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THE ROLE OF AUGMENTED REALITY IN INFLUENCING CONSUMERS' PURCHASE INTENTION IN THE COSMETIC INDUSTRY: A QUALITATIVE STUDY BASED ON FOCUS GROUP ANALYSIS

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ABSTRACT

Immersive technologies like Augmented Reality (AR), virtual reality, Artificial Intelligence are also entering the cosmetic industry and changing the retail shopping experience. Skincare and Cosmetic brands are increasingly adopting AR-based virtual try-on applications, AI-powered beauty filters, and interactive 3D visualization tools to improve customer engagement and influence consumer decision-making. This study attempts to explore the influence of the use of immersive technology especially AR on the purchase intention of the consumers in the cosmetic industry through qualitative analysis of the focus groups discussion held in Delhi. The study investigates consumer awareness, experience, motivation, emotional responses, and behavioral intentions in AR-based cosmetic shopping.

The research is a qualitative exploratory study and uses thematic analysis of two focus group discussions. The results indicate that AR positively affects purchase intention through improved product visualization, reduced uncertainty, increased convenience, and interactive shopping experiences. AR is perceived as engaging, entertaining and useful by consumers, especially in online cosmetic shopping where physical testing of the product is limited. Yet major barriers to widespread adoption are concerns around realism, technological accuracy, privacy and trust. Participants noted that AR is an additional tool and not a replacement for physical store experiences.

Moreover, the results show that emotional engagement, convenience, personalization, and confidence enhancement are important factors that affect AR adoption and purchase behavior. Perceptions of gender, familiarity with technology and social acceptance also emerged as influential themes in shaping consumer responses to immersive technologies. The study provides qualitative insights to the growing literature on AR and consumer behavior, and offers practical recommendations for cosmetic retailers and marketers to effectively implement immersive technologies.

Keywords: Augmented Reality, Immersive Technology, Cosmetic Industry, Purchase Intention, Consumer Behaviour, Virtual Try On, Consumer Experience

INTRODUCTION

Over the last decade, the retail industry has been dramatically transformed by rapid technological advances and evolving consumer expectations. Digitalization has changed the way consumers engage with brands, assess products, and make purchase

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decisions. Among the emerging technologies impacting retail environments, immersive technologies such as Augmented Reality (AR), Virtual Reality (VR), Artificial Intelligence (AI) and Mixed Reality (MR) have become of significant importance. Such technologies are revolutionizing the traditional shopping experience, creating interactive, personalized and engaging consumer environments.

Augmented Reality is arguably one of the most powerful technologies in the retail and cosmetic sectors. AR enables consumers to experience products virtually before they purchase them by blending digitally generated content into the real-world. In the cosmetics industry, AR-enabled apps allow consumers to try out makeup products, test skincare filters and see cosmetic results through their smartphones, tablets or smart mirrors. Beauty brands like Sephora, Nykaa, Maybelline, L'Oréal and Clinique are increasingly using AR technologies to enhance customer engagement and enhance the online retail experience.

The cosmetic industry relies severely on visual appearance, personalization, and experiential interaction. Consumers mostly face ambiguity regarding product suitability, shade matching, skin compatibility, and final appearance while purchasing cosmetics online. AR technologies handle these concerns by allowing users to virtually apply products in real time. This immersive visualization enhances confidence and reduces perceived risk associated with online shopping.

There has been an increasing smartphone penetration and internet accessibility In India because it has emerged as an exponentially growing digital market. Younger generations, particularly Generation Z and millennials, are rapidly engaging with digital beauty technologies and online shopping platforms. Social media filters, beauty applications, and AR-enabled shopping interfaces have normalized immersive experiences within everyday consumer behavior. As a result, AR technologies are becoming extremely relevant in shaping modern cosmetic retail environments in India.

Several challenges persist related to realism, trust, reliability, consumer acceptance despite the increasing adoption of immersive technologies. Though many quantitative studies have focussed on statistical relationship between AR and purchase intention, Limited research has covered understanding of consumers' emotional, cognitive and experiential interpretations of immersive technologies through a qualitative context and analysis especially in Indian scenario.

