

The role of AR in influencing consumer purchase decisions in e-commerce in the cosmetic industry

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Abstract

The effects of augmented reality (AR) on consumer behaviour in Sri Lanka's cosmetics industry are qualitatively assessed in this study through six major themes: the need for touch, authenticity and effectiveness, repeat purchases and reviews, immersion and enjoyment, interactivity and vividness, and customization. The results show that while AR features such as try-on simulations and recommendation personalization add convenience, none can ever replace the tactile evaluation of texture and formulation, especially in the case of foundations and lipsticks. Credibility will be eroded when AR representations are not real with influencer endorsements misleading. The other side of the coin is that AR strengthens brand allegiance through repeat purchases and positive reviews, and customization and interactivity empower consumers. These findings speak to the augmentation of online shopping through AR, but never its substitution for tactile evaluation of the product. Based on the research findings, this study recommends enhancing AR technology to simulate texture and consistency more accurately, integrating consumer-generated content and real-time reviews to increase authenticity and trust, and offering AR-linked product samples or flexible return policies to reduce consumer hesitation.

Keywords: Augmented Reality, E – commerce, Purchasing Decisions, Need for touch

1. Introduction

1.1 Background of the study

Augmented Reality (AR) technology advances rapidly to change business operations especially in e-commerce (Pettersen & Asheim, 2022). The integration of digital data through AR technology improves user interaction and it is currently applied extensively in educational and entertainment sectors as well as online shopping (Eldokhny & Drwish, 2021).

AR enables users to virtually test products which creates a connection between physical and digital shopping environments (Rauschnabel et al., 2022). Users can test makeup virtually through this technology which leads to better purchase confidence and satisfaction (Whang, Song, Choi, & Lee, 2021). The shopping experience gets improved by virtual fitting spaces along with instant product displays.

Retailers achieve success by connecting their online and offline systems to increase distribution channels and provide individualised convenience to customers. The realistic testing experience of AR makeup on smartphones demands additional research regarding its effects on consumer purchasing behaviour (Dhianita & Rufaidah, 2024).

1.2 Research Problem

The rapid revolution of e-commerce has transformed the way consumers interact when it comes to making purchase decisions or buying products. However, the online shopping experience in the cosmetic industry face various challenges, as consumers are not able to touch and feel or understand the product attributes such as colour and texture via e-commerce (Reinartz, Wiegand, & Imschloss, 2019). Such problems create customer uncertainties that lead to dissatisfaction since businesses must handle excessive returns that reduce profit and damage customer trust.

New technologies such as Augmented Reality (AR) offers promising solution by allowing consumer to visualise and virtually try on cosmetic products thus bridging the experimental gap in e – commerce. Despite its potential, research is still being carried out to understand impact of AR on consumer purchase behaviour within the cosmetic industry (Jessen et al., 2020).

1.3 Research Aim

The aim of this research is to explore the role of AR in influencing consumer purchase decisions in e-commerce in the cosmetic industry.

2. Methodology

This research adopted a qualitative research method, using semi-structured interviews as the primary research strategy to explore consumer perceptions of augmented reality (AR) in the cosmetic industry.

Primary data was gathered through interviews with 10 selected participants, while secondary data was sourced from relevant academic journals and articles to support the analysis.

The study employed the purposive sampling method, allowing the researcher to purposefully select participants with relevant experience or interest in cosmetic product purchasing.

For data analysis, thematic analysis was used to identify key patterns and insights from the participant responses, aligning with the exploratory nature of the study.

3. Analysis and Findings

3.1 Participants' Background

Participants of this study belong to the age group ranging from 21 to 39 years. Customers showed preference for obtaining cosmetics by combining online shopping with traditional in-store methods because this dual approach provides them maximum flexibility in their purchasing process. The majority of the participants were female.

