomes uncertainty and provides evaluative confidence and thus an online shopping experience that is more concrete and interactive, providing consumers a sensorial and cognitive experience. It also provides a bridge between online product browsing and offline product experience (Fan et al., 2020; Whang et al., 2021; Barta et al., 2023; Wu et al., 2024).

Brands can leverage VR for marketing by providing consumers with an engaging experience in which they can walk through a store aisle, look at products, interact with brands, and be in a constructed, or modified, environment. With experiential marketing, VR can improve telepresence, curiosity, emotions, and retail place (Jin et al., 2021; Kim & Choo, 2023; Mkedder et al., 2024). Experiential marketing of VR retailing can affect utilitarian and hedonic outcomes through immersive Ness, controllability, realism, and functional control (Kinzinger et al., 2025; Uysal et al., 2025; Zhang et al., 2025).

Figure 1 and Figure 3 illustrate the commercial mainstreaming of AR/VR. Companies are investing in engaging retail platforms, integrated commerce infrastructure, and experience design techniques as consumers show interest in interactive experiences and digital shopping experiences. Furthermore, the increase in AR use is probably made possible, as indicated in Figure 2, by the scalability of AR for consumer marketing. AR can be implemented in smartphones and social media very efficiently. Although VR can provide an even higher level of immersion, it usually requires more hardware, infrastructure, and consumer acceptance.

AR and VR devices change the way consumers interact with the path to purchase, allowing consumers to explore, try, place, move, compare, and experience products. They are considered major advances in e-commerce, omnichannel retailing, digital branding, and platform-based marketing (Jayaswal & Parida, 2023; Erensoy et al., 2024; Mishra et al.2024)

Table 1: Differences Between AR and VR in Retail

Dimension	Augmented Reality	Virtual Reality
User environment	Real world with digital overlays	Fully computer-generated environment
Main retail use	Virtual try-on, product placement, product visualization	Virtual stores, showrooms, brand worlds, immersive demonstrations
Device requirement	Often smartphone-based	Often headset- or advanced device-based
Consumer benefit	Reduces uncertainty and improves product fit evaluation	Creates presence, immersion, emotional engagement, and experience richness
Scalability in India	Higher short-term scalability due to smartphone access	Greater long-term potential as devices and infrastructure improve
Best-fit categories	Beauty, fashion, furniture, accessories, home décor, ecommerce	Luxury, gaming, virtual stores, tourism, premium retail, experiential branding

Consumer Attitudes and Experiences with AR and VR

Consumer attitude towards an object, technology, platform or experience is a learned favourable or unfavourable response. Consumers' attitudes towards AR and VR in engaging commerce are developed through cognitive, emotional and experiential evaluative processes. Positive attitudes are driven by perceived usefulness, perceived ease of use, enjoyment, interactivity, trust, novelty, and perceived value (Jiang et al., 2021; Hsu et al., 2021; Costa et al., 2025) .

Perceived use value has a meaningful effect. Consumers' acceptance to use AR/VR technologies to understand the product and increase their purchase intention considerably improves if they believe that AR/VR technologies will help them understand product fit, size, colour, and design and their suitability more accurately compared to customary text and images. For example, a consumer buying furniture online is more likely to feel a sense of confidence in their product after seeing the furniture in their own home through an AR app (Fan et al., 2020; Arghashi & Yüksel, 2022; Xu et al., 2024).

Likewise, a consumer purchasing beauty products has a positive attitude toward their product after testing the colours in AR. Ease of use affects attitude. Engaging technologies cause anxiety for inexperienced consumers. A perception that the technology is difficult, slow, confusing or unreliable will decrease the consumer's willingness to use it. Because of the varying levels of internet familiarity, language, internet speeds, device capabilities, and so on in India, AR and VR shopping experiences need to be simple, functional and fast and to support the types of mobile devices most popular in India.