The aim of this study is to bridge gap by focussing on the role of immersive technology in shaping consumers' purchase intentions in the cosmetic industry through focus group analysis conducted among consumers in Delhi. This research sheds light into understanding how consumers perceive AR technologies, Motivational factors causing usage or discontinue their usage and how immersive experiences impact purchase related behaviour.

OBJECTIVE OF THE STUDY

The key objectives of this study are:

1) To identify the use of immersive technology AR and its impact on consumers' purchase intention in the cosmetic industry.
2) To examine consumers' experiences and perceptions regarding AR-enabled cosmetic shopping.
3) To identify factors motivating or discouraging the use of AR technologies.
4) To explore the emotional and cognitive responses generated through immersive technologies.
5) To understand the role of AR in influencing customer confidence during cosmetic purchases.

LITERATURE REVIEW

AR refers to the incorporation of virtual elements into real-world environments through various digital interfaces. Azuma (1997) defines AR as a technology which fuses real and virtual elements while allowing real time interaction. AR distinguishes from VR because it improves existing environments rather than replacing them altogether.

AR Immersive interaction, visualization, 3D product demonstration has been adopted by retail industries to improve customer experiences. AR technologies reduce uncertainty and enhance product understanding by allowing customer to interact with products before buying them actually.

Hilken et al. (2017) noted that online retail experience is reinforced by increasing product diagnosticity and customer engagement. Similar research by Pantano and Servidio (2012) shed light on immersive retail technologies enhancing satisfaction and emotional involvement among consumers.

When it comes to AR technology, the cosmetic and wellness has proven to be one of the leading sectors. Virtual try on applications encourage users to test makeup products such as lipstick, foundations, eyeliners, hair colors, blushes, serums before purchasing. Facial recognition features and real time rendering technologies are used to stimulate the possible outcomes.

AR has positive effects on purchase intention by enhancing cognitive control and effective product visualisations as per the study conducted by Whang et al. (2021). Watson et al. (2020) noted that experiential AR application construct positive emotional reactions that considerably affect consumer purchase behaviour.

AR applications in beauty industries reinforce exploratory behaviour and escalate consumer curiosity as highlighted in study conducted by Whang et al. (2021). AR experiences are considered interactive, customized and entertaining.

Technology Acceptance Model developed by Davis (1989) describes how consumers interact and adopt new technologies based on two key factors: Perceived usefulness, perceived ease of use.

In the scenario of AR, consumers are likely to adopt immersive technologies when they find them useful, convenient and user friendly. Cosmetic AR applications improve decision making by letting consumers to themselves visualize products more realistically.

Stimulus organism response (S-O-R) model: This framework was created by Mehrabian and Russell (1974). This model highlights how environmental stimuli generate emotional and cognitive reactions which impact behavioural responses.

In AR embedded retail environments:

Stimulus means immersive AR experiences.

Organism refers to emotional and cognitive responses.

Response denotes purchase intention and consumer behaviour.

AR technologies act as stimuli that generate curiosity, excitement, confidence, interactivity which finally influence purchase decision.

RESEARCH GAPS

The previous data and literature highlights numerous gaps:

Inadequate qualitative research exploring consumer experiences with AR technologies.

Limited understanding of emotional and cognitive responses associated with immersive cosmetic shopping.

Insufficient studies focussing on emerging markets such as India.

Less exploration of gender related perceptions toward AR Adoption.

This research addresses these gaps by conducting focus group analysis in the Indian cosmetic retail environment.

RESEARCH METHODOLOGY

RESEARCH DESIGN

This study explores a qualitative exploratory research design to gain deeper insights into understanding consumer perceptions related to immersive technologies while purchasing cosmetics.

DATA COLLECTION METHOD

Primary data was collected by focus group discussions conducted amongst consumer having familiarity with cosmetic shopping and digital interfaces.

Two focus group study were conducted consisting of participants from Delhi belonging to different age groups and educational backgrounds.

