



Original Article

GENDER-BASED INTENTION TO USE IMMERSIVE TECHNOLOGIES AND ITS IMPACT ON PURCHASE INTENTION IN THE COSMETIC INDUSTRY

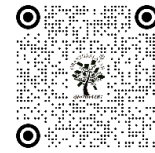
A QUALITATIVE STUDY ON CONSUMER BEHAVIOUR TOWARDS AUGMENTED REALITY IN COSMETIC RETAILING

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ABSTRACT

The Interaction of brand with customers within retail space has evolved drastically due to various technologies such as Augmented Reality and Virtual Reality. When we talk about one of the leading industries to adopt AR technologies i.e. Cosmetics, has started relying greatly on visualization of product, personalizing and engaging experience. Shopping of products online and purchase decisions are getting influenced due to the level of interactivity of various platforms, applications with virtual try-on feature and beauty filters powered by Artificial intelligence. Although, various factors like privacy, familiarity of a technology, consumer behavior of cosmetics and social conditioning of different genders often impacts the behavior towards immersive technologies differently. The impact on intention to purchase within cosmetic industry due to usage of immersive technologies considering gender and its influence gets explored in this study. Taking into consideration those customers who know about digital platforms pertaining to cosmetics and various AR application, this research uses focus group discussions under qualitative research approach. To get a better understanding of acceptance of technology, psychological reaction, perceptions based on gender, outcome influenced by behavior and drive related to engaging cosmetic technologies under this research a thematic Analysis was done. The findings highlight that immersive technologies positively impact purchase intention across genders by improving familiarity and comfort with cosmetic AR applications because of better visualization, convenience, confidence and engagement. Female consumers established greater familiarity and comfort with AR cosmetic applications because of superior exposure to beauty products and digital beauty culture. Male consumers however, progressively open towards immersive technologies, showcased cautious involvement in comparison due to social perceptions, privacy concerns and limited involvement with cosmetics. This research also recognizes key factors impacting adoption behavior such as realism, ease of use, interactivity, trust and personalization. The study contributes to existing literature by proving gender-based qualitative insights into the adoption of immersive technology Augmented Reality in cosmetic industry, particularly in the Indian context. Additionally, Practical implications for cosmetic retailers and technology developers are also discussed.

Keywords: Augmented Reality, Immersive Technology, Gender Behaviour, Purchase Intention, Cosmetic Industry, Consumer Behaviour, Virtual Try-On, AR Retailing

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INTRODUCTION

There has been a major revolution in global retail environment because of digitalization, technological innovation and shifting consumer expectations. Contemporary consumers gradually look for customized, interactive and convenient shopping experiences which encompass beyond outdated transactional models. Consequently, immersive technologies such as Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR) and Artificial Intelligence (AI) are transforming to substantial drivers of retail innovation.

Augmented Reality amongst these technologies has evolved as one of the more commercially viable tools within cosmetics retail. AR empowers users to overlay virtual content onto the real-world environments through smartphones, tablets or smart devices, thus enhancing interactivity and visualization. AR powered virtual try-on applications enable consumers to digitally experiment with makeup products such as lipsticks, foundation, eyeliners, skincare solutions before finalizing any purchase decision.

Visual appearance, personalization and experiential evaluation are key factors on which cosmetic industry is heavily dependent on. Traditional approach made consumers rely on physical product testing before purchasing cosmetics. However, speedy growth of e-commerce has restricted opportunities for direct product interactivity. Immersive technologies address this task by offering virtual product simulations that enhance convenience and limit uncertainty.

Various cosmetic brands such as Sephora, Nykaa, L'Oréal, Maybelline, Lakme and MAC Cosmetics have increasingly incorporated AR technologies into their digital interfaces. These applications enable consumers to visualize cosmetic products in real environment and helps to make informed purchase decisions. Previous research proves that AR boosts customer interactivity, emotional engagement and purchase intention by creating customized experiences.