Frequent AR Consumers

Based on people ages 13-69 who use social / communication apps

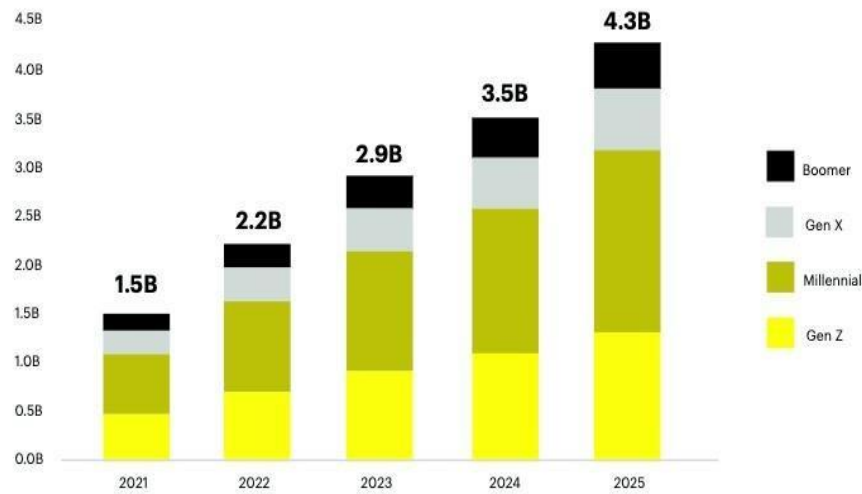


Figure 2: Frequency AR Consumers

Source: <https://artlabs.ai/blog/augmented-reality-statistics-in-2023>

The number of habitual AR consumers has grown tremendously. In 2021, the number of habitual AR consumers was estimated to be at 1.5 billion and is projected to grow to 4.3 billion in 2025. Social and communication-based experiences are some of the most common AR use cases. This fundamental among mobile-first countries such as India. Shopping and product discovery, entertainment, communication and brand experiences are driven by app-based digital experiences. Consumer resistance to AR-enabled shopping may decrease as AR-enabled behaviours become common (Nikhashemi et al., 2021; Söderström et al., 2024).

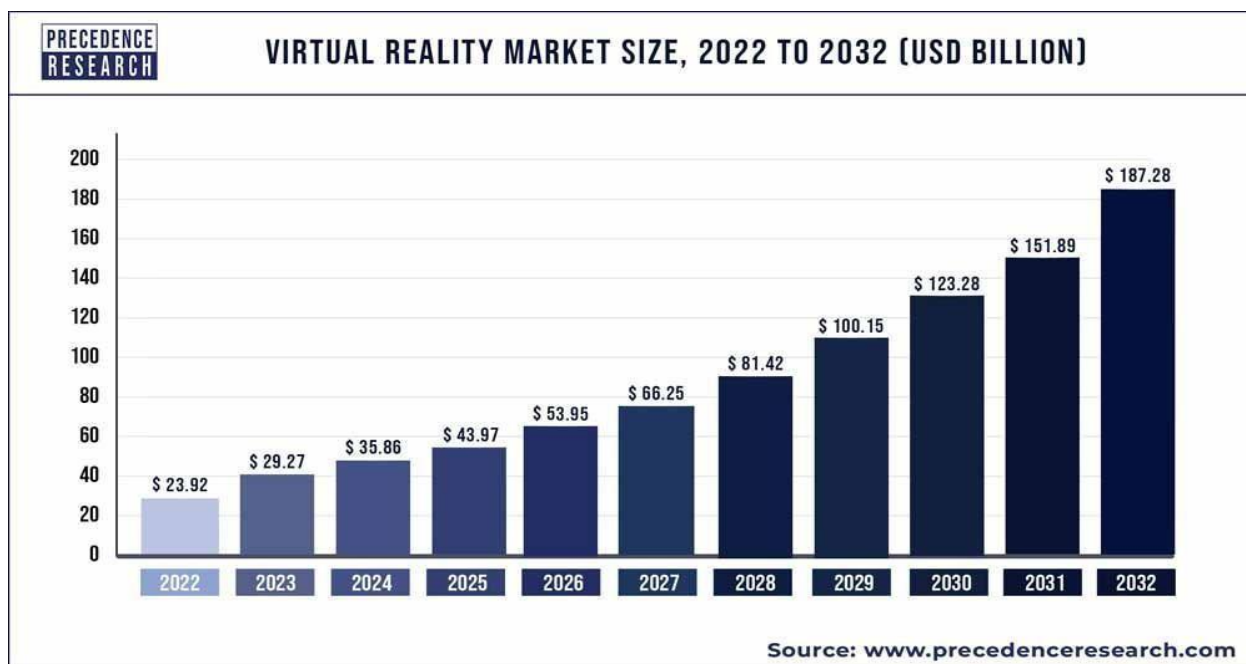


Figure 3: Frequency VR Consumers

Source: <https://virtualspeech.com/blog/vr-stats-training-education>

Furthermore, as shown in figure 3, the global VR market size was USD 23.92 billion in 2022 and is projected to reach USD 187.28 billion by 2032, which implies a potential increase of the VR usage in product and service simulations, virtual storefronts, training and education, product merchandising, and virtual commercial buildings. As VR technology becomes increasingly common, its role in influencing consumer behaviours in areas such as visualisation, experience, emotional involvement, and brand environment is likely to become more meaningful (Mishra et al., 2024; Uysal et al., 2025; Zhang et al., 2025).