Table 1. Participants' Background

Part.	Age	Designation	Buys Online/ In-store/ Both	Frequency of purchase
A	21	Lecturer, social worker and school counsellor.	Both	Once in 6 months
B	32	Housewife and Home baker	In-store	Very Rarely
C	23	Student	Both	Every 2 or 3 months
D	35	Marketing Manager	Online	Every month
E	39	Bank Manager	In-store	3 – 4 months
F	26	Graphic Designer	Both	Once every 2 months
G	21	Student	Both	Once in 6 months
H	29	Makeup Artist	Both	Every 2 – 3 months
I	23	Makeup Artist	Both	Every few moments
J	25	Makeup Artist	Both	Every month

3.2 Need For Touch (NFT)

The Need for Touch (NFT) plays an essential role in beauty product purchases, because participants base their decisions on texture. Online shoppers find it difficult to purchase foundation and lipstick because they cannot physically test colours and textures (Wang, 2024). The touch substitute quality of AR improves trust with its try-on capabilities and colour filters, yet insufficient touch detection hinders the assessment of product texture and finish together with weight estimation. The inability to properly assess beauty products remains a critical issue in online shopping for beauty (Zhang, Wang, Cao, & Wang, 2019).

Respondent A stated, *"It's really important, especially for things like foundation and lipstick. The shades often look different online than in real life. I also like testing textures. Some products feel too heavy on the skin, and you can't tell that from an online listing."*

The selection of shades and consistency of texture play essential roles in cosmetic shopping according to Respondent A. Online listings do not provide touch-based assessments, which make it difficult for

customers to determine their skin tone match. AR technology improves the representation of shades and texture simulation which decreases purchase uncertainty and resolves the Need for Touch (NFT) in online shopping.

3.3 Authenticity and Effectiveness

The purchasing decisions of cosmetics consumers depend on both Effectiveness and Authenticity. A product reaches effectiveness by performing the promised functions which include durable wear and skin hydration and health benefits (Dacko, 2017). The brand should authenticate itself by presenting valid product statements through clear marketing practises. Online shoppers depend on product descriptions and customer reviews and company reputation to develop trust in online shopping platforms. Customers doubt product features that need tactile testing since virtual evaluations are impossible (Krishna, Luangrath, & Peck, 2024).

Respondent B stated, *"I would still prefer to physically test them as I have tried a few websites that has implemented virtual try-ons and I was not quite happy with it."*

The British Broadcasting Corporation (BBC) considers AR-driven virtual try-ons to be unreliable because they display inaccurate colours and poor lighting effects and unconvincing textures. The benefits of AR for online shopping exist but do not substitute the need for actual product testing. Customer satisfaction depends on realistic product representations because colour and application inaccuracies result in unhappy customers who return products (Wang, Ko, & Wang, 2021; Pandey & Pandey, 2025).

3.4 Repeat Purchases and Positive Reviews

Consumer trust together with brand loyalty in the cosmetic market depends on customers' repeat purchases followed by positive feedback. Customers tend to buy again when their products exceed their quality benchmarks and fulfil their satisfaction needs (Rita et al., 2019). Since customers cannot test products in online shopping (Filho et al., 2023) positive reviews serve as proof that helps new buyers make decisions. The virtual try-ons enabled through Augmented Reality (AR) improve online shopping, yet real user testimonials still

dominate purchase decisions (Daroch et al., 2021).

Respondent E stated, *"If the AR trial mirrors my expectations and the product performs as promised, I would feel more motivated to share my experience with others and support the brand with a positive review. AR might enhance my confidence in a product by providing more accurate and personalized experience."*

Augmented reality (AR) technology has a direct impact on customer trust as well as repeat buying patterns and verbal recommendations among consumers. Consumer confidence improves through accurate AR product performance, and this drives more customers to buy and recommend the brand to others. Custom AR trials improve the accuracy of product perception which builds stronger customer confidence in their purchases. Positive reviews stem from trust that keeps building up brand reputation which in turn brings in new buyers.

Research demonstrates that product authenticity perception rises when AR provides virtual try-on experiences which enable customers to see products prior to purchase (Yang & Lin, 2024). The use of realistic AR simulations creates both certainty and satisfaction according to Voicu, Sirghi and Toth (2023).

3.5 Immersion and Enjoyment

Digital shopping receives its most valuable experience from Augmented Reality (AR) technology, which brings immersion and enjoyment together. Immersion emerges from user engagement levels during AR use together with enjoyment as the emotional and value-based satisfaction from the experience (Dieck, Cranmer, Prim, & Bamford, 2023). AR technology at cosmetic companies lets customers experience interactive virtual try-ons combined with tutorial content that gives them an interactive journey beyond traditional buying practices. Research evidence shows brand loyalty strengthens when customers have positive and deep shopping experiences. Higher purchase rates and better customer retention statistics emerge due to this phenomenon (Hudson, Barkat, Pallamin, & Jegou, 2019).