However, the consumer adoption of Augmented Reality is not consistent across demographics groups. The gender difference being a key factor plays an important role in determining technological acceptance, shopping motivation and cosmetic consumption patterns. Historically, cosmetic consumption has been strongly associated socially with women while male cosmetic engagement & grooming has evolved much later. These cultural and social factors may remarkably influence how different genders perceive and adopt augmented reality within cosmetic retail environments.

Previous researches on immersive technologies particularly Augmented Reality (AR) has majorly focused on technological effectiveness, consumer interactivity and purchase intention but with lesser emphasis on gender specific behavioral differences. In addition to this, qualitative studies examining gender-based perceptions within emerging markets such as India remain limited.

This study aims to explore gender-based intention to use AR and its impact on purchase intention in the cosmetic industry through qualitative focus group analysis. The research also pursues to comprehend how gender influences consumer experiences, motivations, emotional responses and behavioral intentions related to AR-enabled cosmetic shopping.

RESEARCH OBJECTIVES

The study is directed by following objectives:

(i) To explore the gender-based intention to use Augmented Reality in the cosmetic industry. (ii) To examine the influence of augmented reality on consumers' purchase intention. (iii) To classify gender-specific motivations and barriers impacting AR adoption. (iv) to comprehend emotional and cognitive responses towards augmented reality cosmetic technologies. (v) To scrutinize the role of social perception and self-image in influencing augmented reality usage. (vi) To deliver recommendations for cosmetic retailers about AR related gender-inclusive retail strategies.

LITERATURE REVIEW

Immersive Technologies refer to digital systems which create engaging experiences by integrating virtual and physical environments. These technologies include Augmented Reality (AR), Virtual reality (VR), Mixed Reality (MR).

AR is defined as a system that combines real and virtual environment also enabling real-time interaction as per the research by [Azuma \(1997\)](#).

AR has been extensively used by retail brands to create immersive shopping experiences which reduce uncertainty and enhance customer engagement. There has been a positive effect of augmented reality on customer satisfaction and behavioral intention as recorded by previous studies.

AR increases product diagnosticity and boosts online shopping experiences as highlighted by [Hilken et al. \(2017\)](#). In a similar study, [Javornik \(2016\)](#) identified AR as a key technological tool influencing customer interactivity and retail communication.

Augmented Reality in the Cosmetic Industry: Recent conceptual studies also highlight that immersive AR features improve choice confidence and shopping immersion in cosmetic retail environments.

Augmented Reality in cosmetic industry has become prominent as this industry has adapted technology smoothly. Virtual try-on applications enable consumers to digitally experiment with cosmetic products before making a purchase. [Whang et al. \(2021\)](#) highlights that AR experiences stimulate purchase intention and enhance cognitive control amongst consumers. Additionally, [Wang et al. \(2022\)](#) emphasized that immersive AR applications positively influence emotional engagement and purchase intention

Gender and Consumer Behavior: Product interaction, self-image, shopping motivations, consumer behavior is significantly influenced by gender. Previous studies reflect that women demonstrate higher engagement with cosmetic products generally due to stronger societal associations with appearance & beauty.

There has been a gradual rise in male consumers who are now participating in skincare, grooming and cosmetic consumption because of evolving social norms and influence of social media. Despite this shift, social stereotypes and traditional gender expectations continue to impact male participants within cosmetic markets. Factors such as ease of use, perceived usefulness, privacy concerns, technological confidence also get influenced by gender, as per the studies conducted in technology adoption previously.

Technology Acceptance Model (TAM): The Technology Acceptance Model established by Davis (1989) describes consumer technology adoption through two primary determinants:

Perceived usefulness

Perceived ease of use

The immersive technologies such as AR are adopted by consumer when they perceive them as convenient, useful and easy to adapt. Additionally, in cosmetic retail environment, AR applications enhance product visualization and reduce uncertainty, thus increasing perceived usefulness.