Fun, enjoyment, and creativity are other motivations for using AR and VR technology. In addition to being useful, consumers use engaging shopping technologies because they are fun, novel, and enjoyable experiences that are also appealing on an emotional level. Engaging systems can create a feeling of presence (Kim & Choo, 2023; Schultz & Kumar, 2024; Naveen et al., 2025) and positively influence cognitive evaluation and affective appraisal of the product. Other dimensions that lead to a favourable attitude by turning shopping into enjoyable and memorable activities are flow experience, telepresence, and inspiration (Arghashi & Yüksel, 2022; Jafar et al., 2024; Zhong & Hamouda, 2024). AR normalisation is potentially relevant to Indian consumers, who are already familiar with camera filters, social media filters, mobile shopping apps, and visual digital collaboration. Since AR is used more frequently in the social and entertainment contexts, AR shopping may be perceived as less foreign and more familiar by Indian consumers who have experienced AR through social and entertainment channels. Greater familiarity reduces uncertainty and increases comfort with and positive attitudes toward AR shopping.

However, consumers exhibit negative attitudes towards engaging systems when they are confusing, unrealistic, intrusive, slow, or infringe on their privacy. Privacy considerations are of great importance for AR and VR, as engaging technologies require access to the user's camera, information about their body, spatial data, location information, and preferences. Attitudes and behavioural intention can also be weakened by complexity, privacy, lack of trust or compatibility of devices, and poor interfaces (Lavoye & Kumar, 2025; Mahajan et al.,

2025). They only appear when perceived advantages outweigh perceived obstacles.

In general, AR and VR positively influenced consumer attitudes as they provided functional value and enjoyable engaging experiences, which are important attributes since attitude leads to satisfaction, purchase intention, continuance intention, and platform loyalty.

Consumer Satisfaction in Engaging Shopping

Consumer satisfaction is a post-purchase evaluation made by consumers after shopping, based on whether their expectations were met or exceeded. Shopping activities in AR and VR environments impact consumer satisfaction on the basis of the quality of the digital environment, usefulness of product information, uncertainty reduction, enjoyment, trust, realism, immersion, and convenience (Aslam & Davis, 2024; Recalde et al., 2024; Mahajan et al., 2025). AR may also improve user satisfaction by improving how products are presented and by building consumer confidence in online shopping channels. This is because consumers cannot physically feel, try out or inspect the item they are buying, leading to uncertainty regarding size, fit, appearance, quality, and suitability. AR can reduce the uncertainty of what consumers will be receiving by allowing them to see how the product fits their body, face or household. This increases realism, reduces cognitive dissonance and increases consumer post purchase satisfaction (Barta et al., 2023; Caboni et al., 2024).

For example, in fashion retailing, AR enables customers to get a sense of how accessories, shoes, or clothing will look. In beauty retailing, AR allows customers to virtually sample shades of lipstick, foundation, or eye makeup. For example, this may mean showing the customer whether a sofa, a table, or a piece of art can actually fit in their room before they buy it online. Pre-purchase consumer confidence is an important factor in predicting post-purchase consumer satisfaction (or consumer pleasure). Through engaging, realistic, and rich experiences, VR may improve consumer satisfaction. A virtual store may offer

a level of presence and atmosphere that is otherwise unnoticed in e-commerce websites. In a store environment, shoppers can move around, examine products, and perceive brand atmospherics, and it increases their emotional involvement, entertainment, store attractiveness, and inspiration (Jin et al., 2021; Hsiao & Lin, 2023; Zhang et al., 2025). Thus, VR shopping satisfaction can be both utilitarian when it improves the consumer's product assessment ability and hedonic when the consumer enjoys the shopping experience.