Respondent F stated, *“Being able to virtually try on products using AR would definitely make the shopping experience more fun and engaging. As a makeup artist, being able to experiment with different products, shades and looks in real time adds an element of creativity and exploration to the process. I could quickly see how a lipstick or eyeshadow would look on my face without having to try it physically. This would make the shopping experience feel more interactive and exciting, I think.”*

According to Respondent F AR technology improves customer shopping experiences because people find it more captivating and fun. The introduction of virtual try-ons enables customers to make online purchases through an interactive creative experience. Makeup artists use AR to evaluate colour choices and hairstyles on clients by virtually test-driving options before delivering individualized customer service. AR applications interact with users in real time and therefore extend brand contact periods which in turn generate higher sales conversion rates.

The research by Schultz & Kumar (2024) proves that shopping with AR tools provides customers with dual sensory benefits that facilitate direct involvement in their product choices. Real-time product style interaction as described in the statement provides tailored shopping that improves customer perception of shopping value. The experiential retailing theory validates this research outcome since customers normally buy items while engaging in interactive product exploration sessions (Wu & Kim, 2022).

3.6 Interactivity and Vividness

Compelling consumer interactions of deep quality emerge from the conjunction of vividness elements and interactivity in Augmented Reality (AR) shopping experiences. Digital content interactivity defines the personal product interaction possibilities that customers can achieve when they customize their product exploration process. Vividness creates a distinct visual experience that generates items, which look genuine to actual products (Roy, Singh, Sadeque, Harrigan, & Coussement, 2023). The real-time functionality of AR lets cosmetic shoppers assess multiple products together with

colours and textures simultaneously thus creating an advanced interactive shopping experience. When retailers enhance both interactivity features and vividness of online experiences, customers develop stronger bonds with products that leads to higher purchase intent and brand loyalty (Hollebeek & Macky, 2019).

Respondent B stated, *“Being able to rotate, zoom in or apply virtual cosmetic products before purchasing is definitely a game changer. I would really appreciate the ability to see the product from every angle and get a close up view of how it would look on my skin.”*

Virtual tools allow consumers to enhance their experience by testing cosmetic products through rotation and zoom functions and virtual skin application. Users can authenticate their interaction with product visuals by interacting from different perspectives through the user-valued features. Through interactive product features, consumers enhance their purchasing trust and obtain improved satisfaction levels.

Product realism perception stands as a vital component that depends on the clarity and richness of digital content according to consumer perception. Research shows that AR technology enables consumers to establish confident product choices and satisfied purchasing experiences because it provides clear and detailed visual outputs (Ngo, Tran, An, & Nguyen, 2025). The study indicates that AR technology delivering close-up views in multiple viewing angles enables consumers to perceive products realistically better than traditional static images (Poushneh & Vasquez-Parraga, 2017).

3.7 Customisation in Online Shopping

Through online shopping customers can personalize their shopping products based on their distinct preferences. Retailers allow consumers to personalize their shopping experience by offering options that allow specification changes along with colour and size selection and virtual product fitting and interactive features (Yu, Xie, & Lu, 2024). The cosmetic industry offers customers opportunities to view products on their skin tone along with colour selection and formula mixing features which improve product-personal connection. Customization leads to

enhanced customer satisfaction along with better shopping satisfaction by enhancing purchase confidence thus generating stronger customer commitment and revisits (Jain & Sundström, 2021).

Respondent C stated, *“If I could, you know, try combining different lip liners and lipsticks virtually to see how they complement each other, I think I'd feel more confident in my ability to create the exact look I'm going for. You know, and this can give me more flexibility assuring that I'm purchasing something that fits my desired outcome. This level of customization would likely increase my confidence in purchasing as I would know exactly what I'm getting.”*

According to Respondent C product customization stands as a fundamental key to create consumer confidence during the shopping process. Virtual product combination features enable online consumers to test multiple lip liner and lipstick combinations which provides them with testing flexibility. By allowing customers to select customized products they achieve control because the chosen items match their desired aesthetic result. The consumer becomes more confident about their purchase because the product matches their exact needs.

Customization serves as an online shopping tool for market-based industries like cosmetics to appeal to customer preferences (Jussani, Vasconcellos, Wright, & Grisi, 2018). Customers who personalize their products acquire satisfaction along with control thus boosting their confidence as they prepare to buy. Customers enhance their interaction by testing different product combinations as shown by lip liner and lipstick blending (Adawiyah, Purwandari, Eitiveni, & Purwaningsih, 2024).