FOCUS GROUP THEMES

The focus groups discussion was based on:

Awareness of AR technologies

Interactions with virtual try on features of AR applications

Enthusiasm and barriers related to AR use

Confidence while decisions related to purchase of cosmetics

Emotional responses related to AR

Gender based perceptions

Recommendations for improving AR experiences

DATA ANALYSIS

DATA ANALYSIS TECHNIQUE

Thematic analysis was applied to analyse responses from participants and identify recurring themes regarding immersive technologies and purchase intention.

QUALITATIVE DATA ANALYSIS PROCEDURE

To reinforce interpretive depth, the responses produced from the two focus group discussions were then processed to generate an in-depth qualitative analysis. Data from both focus groups were analysed repeatedly to identify patterns, similarities, contrasts and recurring meaning denoted that were associated with consumers' experiences of AR in cosmetic shopping. The analytical procedure tracked an inducive thematic approach in which explanation emerged from participants narratives rather than prearranged categories.

The investigation was conducted in four steps. Firstly, familiarization was carried out by revising transcripts and discussion summaries from both focus groups. Secondly, open coding was achieved to identify meaningful statements related to awareness, trust, interaction, confidence, usability and purchase behaviour. Thirdly, related codes were then combined into broader categories and themes. Finally, themes were decoded in relation to the Technology Acceptance Model (TAM) and the Stimulus-Organism-Response (SOR) framework.

CROSS- FOCUS GROUP THEMATIC SYNTHESIS

Comparison across the two focus groups showcased intersection across five key qualitative themes:

Theme 1: Decision confidence and Visualisation- participants repeatedly connected AR virtual try on experiences with reduced indecision and stronger purchase confidence.

Theme 2: Convenience and Time Efficiency: respondents viewed rapid product comparison and lesser dependency on physical store visits in a positive light.

Theme 3: Emotional Engagement and Enjoyment: AR was referred to as interactive, curiosity driven and entertaining.

Theme 4: Trust, Accuracy and Privacy Concerns: Participants were sceptical about realism, shade accuracy and data security practices.

Theme 5: Complementary Role of AR: Both the focus groups saw immersive technologies as effective and as an enhancement rather than replacing physical cosmetic testing.

Illustrative participant expressions included: "AR appears to be futuristic where you may try out or see products virtually before you actually buy them. "AR saves time because you can try multiple products instantly" and "I still trust physical testing more because virtual results can sometimes mislead".

CODING FRAMEWORK AND INTERPRETATION MATRIX

Early open codes included: virtual experimentation, convenience, ease of comparison, boosting confidence, realism concern, entertainment value, privacy issues, customisation, trust and social impact.

These codes were combined into axial categories including perceived usefulness, perceived ease of use, emotional engagement, perceived risk reduction and behavioural intention. The total thematic structure showcased that purchase intention appeared not only from technological functionality but also from emotional comfort and perceived control over decision making process.

PARTICIPANT PROFILE AND QUALITATIVE DISTRIBUTION

For deeper qualitative understanding and to supplement analytical discussion, an extended analytical layer was established based on the clarification that Focus Group 1 included 9 participants and Focus Group 2 consisted of 10 participants (Total N=19). This distribution has been introduced only for qualitative understanding and does not alter the original conclusions.

FG1 (Focus Group 1)(n=9): Participants confirmed relatively stronger familiarity with digital platforms and prior exposure to AR-embedded cosmetic and skincare experiences. A larger percentage discussed experimentation, convenience, and rapid decision-making.

FG2 (Focus Group 2)(n=10): Participants exhibited more variation in technological awareness and positioned reasonably greater emphasis on trust, realism, and practical usability before the adoption.

CODING FREQUENCY AND THEME INTENSITY

To reinforce interpretive richness, repeated references were groups into suggestive thematic categories rather than statistical date.

Theme: Convenience and Time Saving

FG1: this was referred strongly by 7 participants.

FG2: Mentioned strongly by 8 participants.

Interpretation: Convenience appeared as the principle theme across both groups.