The growth in Figure 1 and Figure 3 indirectly highlights the role of satisfaction in engaging commerce since continuous investment in AR and VR suggests that it holds value for both companies and users. It is likely that the continuous adoption cannot be achieved without engaging technologies providing a satisfying experience for users. The trend towards larger numbers of habitual AR users seen in Figure 2 suggests that this is likely to happen.

In India, consumer acceptance for AR and VR is greater for visually evaluated products, products with high purchasing involvement, and products with high perceived purchasing risks. AR and VR can be used in the fashion, beauty, electronics, furniture, home decor, luxury, and lifestyle industries. Convenience, speed, personalization, digital trust and value for money are the new priorities for Indian buyers and AR and VR will strengthen online shopping as they offer more informed and interactive experiences. Furthermore, factors related to the technology experience may also impact customers' experience. For example, poorly designed AR/VR systems that do not accurately represent the product, that are laggy, that provide unrealistic representations or that do not operate on commonly used devices may lead to disappointment. In India, dimensions related to affordability, language, mobile compatibility, data usage and platform trust also impact satisfaction levels. Engaging technology does not always lead to satisfaction. This is supported by design, product and delivery information, policies, and a smooth online shopping experience for consumers.

In general, AR and VR improve shopping convenience, confidence, realism, immersion, pleasure, fun, and perceived value, therefore increasing the probability of using engaging shopping tools again and the association of positive retail value with these engaging shopping tools.

Shopping Behaviour and Purchase Responses

Shopping behaviour is the activities and intentions of consumers while shopping. In AR and VR, shopping behaviour includes product exploration, time spent on platform, information search, engagement, virtual try-on, comparison, purchase intention, impulse buying, revisit intention, continuance intention, recommendation, and word-of-mouth (Qin et al., 2021; Hsiao et al., 2023; Mishra et al., 2024) .

Recent studies show that using AR in marketing positively relates to purchase intention through increased personal relevance and reduced purchase uncertainty. Consumers express greater purchase intention when they can visualise a product in their own environment, and AR increases their perceived ownership of the product (i.e., their perception of the product as part of their life) by visualising the product in their environment before the purchase (Whang et al., 2021; Nawres et al., 2024; Ngo et al., 2025). Research has indicated that VR may influence buying intention due to the more immersing experience it provides. Research has shown that compared to regular web pages, VR has more enjoyment, realism, and interaction which may lead to more time spent browsing products in the store and stronger attachment to the store or brand (Mkedder et al., 2024; Uysal et al., 2025; Zhang et al., 2025). They are likely to express behavioural intentions related their future purchases, including visit to the platform and recommending the platform to others.

Another behavioural outcome is engagement. AR and VR can keep the consumer engaged with the shopping process by allowing for interactive and enjoyable product exploration. Compared to conventional e-shopping, consumers are likely to do more try-ons, comparisons, placements, and information searches when involved in a higher interactivity environment using AR or VR (Arghashi & Yüksel, 2022; Recalde et al., 2024; Wu et al., 2024). Thus, engagement may be a mediator of engaging experience and purchase intention, supporting the hypothesised mediation effect. Another behavioural consequence of AR or VR

shopping experience is word-of-mouth (WoM) and revisit intention. If consumers find the AR or VR shopping experience useful, enjoyable, novel, and impressive then they will share the experience with others and revisit the channel again. In an E-commerce context, given that consumers rely on their peers' recommendations and ratings, share their purchases on social media, and post screenshots/videos of games purchased, an engaging shopping experience that is novel and enjoyable can encourage consumers to talk about the brand and recommend the platform to their friends and peers (Qin et al., 2021; Nawres et al., 2024; Zhong & Hamouda, 2024).

The applicability of AR and VR for shopping behaviour is further supported by the trends observed in Figure 1, Figure 2 and Figure 3. Trends in market growth, user familiarity and increased commercial applications point towards acceptance of engaging commerce by institutions and consumers alike. AR may have a more immediate impact on mass market shopping behaviour because it might readily be embedded in devices like smartphones and apps. VR may first considerably impact luxury markets, entertainment/gaming, education, tourism and virtual showrooms.

In India, consumer behaviour is influenced by mobile device connectivity, platform convenience, physical inspection, social influence, discounts and offers, trust, and product reviews. AR and VR can influence shopping behaviour by improving consumer confidence, reducing uncertainty, and providing experiential benefits in e-commerce. As Indian ecommerce matures, engaging technology can be a differentiator for retailers, seeking to increase conversion and satisfaction, decrease returns, increase sales, and build loyalty.