Stimulus-Organism-Response (S-O-R) Framework: The S-O-R framework developed by Mehrabian (1974) describes how environmental stimuli influence emotional and behavioural responses.

In immersive retail environments where AR is used:

Stimulus = AR technology features

Organism = Emotional and cognitive responses

Response = Purchase intention

AR experiences create excitement, engagement, confidence, and curiosity, which eventually influence purchasing behaviour.

Recent studies confirm that immersion and emotional engagement remarkably affect consumer purchase intention in AR shopping environments.

Research Gap: The literature identifies some research gaps:

Lack of qualitative studies exploring gender-specific perceptions toward immersive technologies, Limited understanding of male consumer behaviour regarding cosmetic AR applications, Less Indian-context studies examining gender-based immersive technology adoption, Inadequate exploration of social and emotional factors affecting gender-specific purchase intention.

This study attempts to address these gaps through qualitative focus group analysis.

RESEARCH METHODOLOGY

Research Design: This study adopts qualitative exploratory research to gain deeper insights into gender based behavioral responses towards immersive technologies.

Data Collection Method: Consumers who were familiar with cosmetic shopping and AR technologies were included in the focus group discussions which formed primary data. Participants included both male and female consumers from Delhi with diverse educational and professional backgrounds.

Focus Group Themes: The discussions were based on:

Awareness of immersive technologies

Experience with AR cosmetic applications

Gender perceptions toward cosmetic usage

Technological comfort and confidence

Purchase decision-making behaviour

Emotional responses

Social acceptance and stereotypes

Barriers to AR adoption

DATA ANALYSIS

Data Analysis Technique: Thematic analysis was applied to identify recurring behavioural patterns and interpret participant responses.

Focus Group Profile: Two focus groups were conducted to supplement understanding of gender-based perceptions towards immersive technologies in cosmetic industry. Focus group 1 consisted of 9 participants (5 females and 4 male consumers), while Focus group 2 consisted of 10 participants (5 females and 5 male consumers). Participants reflected diverse educational and professional backgrounds and had prior exposure to online cosmetic shopping, social media beauty filters and AR enabled applications.

Additional Qualitative Data Analysis: Extended qualitative analysis was undertaken to reinforce the thematic interpretation of the two focus groups. The analysis resulted into five overarching themes and several supporting sub themes that echoed participants' experiences, attitudes, behavioral intentions towards immersive cosmetic technologies.

Theme 1: Perceived Usefulness and Convenience

In both focus groups, the participants highlighted that AR applications simplify cosmetic evaluation by enabling users to visualize products before purchasing. Female participants often pointed shade matching and product experimentation, whereas male participants focused on convenience and grooming related utility.

Theme 2: Emotional Engagement and Enjoyment

Participants termed immersive experience as engaging, interactive and confidence-enhancing. Female participants highlighted stronger emotional attachment to virtual-try on experiences, while male participants viewed the technology as innovative. The findings suggest that emotional engagement contributes positively to the purchase intention.

Theme 3: Gendered Consumption Patterns

The focus group discussions discovered that existing cosmetic consumption behavior impacted technology adoption. Female participants viewed AR applications as an extension of established beauty practices. Male participants showed more interest when applications were focused on skincare, beard styling and personal grooming rather than decorative cosmetics.

Theme 4: Social Acceptance and Identity Expression

Many participants highlighted the influence of social norms on the cosmetic technology usage. Female respondents experienced greater social acceptance while experimenting with cosmetic products. Male participants recognized growing acceptance of grooming products but indicated that traditional gender stereotypes still molded their comfort levels.

Theme 5: Trust, Realism, and Privacy Concerns

The critical adoption factors such as accuracy, privacy protection, realism was identified by participants from both focus groups. Apprehensions associated to facial data collection, inaccurate visualization, alterations between virtual and actual product outcomes influenced trust in AR platforms

Illustrative Participant Statements

Participant 7 in focus group 1 commented "Virtual try-on helps me feel more confident before purchasing online." Participant 4 in focus group 1 mentioned "I like experimenting with different looks without purchasing every product" and Participant 3 in focus group 2 highlighted "the technology is useful, but I would like stronger privacy assurances." These illustrative statements are examples which reflect the themes identified during the analysis of focus group.