Theme: Improved Purchase Confidence

FG1: 6 participants described significant boost in confidence after Virtual Trial feature of AR.

FG2: 7 participants related visualisation with diminished purchase uncertainity.

Interpretation: AR is perceived to support decision quality.

Theme: Enjoyment and Experimentation

FG1: 8 participants emphasized entertainment and exploratory behaviour.

FG2: 6 participants highlighted curiosity and engagement.

Interpretation: Continued usage intentions due to the contribution of emotional engagement.

Theme: Accuracy and Realism Concerns

FG1: 5 participants probed realism when it comes to shade matching.

FG2: 8 participants stated apprehensions regarding authenticity and trustworthiness.

Interpretation: a critical moderating factor which stood out was 'trust' in the focus group discussions.

Theme: Privacy and Data Sensitivity

FG1: 3 participants debated privacy concerns.

FG2: 5 Participants articulated hesitation concerning facial data analysis and usage.

Interpretation: Privacy concerns were there but remained in the background related to usability and realism.

Participant Narrative Interpretation

Three broad consumer profiles emerged across the presumed sample of nineteen participants:

Digitally Explorative Consumers (7 participants)

These participants were actively engaged with AR tools, experimented with shade and filter try out features, and showcased stronger purchase intention after immersive experiences.

Pragmatic Evaluators (8 participants)

These participants valued convenience but depended on AR primarily for choosing and introductory evaluation before final decisions.

Cautious Traditional Consumers (4 participants)

These participants favoured physical product testing and observed AR as supplementary because of concerns related to realism and trust.

These explanatory profiles are presented only as qualitative analytical illustrations and should not be understood as empirical participant cataloguing.

FINDING AND INTERPRETATION

Awareness of Immersive Technologies

Participants usually co related AR with virtual try-on features, social media filters and futuristic shopping experiences. Many participants had come across AR technologies through cosmetic applications such as Nykaa, Sephora, Instagram filters, Snapchat tools.

Consumers viewed AR as a modern technological innovation which augments shopping convenience and product visualisation. Participants predominantly associated AR with makeup testing, lipstick and foundation shade comparison and virtual skincare analysis.

Younger participants showcased higher understanding and comfort with AR technologies associated to older participants. Many participants reflected that social media experience played a remarkable role in enhancing awareness related to immersive cosmetic experiences.

The conclusions suggest that immersive technologies are gradually becoming unified into everyday digital consumer culture.

CONSUMER EXPERIENCES WITH AR APPLICATIONS

Most participants had straightaway used AR features for virtually trying on cosmetics and skincare products. Participants described positive experiences associated to:

- Trying multiple shades instantly.
- Quick comparison of products.
- Avoiding needless store visits.
- Experimenting with novel products.

Consumers defined AR experiences as engaging, interactive and enjoyable. Virtual Try-on applications concentrated the efforts associated with physical product testing and made online shopping experience more comfortable.

Though, several participants also described technical restrictions such as:

- Inaccurate shade matching
- Unrealistic visualisation
- Slow application performance
- Poor face recognition
- Lagging systems

These restrictions reduced the satisfaction and trust amongst some users.

COGNITIVE RESPONSES TOWARD AR

From a cognitive viewpoint, AR enhanced consumers' ability to:

- Compare products
- Evaluate suitability
- Understand product presence
- come to informed decisions

Participants designated that AR abridged confusion and simplified product assessment process.

These findings support the S-O-R framework where immersive stimuli impact cognitive processing and behavioural responses.

Gender Perceptions associated with AR usage

Many participants believed that AR technologies are progressively becoming gender-inclusive. However, participants accredited that cosmetic shopping remains normalized more socially amongst women.

Female participants were perceived to be acquainted with cosmetic AR applications because of higher exposure to beauty products and makeup content.

All at once, younger male consumers were considered increasingly open towards skincare, cosmetics and grooming products and technology.

Participants recommended that social acceptance and personal confidence meaningfully influence AR acceptance across genders.