Table 2: Main Shopping Behaviour Outcomes

Shopping Behavior	Outcome	How AR/VR Influences It
Product exploration	Consumers can interact with products more deeply	Through try-on, placement, movement, and virtual inspection
Purchase intention	Reduced uncertainty and increased confidence can make consumers more willing to buy	—
Engagement	Immersive features increase time spent, interaction, curiosity, and platform involvement	—
Revisit intention	Enjoyable and useful experiences encourage consumers to return to the platform	—
Continuance intention	Repeated positive experiences increase willingness to keep using AR/VR shopping tools	—
Word-of-mouth	Novel and satisfying experiences encourage sharing, recommendation, and social discussion	—
Loyalty	Satisfaction and trust may improve platform preference and long-term relationship formation	—

Product Categories and AR/VR Effectiveness

AR/VR effectiveness differs by product category, as categories are composed of products that mainly require the consumer to visualise them, examine them sensorially, understand them technically or connect with them emotionally. Retailers should adapt AR/VR to product categories and the consumer decision journey.

Fashion and Apparel

Fashion may be the strongest AR category, because consumers are highly concerned about how fit, style, color and look match their expectations before buying. Therefore, virtual try-on can help a consumer imagine how apparel, footwear, accessory or eyewear may look on them. It is also valuable to fashion firms willing to host virtual fashion shows, digital stores, or engaging experiences, as VR can help reduce uncertainty and increase confidence. Fashion ecommerce in India is a highly competitive space. Consumers are concerned about the fit, size, look and feel. AR can reduce these concerns and returns if product visualisation accurately represents the final product.

Beauty and Cosmetics

Beauty is well-suited to AR because of the highly visual nature of cosmetics and their ability to be personalised to the user's needs and desires. Applications have allowed consumers to try on lipstick, foundations, eyeshadow, hairstyles, or skincare effects with more confidence. For example, AR-based try-on could become a critical source of information in India producing a good example of a beauty market that is influenced by skin tone diversity, preferences, social media and influencer marketing. VR could be used by beauty brands for virtual skincare consultations, product launches or branded beauty experiences, but AR is more practical for daily shopping experiences for beauty products.

Furniture and Home Decor

Furniture and home decor products are ideal candidates for AR, as the consumer must be confident the product will fit the room, and the consumer wants to see the product's color and scale in the appropriate location in their home. This is especially useful for online furniture retailers, as the products are expensive, large, and hard to return. Virtual reality may be used in virtual showrooms and home design simulators for interior decoration. In India, augmented reality and virtual reality can help increase online furniture sales by alleviating apprehensions associated with high-involvement purchases.

Electronics and Appliances

Electronics and appliances, which require visualisation and technical details, can benefit from AR's ability to show scale, placement and features. For example, a viewer may want to see whether a television unit fits into its wall, or how the appliance would fit into their kitchen. VR could be used to show products. And like electronics, consumers need specifications, reviews, warranty and especially trust. So AR and VR should be accompanied by detailed information, ratings, expert product reviews, after-sales support, and so on.

Luxury Goods

Luxury products are ideal candidates for AR and VR as luxury shopping is often based on aesthetics, aspiration, exclusivity and brand experience. For example, online AR applications are used for virtual try-ons of luxury accessories, watches, jewellery and fashion wear. VR can help in creating virtual luxury boutiques, brand worlds or exclusive experiences. Helped by the rise in discretionary spending by affluent, urban consumers in India, engaging retail could help luxury brands offer premium experiences beyond physical stores.

Tourism, hospitality and experience-based services

Another application for tourism and hospitality is virtual reality, which allows a customer to first visit a location, hotel, event or experience of interest before deciding to make a reservation or purchase. Support for real-world experiences may take the form of an interactive guide, navigation, or information tools overlaid on real-world objects. In India, the tourism, education, real estate, and hospitality industries may use VR to build confidence prior to purchase.

Table 3: Comparative Category Summary

Product Category	More Suitable Technology	Main Reason
Fashion and apparel	AR and VR	AR supports try-on; VR supports virtual fashion environments.
Beauty and cosmetics	Mostly AR	Consumers need shade testing, appearance preview, and personalization.
Furniture and home décor	Mostly AR, with VR potential	AR supports spatial placement; VR supports virtual interior design and showrooms.
Electronics and appliances	AR and VR	AR supports size and placement; VR supports demonstrations and product education.
Luxury goods	AR and VR	Both support aspiration, exclusivity, visual appeal, and brand storytelling.
Tourism and hospitality	Mostly VR	VR supports destination preview and experiential simulation.
E-commerce platforms	Mostly AR in the short term	AR is more scalable through smartphones and mobile apps.
Metaverse gaming and commerce	Mostly VR	VR supports immersive worlds, avatars, and virtual interaction.