Thematic Interpretation

The extended qualitative analysis shows that specifies both the emotional and functional perspectives of immersive technology adoption. While women showcased stronger experiential interaction with AR, men showed a more utility oriented assessment process. Nevertheless, both the focus groups reported that immersive technologies limited uncertainty and positively influenced purchase intention. These findings further support the Technology Acceptance Model (TAM) and Stimulus organism Response (SOR) framework highlighted in the study.

OUTCOMES AND DISCUSSIONS

Knowledge of Immersive Technologies:

Through the usage of online platforms for shopping, social media and various cosmetic applications, majority of the respondents were aware of AR technologies.

Various platforms like Nykaa, Sephora, Snapchat filters and various other social media filters has created a prominent awareness specifically amongst Female customers.

In case of Males, instead of cosmetic platforms, they were aware because of various games, Social media and mobile applications.

It can be inferred the way extended reality platforms are experienced gets influenced greatly by the gender.

Intention to use Immersive Technologies by Females

A strong Intention to use AR platforms for shopping of cosmetics was expressed by Female respondents.

Main reasons impacting adoption by Female customers were:

- Ease of doing experimentation with products
- Easy Access
- Comparison within shades
- Visualizing make-up
- Entertaining
- Enhancement of Self-Value

AR was considered as a pragmatic and engaging way of doing shopping by Female customers as it helps with reduction of ambiguity while purchasing online.

Respondents valued the possibility of trying different looks without even actually using the product on themselves.

Intention to Use extended reality Technologies by Male consumers

A conservative and cautious inclination was observed in male respondents towards such extended reality technologies even though a growing interest was there.

Instead of trying different makeup, most of the male participants were keen to look forward to using AR for grooming, styling of beard, enhancing facial features and skincare.

Some of the participants were not comfortable in giving response regarding their preference for cosmetic usage even when they were inclined towards using grooming products just because of social taboo and because of this it acted as a major influence how they engaged with such engaging platforms.

Although it was observed, male consumers who were in younger age group were inclined and open to explore digital platforms for grooming and extended reality mediums.

Alternate Purchase behavior Based on Gender

Familiarity with regard to cosmetic products and their purchasing was prominent when female respondents were taken into consideration.

It was observed for female respondents usage of AR platforms was more of an additional feature to how they have been deciding and purchasing cosmetics till now.

On the contrary, male respondents focused on the practical usage, and privacy related factors when they used such extended reality platforms.

It can be inferred that mental and sentimental perspective of using and adopting immersive technologies gets influenced by gender.

Sentimental Reaction about Extended Reality Technologies

Female respondents explained AR exposure as:

- Thrilling
- Amusing
- Engaging
- Entertaining
- Innovative

Trying different looks and various compositions of makeup was relished by females.

Male respondents explained AR exposure as:

- Intriguing
- New
- Helpful
- Forward looking

Although, Sentimental excitement was more prominent amongst women participants.

It can be understood through these findings, in case of women customers, interaction with extended reality technology, sentimental engagement plays a pivotal role.

Cognitive Reaction and Conviction

Increase in confidence to decide due to usage of AR platforms was observed by both genders.

Respondents mentioned that extended reality technologies assist them in following ways:

- Envisioning of products
- Options assessment
- Appearance assessment
- Ambiguity reduction

Although, Male customers stressed upon practicality and feasibility, while female customers relied more on accuracy of envisioning of products

A belief that AR platforms actually make online cosmetics purchasing is something with which customers from each gender agreed upon.

Perceptions of society and Gender notions

While considering the usage of AR platforms by male respondents to buy cosmetics, perceptions of society was highlighted to play a pertinent role.

Various male respondents agreed that specifically when talking about young generation and consumers in urban areas, it has become pretty common for males to use cosmetic products.