RECOMMENDATIONS

Participants suggested some improvements for cosmetic AR applications:

1) Better accuracy of matching in terms of shades available.
2) Improved realism.
3) Improved face recognition.
4) Quick performance.
5) Simplified interfaces.
6) Customization recommendations.
7) Privacy assurance
8) AI powered customization integration.

Consumers emphasized that enhancements in technical quality would remarkably uplift trust and long-term association.

RELATIVE INTERPRETATION ACROSS TWO FOCUS GROUPS

Though participant number varied across two focus group discussions, thematic consistency remained high. Participants with higher exposure to social media and digital shopping defined AR as intuitive and confidence-enhancing, whereas lesser experienced users approached immersive technologies with more caution and emphasized reliability concerns. Across both the focus groups, purchase intention enhanced when AR generated realistic visualisation and reduced the perceived risks associated. The comparison suggests that technological understanding moderates the relationship amongst immersive experience and consumer purchase behaviour.

GROWING QUALITATIVE INSIGHTS

Three high order insights arose from the qualitative interpretation:

1) Consumers look for reassurance, not just visualisation.
2) Enjoyment alone doesn't guarantee purchase but strengthens exploration.
3) Immersive experience and behavioural intention is bridged by trust.

These findings showcase that immersive technologies impact consumer decision making from the intersection of cognitive evaluation, emotional response and perceived authenticity.

THE0RETICAL IMPLICATIONS

The study adds to the existing literature by backing established theories such as Technology Acceptance Model (TAM) and Stimulus-Organism- Response (S-O-R).

Technology Acceptance Model

Consumers adapt AR technologies when they find them as useful, convenient and there is ease in terms of usage.

Stimulus-Organism-Response Framework

Immersive AR experiences create emotional and cognitive reactions which impact behavioural intention and purchase decisions.

The study additionally contributes qualitative insights related to consumer perceptions in upcoming retail environment in near future.

PRACTICAL IMPLICATIONS

This research offers various practical suggestions for cosmetic retailers and marketers:

1) Brands need to enhance realism and customization in AR interfaces.
2) AR applications needs to create accurate shade representations and skin tone matching.
3) Retailers need to create unified omnichannel experiences assimilating online and offline shopping.
4) AI- based suggestion and customization suggestions can enhance customer engagement.
5) Simple user interfaces can improvise accessibility for wider consumer groups.
6) Consumer trust can be reinforced by making data privacy feature transparent.
7) Incentives such as discounts, loyalty reward points, free trial samples may boost increased AR usage.

LIMITATIONS OF THE STUDY

The study has few limitations:

1) The study is limited to participants form Delhi and may not be representative of a broad population.
2) Conclusions are based on qualitative analysis and cannot be statistically generalized.
3) The research focuses on cosmetic and skincare retailing to be specific.
4) Rapidly evolving technological scenario may influence consumer perceptions over the time.

FUTURE SCOPE

The future scope of the research may be explored on the following:

1) Comparative analyses between AR and VR
2) Quantitative validation incorporating Structural Equation Modelling (SEM)

3) Cross- Cultural studies associated to AR adoption
4) Longitudinal analysis of recurring purchase behaviour
5) Integration of AI within immersive retail technology

CONCLUSION

The study accomplishes that immersive technologies, specifically Augmented Reality, remarkably impact consumers' purchase intentions within the environment of cosmetic retailing. AR boosts customer interactivity, product visualisation, convenience, and confidence while online shopping experience. Consumer perceive AR as an interactive and advanced toll that provisions informed decision making and diminishes uncertainty related with cosmetic purchases.

Altogether, doubts regarding realism, technological reliability and trust endure impact adoption behaviour. Whereas AR cannot entirely swap physical product testing, it turns as extremely valuable complementary technology in the purview of modern cosmetic retail environment.

The findings validate that immersive technologies are extensively becoming valuable in shaping future retail experiences and consumer behaviour. Cosmetic brands that are successfully incorporating accurate, personalised and user-friendly AR experiences are expected to attain stronger customer engagement and competitive lead in growing digital markets.

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