

A STUDY ON THE ROLE OF ARTIFICIAL INTELLIGENCE IN VIRTUAL PRODUCT EXPERIENCE AND CONSUMER BUYING BEHAVIOUR

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Abstract:

The rapid integration of Artificial Intelligence (AI) in digital commerce has transformed the way consumers interact with products prior to purchase. AI-powered virtual product experiences, particularly Augmented Reality (AR) – based try-on features, enable consumers to visualize products in real time, thereby reducing uncertainty and enhancing decision-making. This study examines the role of AI-enabled virtual product experience in shaping consumer buying behaviour. Primary data was collected through a structured questionnaire from 80 respondents who actively engage in online shopping and have prior exposure to AR try-on technologies. The study employs descriptive statistics, correlation, and regression analysis using Microsoft Excel to assess the relationship between virtual product experience and consumer buying behaviour variables such as purchase confidence, hesitation, decision speed, and likelihood of product returns. The findings reveal a significant positive relationship between AI-driven virtual product experience and consumer buying behaviour, highlighting the growing importance of immersive technologies in digital retail strategies.

Keywords: *Artificial Intelligence, Virtual Product Experience, Augmented Reality, Consumer Buying Behaviour, Online Shopping.*

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Introduction:

Artificial Intelligence (AI) has emerged as a transformative force in the digital economy, particularly in the domain of e-commerce and consumer engagement. Contemporary consumers increasingly rely on digital platforms for product discovery, evaluation, and purchase, which has intensified the need for interactive and immersive shopping experiences. One of the most significant advancements in this context is the use of AI-powered virtual product experiences, especially Augmented Reality (AR) – based try-on features.

Virtual product experience enables consumers to visualize products in a simulated real-world environment, thereby reducing information asymmetry traditionally associated with online shopping. AI algorithms enhance these experiences by improving

personalization, accuracy, and realism. As a result, consumers are able to assess product fit, appearance, and suitability with greater confidence before making purchase decisions.

Despite the growing adoption of AI-enabled AR technologies by online retailers, empirical research examining their influence on consumer buying behaviour remains limited, particularly in emerging digital markets. This study seeks to address this gap by analysing how AI-driven virtual product experience affects key dimensions of consumer buying behaviour, including purchase confidence, hesitation, decision-making speed, and post-purchase outcomes.

Review of Literature:

- **Indian Journal of Marketing (2023)** reveals AI-powered AR tools are critical differentiators in competitive markets, with younger consumers (18-

35) showing 73% higher adoption rates.

- **IKEA Annual Report (2023)** shows their AR Place reduced furniture returns by 50% while increasing purchase confidence by 98%, addressing uncertainty about product fit.
- **Smink et al. (2019)** identify three AR mechanisms: enhancing product understanding, providing entertainment value, and creating personalized experiences, with effective implementations combining all dimensions.
- **Poushneh & Vasquez-Parraga (2017)** examine AR's impact on customer satisfaction and purchase intentions, revealing that AR-enhanced product presentations lead to substantially higher hedonic enjoyment and utilitarian value perception, with strongest effects observed for experience goods where physical attributes—such as fit, color matching, and spatial compatibility—are crucial to purchase decisions.
- **Hilken et al. (2017)** explore AR's strategic potential in enhancing online service experiences, demonstrating that augmented reality creates multisensory flow states where consumers become deeply immersed in product exploration, significantly improving decision quality, reducing cognitive load, and strengthening brand relationships through authentic, transparent visualization that builds trust.
- **Huang & Liao (2017)** analyze how AR features affect quality and value perceptions, finding that realistic, high-fidelity visualization increases perceived product quality and justifies premium pricing strategies, particularly for experience goods where sensory attributes cannot be evaluated through traditional static imagery, thereby reducing the perception gap between online and offline shopping.
- **Scholz & Smith (2016)** investigate immersive AR experiences designed to maximize consumer

engagement, establishing that successful AR implementations balance technological sophistication with intuitive usability, ensuring that enhanced visualization capabilities don't overwhelm users but instead empower them to make confident, informed purchase decisions through progressive disclosure of product information.

Research Objectives:

The study is guided by the following objectives:

1. To examine the extent of consumer usage of AI-enabled AR try-on features in online shopping.
2. To analyse consumers' perceptions of virtual product experience facilitated by AI.
3. To evaluate the impact of AI-driven virtual product experience on consumer buying behaviour.
4. To assess the relationship between virtual product experience and purchase confidence, hesitation, and decision-making speed.

Research Gap:

Existing studies on Augmented Reality and Artificial Intelligence in online retail largely focus on purchase intention and user attitude, with limited empirical attention to actual consumer buying behaviour. Moreover, the specific role of AI-enabled virtual product experience in influencing purchase confidence, hesitation reduction, and decision-making speed remains underexplored using primary survey data. Additionally, there is a lack of studies demonstrating practical, replicable analytical approaches using accessible tools such as Microsoft Excel. This study addresses these gaps by empirically examining behavioural outcomes of AI-driven virtual product experience.