Even then old school thought process drastically influenced the comfort and acceptance of cosmetic related technological platforms by males.

When it comes to experimentation of cosmetics on such platforms, female respondents were more receptive and willing to use them.

Thus, it can be inferred adoption of such immersive technologies gets influenced by gender norms.

Adoption of AR and various barriers

Various factors posing as barriers as per participants impacting extended reality technology adoption are:

- Limits of technology
- Inaccurate recognition of face
- Holdup in Platforms and applications
- Superficial visualization
- Concerns of privacy
- Personal data collection
- Issues of security
- Distrust
- Mismatch with real appearance
- Social perception
- Limited authenticity
- Impossible to feel texture and smell aroma

All the reasons make it difficult to completely trust and be dependent of Augmented reality platforms and technology.

Intention to Purchase getting Impacted

Majority of respondents accepted that extended reality technologies positively impacts intention to purchase.

Various uses of AR are:

- Builds courage to use product
- Motivates exploration
- Reduction in reluctance
- Better knowledge about product
- Motivated to purchase product online

Comparatively for female respondents, due to involvement of cosmetic products a stronger purchase impact was witnessed.

When technologies primarily focused on grooming and skin related cosmetics Men respondents displayed a positive behavioral intention.

Thus, it can be inferred purchase behavior gets positively affected due to extended reality technologies.

Conceptual Significance: The outcome confirms the suitability and application of:

- **Technology Acceptance Model:** When consumers find AR technologies easy to use and useful for them then only, they adopt them.
- **Stimulus-Organism-Response Framework:** Intention to purchase gets impacted by Cognitive and sentimental responses, which are instilled through extended reality technologies.

This study also covers Behavioral insights pertaining to different gender inside immersive cosmetic industry through detailed literature.

RECOMMENDATIONS

Cosmetic sellers get to know various effects through this study:

- Gender-inclusive engagement should be ensured by brands
- Specifically, for Male consumers, features focusing on grooming should be provided in AR applications.
- Through Inclusive marketing, Cosmetic brands should try to minimize social taboo
- To improve trust customization and practicality should be focused upon
- Adoption of AR can be encouraged within different demographic segments through easy-to-use platforms
- Privacy on such platforms should be ensured
- There should be cohesion of platform's functionality and engaging customers emotionally.

LIMITATIONS OF THE RESEARCH

- The research was restricted to respondents from Delhi
- Since the research was primarily based on Qualitative analysis only, hence, statistical analysis has not been used
- Consumer's thought process might change over time due to sudden changes and improvements in technology.
- Only focus was on Cosmetic Industry which limits its scope.

FUTURE IMPLICATIONS

Further scope of exploration can be:

- Usage of Structural Equation Modeling to do Quantitative Analysis
- Virtual Reality and Augmented Reality technologies can be compared
- Genders can be compared and evaluated through various cultural settings
- Repeat Purchase Behavior over time can be studied
- Extended Reality Technology can be integrated with Artificial Intelligence

CONCLUSION

Through this study It can be inferred that Gender impacts the adoption of such technologies by Consumers and Immersive technologies significantly influences Intention to purchase throughout Cosmetic Industry.

Due to ongoing popularity of Digitalization in Cosmetic industry and knowledge of beauty products, Female customers displayed positive intention towards AR Technologies. Male consumers were cautious while engaging with such platforms due to social norms and concerns of privacy even when they had positive inclination towards such extended reality technologies.

Through providing ease of access, trust, visualization of product and a smooth experience, such extended reality technologies affected intention to purchase positively. Various factors which played a key role in adoption of Immersive technologies were engaging emotionally, customization, engagement and practicality.

The research outcome reflects that Cosmetic brands must ensure that customer's emotional and functional needs gets taken care of by having gender-inclusive strategies through such extended reality technologies. With the evolvement of immersive technologies we can expect it to form the behavior of customers engaging digitally and their cosmetic purchasing experience.

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