4. Conclusion

This research identified three areas that significantly influence consumer behaviour in AR-driven cosmetic e-commerce which are the Need for Touch, Authenticity and Effectiveness, and Repeat Purchases and Positive Reviews.

Although AR technology enhances visual experiences through try-ons and shade

matchers, it cannot replicate physical touch, which limits consumer trust in online purchases (Wang, 2024; Zhang et al., 2019). Respondents noted this gap, explaining that textures often feel different than they appear online. While tools like TikTok filters improve shade selection confidence (Gatter et al., 2021), they don't solve the issue of texture evaluation. Brands like Sephora address this by offering both digital and physical testing. Haptic feedback may eventually bridge this gap, but until then, the absence of tactile experience remains a challenge in AR-driven cosmetic shopping (Scholz & Duffy, 2018).

Consumers' purchasing decisions in the cosmetic industry rely heavily on a product's authenticity and effectiveness. Effectiveness refers to how well the product performs its intended functions, such as long wear or skincare benefits (Dacko, 2017), while authenticity depends on clear, honest marketing and accurate product representation. Moreover, respondents expressed distrust toward AR-based try-ons, noting that visual simulations often fail to reflect real colours, lighting, or texture (Krishna, Luangrath, & Peck, 2024). Negative experiences, such as with overrated products like SHEGLAM, highlight how misleading AR previews and influencer-driven hype can create customer dissatisfaction (Kim et al., 2022). Further, AR offers visual convenience but cannot fully replace physical testing, especially for texture and application feel (An et al., 2022). As a result, consumer trust depends on transparent marketing and accurate product visuals, rather than overpromised digital features (Pandey & Pandey, 2025).

Repeat purchases and positive reviews are strong indicators of consumer trust and brand loyalty in the cosmetic industry. Customers are more likely to repurchase and recommend products when their expectations are met or are exceeded (Rita et al., 2019). Since physical testing isn't possible online, peer reviews serve as a major decision-making tool (Filho et al., 2023).

Augmented Reality (AR) enhances online shopping by offering virtual try-ons, helping users visualize products in real-time. When AR experiences align with actual product outcomes, they increase consumer confidence

and drive both repeat purchases and positive feedback (Daroch et al., 2021; Yang & Lin, 2024). This trust-building process strengthens brand credibility and encourages organic promotion through customer advocacy (Park & Lin, 2020).

Makeup artists especially value AR's ability to simulate real application experiences, reducing uncertainty in areas like shade matching and texture. Ultimately, accurate and personalized AR simulations lead to long-term customer relationships and consistent brand loyalty (Dacko, 2017).

5. Recommendations

Based on insights gained from this research, the following recommendations have been developed.

5.1 Enhance AR Technology to Simulate Texture and Consistency

Online AR helps customers predict product aesthetics but fails to reproduce texture and consistency properties which results in product purchase uncertainty across foundations and lipsticks and skincare items. Consumers depend on unreliable reviews when making choices. Textured simulation technology powered by AI systems should be developed by brands to demonstrate foundation coverage along with blend ability and completion. The application process can be shown through interactive animations for various skin types. Future users of haptic feedback technology will be able to experience skin textures which will increase their confidence level in online purchases and decrease product returns.

5.2 Integrate Consumer-Generated Content and Real-Time Reviews

Since AR cannot duplicate material texture and product consistency consumers depend on feedback from reviews and actual demonstrations. Brands should connect consumer-produced content and instant AR review feedback systems to establish trust with their audience. The assessment of product coverage and finish becomes possible through influencer partnerships, which utilize AR to compare real versus virtual products. Consumers engage more with video reviews and live try-ons, as well as unedited content

found on TikTok Instagram and YouTube. Live AR shopping events unite digital and physical shopping while reducing the problem of deceiving product previews.

5.3 Offer AR-Linked Sample and Flexible Return Policies

The inability of AR technology to address customers' doubts about product texture and consistency prevents them from making online cosmetic purchases. Brands must provide customers the possibility to acquire small trial sizes through a sample-based purchase system following an AR try-on experience. Return policies connected to AR technology should offer customers free or discounted returns through the "Texture Guarantee" when products fail to meet texture and coverage expectations. Such strategies help decrease customer uncertainty while creating trust and ensuring future sales.

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