Indian Market and Research Context

India remains one of the most important markets globally in terms of AR and VR consumer adoption and acceptance, with the increased adoption of smartphones, internet access, ecommerce, digital payments, mobile applications, and social media, which have now changed the way consumers search, compare, share information, and purchase products. These changes enable the proliferation of engaging retail technology.

India has one of the most diverse and mobile-first populations in the world. Generations of Indians are growing up in a world more accepting of using technology, thus helping to digitise India's population. As most Indian consumers use smartphones as primary devices for communications, entertainment, online shopping, banking, education and social media, AR can be integrated into mobile applications, thus scale product visualisation and virtual try-on in Indian retail.

Compared to AR, VR has greater challenges in India, having higher reliance on headsets, more powerful hardware requirements, and higher bandwidth requirements. However, in the long run, VR has promising applications in premium retail, virtual showrooms, gaming, education, tourism, real estate, automotive retail, and metaverse-based commerce. With lower hardware costs and digital infrastructure, VR technology could become accessible to Indian consumers.

Global trends, shown in Figure 1, Figure 2, and Figure 3, may be applicable to India, but the consumption of experiential media in India will not be driven entirely by trends across the world. A number of factors influence e-commerce adoption in India, such as pricing, language, geography, trust in e-commerce sites, payment and refund policies, and digital literacy and skills.

Indian shoppers have diverse demographics, income, locations, education, technology, and shopping patterns. In particular, the younger, urban and higher income consumers are the leading adopters of AR and VR shopping. Potential consumers may use them for fashion, beauty, electronics, luxury products, video

games, or lifestyle products. Rural or previously unserved consumers may adopt them only if they are simple, affordable and clearly useful in their own language.

Trust is also an important issue in the Indian market. Online shoppers in India have problems concerning trust in products' authenticity, quality, fit, delivery, security of payment and return policy. Although AR and VR can help with some of these issues, the infrastructure of trusted platforms is still a prerequisite for AR and VR solutions. Engaging technology is best used in conjunction with transparent information, trusted customer service, and secure payments and returns policies.

From a theoretical perspective, India is an interesting and important market to expand consumer AR and VR research beyond the West and other developed countries to study engaging commerce in a rapidly digitising emerging market that is mobile first, has heterogeneous consumers and increasing competition in the online channel. From a managerial perspective, India offers a large and growing market for retailers and marketers to study how AR and VR can improve customer engagement, satisfaction, conversion and loyalty.

Research on AR and VR has shown these not only as technologies, but as experience-shaping technologies and how they change the way consumers experience products, platforms and brands. In contrast to the typical online shopping experience with pictures, text, ratings and videos, AR and VR-based shopping has the potential to create interactive, spatial and emotional shopping experiences that more closely resemble those from in-person product inspection and experiential discovery. This suggests that AR could be particularly effective at reducing uncertainty. Online retail is afflicted by the consumer's inability to know how a product will look, fit or work. AR could help the consumer by enabling them to see the product in their personal environment, thus increasing usefulness and purchase intention. For the general population in India who have smartphones, can afford technologies and wish to shop with a sense of convenience and confidence, AR is the ideal technology to use. But, VR is useful for other use cases. It builds engaging brand environments and simulated retail experiences for brands who want to engage consumers emotionally, drive discovery, create exclusivity and deliver memorable experiences. Also, VR might be particularly useful in luxury retail, gaming, virtual tourism, real estate, education, automotive and high-end product launches, where these barriers make adoption slower although attitude is affected by perceived usefulness and enjoyment. When AR and VR are considered entertaining, their impact on consumers' decision making and purchasing behaviour may be limited. If they are considered useful but difficult to use, consumers may not use them. The strongest effect on consumers occurs when AR and VR provide both functional and hedonic value. The Indian consumer is also price-sensitive, and expects convenience, reliability and utility from digital technologies, where the ability to satisfy expectations depends on the experience's engaging nature. Consumer satisfaction could increase if AR product visualisation is accurate and useful postdelivery after pre-purchase research, but be negatively impacted by an inaccurate and deceptive representation. The VR experience could improve satisfaction through the sense of presence, but it may have a negative impact if navigation is difficult or if the experience is based on artificiality, supporting the importance of technology quality and experience design. AR influences shopping via its effect on confidence, engagement, and emotions. AR can increase product exploration, trial, and alternative comparison and help with the decision process. VR can increase the time spent in the branded environment and emotional engagement. Purchasing intention, revisit intention, and word of mouth are driven by virtual and augmented reality experiences, but only when customers perceive high value. The potential for AR and VR in India should be contextualised by the country's digital divide. Young urban users may be early adopters but affordable access, mobile native experiences, ease of use, multilingual interfaces, privacy-friendly features, and trust will need to be built to expand the virtual mall. Retailers cannot just rely on the novelty of technology to entice Indian consumers. Instead, retail technology should solve consumer problems.

Managerial Implications

This review has implications for marketers, e-retailers, platform designers, and retail managers.

One of the big things we say to retailers is - see AR and VR as tools, not as a technology fad. Use AR where the customer has a visualisation, try-on, product fit or placement need. VR is a good fit for brands who want

to create experiences, including virtual showrooms or emotionally resonant, premium storytelling.

Second, AR is much more likely to be adopted in Indian e-commerce sites in the near future.

AR is compatible with smartphones, giving it a much larger potential audience than VR. Retailers in fashion, beauty, furniture, eyewear, accessories and home décor should offer more mobile-based AR features.

Third, marketers should target VR to product and service categories where adding an engaging experience adds value, such as luxury brands, real estate, tourism, automotive retailers, gaming companies, and brands whose offerings are experience based and high end.

Fourth, user interface design is critical. Engaging applications should be simple, quick, intuitive, and reliable. A website that is slow, crashes, does not provide an accurate rendering, or is difficult to navigate can depress consumer attitudes, satisfaction, and intention.

Fifth, disclose data collection by explaining how the AR or VR representation works, what data is collected, and how precise the visualisation is. It is especially important to protect the user's privacy when applications use cameras or facial mappings.

Sixth, engaging tools must be integrated into the customer journey rather than being separate products. For example, while the use of AR or VR, product information and reviews, comparison tools, size guides, payment options, delivery options and return policies can all be integrated.

Seventh, firms should not only track AR/VR adoption, but also outcomes such as product exploration, time spent, conversion, consumer satisfaction, return rates, and word of mouth. Analysing these outcomes will help companies determine whether or not engaging technologies are generating business value.

CONCLUSION

The reviewed literature in this chapter discusses how AR and VR improve the new era of retailing by delivering higher visual, interactive, engaging, engaging, and trustworthy experiences. More specifically, AR and VR experiences are proven to positively influence consumer attitudes through their perceived usefulness, ease of use, enjoyment, interactivity, innovation, telepresence, and trust. AR and VR also increase consumers' satisfaction by reducing uncertainty and perceived risk, improving perceived realism, easing product evaluation, producing hedonic and utilitarian value, and encouraging product exploratory behaviour, product engagement, purchase and continuance intention, revisit intention, positive word-of-mouth, and loyalty toward a product, retailer, and shopping platform. AR is especially useful in reducing uncertainty in online shopping by allowing an user to visualise the product in their own space, while VR is useful for creating engaging brand experiences and virtual stores that trigger emotions. India is an important context for studying these technologies given its growing e-commerce economy, mobile users, digital payments, and social media usage, as well as a mobile-first consumer class. Transparency, convenience, personalization, trust, and richer digital shopping experiences are some of the core values for Indian consumers. AR is expected to scale more in India due to its compatibility with smartphones and existing internet infrastructure in the short term, whereas VR is expected to grow in the long-term in premium retail, virtual showrooms, gaming, tourism, real estate and metaverse-related commerce. In practice, AR and VR effectiveness depends on the specific category of product, the consumer segment, the technology solution chosen, the trust developed, the privacy safeguarded, and the choice of AR or VR platform. They are not to be implemented for novelty. They should be used to solve consumer problems, improve product assessment, improve customer satisfaction, and support meaningful shopping behaviour. AR and VR will likely play a larger role in India and the future of digital shopping. Success will depend on whether retailers can create engaging experiences that are useful, pleasurable, accessible, trustworthy and relevant to the Indian consumer.

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