Scope of the study:

This study examines AI-powered AR try-on tools' influence on consumer purchase confidence within India's e-commerce landscape. Through targeted sampling of 80 participants, the research highlights

relationships between AR technology features and purchase decision-making employing quantitative analysis to test hypotheses about trust, understanding, and confidence relationships. The objective is contributing empirical evidence on AR effectiveness and informing platform strategies for optimizing virtual shopping experiences.

Research Hypotheses:

H₀₁: There is no significant impact of AI-enabled virtual product experience on consumer buying behaviour.

H₁₁: There is a significant impact of AI-enabled virtual product experience on consumer buying behaviour.

H₀₂: There is no significant relationship between trust in AI-based AR try-on accuracy and consumer purchase confidence.

H₁₂: There is a significant relationship between trust in AI-based AR try-on accuracy and consumer purchase confidence.

Research Methodology:

1. Research Design:

The study adopts a **descriptive and analytical research design**, focusing on empirical

examination of the relationship between AI-enabled virtual product experience and consumer buying behaviour.

2. Data Collection:

Primary data were collected using a structured questionnaire administered to respondents with experience in online shopping and AR try-on features. The questionnaire consisted of demographic variables, usage-related questions, Likert-scale statements measuring virtual product experience, and buying behaviour indicators.

3. Sample Size:

A total of 80 valid responses were collected and analysed. Convenience sampling was used due to accessibility and relevance of respondents.

4. Tools for Data Analysis:

Data analysis was conducted using Microsoft Excel Data Analysis ToolPak employing the following techniques:

- Descriptive statistics (mean, standard deviation)
- Percentage analysis and graphical representation
- Correlation analysis
- Regression analysis

Data Analysis and Interpretations:

The collected primary data were coded and analysed using the Microsoft Excel Data Analysis ToolPak. Descriptive statistics, correlation, and regression analyses were employed to test the stated hypotheses at a 5% level of significance.

Table 1: Descriptive Statistics of Key Variables

Variables	N	Mean	Standard Deviation
Understanding Product Fit using AR	80	2.95	1.14
Trust in AR Try-on Accuracy	80	2.90	1.11
Purchase Confidence after AR Use	80	3.10	1.13

Source: Primary Data

Interpretation: The mean values indicate that respondents moderately perceive AI-enabled AR try-on features as helpful in understanding product fit and appearance. Trust in AR accuracy is also moderate, while purchase confidence records a comparatively higher mean, suggesting that virtual product experience positively influences consumer confidence during online purchases.

Table 2: Correlation Analysis

Variables	Correlation Coefficient (r)	Significance Level
Understanding Product Fit & Purchase Confidence	0.664	p < 0.05
Trust in AR Accuracy & Purchase Confidence	0.754	p < 0.05

Source: Primary Data

Interpretation: The correlation results reveal a strong positive relationship between AI-enabled virtual product experience variables and purchase confidence. Trust in AR try-on accuracy shows a stronger association with purchase confidence compared to product fit understanding, indicating that accuracy and reliability of AI-driven AR tools play a crucial role in influencing consumer confidence.

Table 3: Regression

Dependent Variable: Purchase Confidence

Statistic	Value
R Square	0.605
F Value	59.02
Significance F	< 0.05

Source: Primary Data

Interpretation: The regression model explains 60.5% of the variation in consumer purchase confidence, demonstrating a strong explanatory power of AI-enabled virtual product experience. Since the Significance F value is less than 0.05, the model is statistically significant at the 5% level.

Table 4: Regression Coefficients and Significance

Variable	Coefficient (β)	p-value
Constant	0.636	0.011
Understanding Product Fit	0.266	0.009
Trust in AR Accuracy	0.579	0.000

Source: Primary Data

Interpretation: Both independent variables significantly influence purchase confidence. Trust in AI-based AR try-on accuracy emerges as the strongest predictor, followed by understanding product fit. The results indicate that improvements in AR accuracy and product visualization significantly enhance consumer buying confidence.

Summary of Hypothesis Testing Results:

The hypothesis testing results obtained using the Microsoft Excel Data Analysis ToolPak confirm that AI-enabled virtual product experience plays a significant role in influencing consumer buying behaviour. The regression analysis results indicate that the model is statistically significant at the 5% level of significance, leading to the rejection of the null hypothesis (H_{01}). This establishes that AI-enabled

virtual product experience has a significant impact on consumer buying behaviour. Further, the correlation analysis reveals a strong and statistically significant positive relationship between trust in AI-based AR try-on accuracy and consumer purchase confidence. As a result, the null hypothesis (H_{02}) is also rejected. Overall, the findings provide empirical evidence that trust and accuracy of AI-driven virtual product experiences substantially enhance consumer

confidence and decision-making in online purchasing environments.

Findings:

1. The descriptive analysis reveals that respondents moderately perceive AI-enabled AR try-on features as effective in improving understanding of product fit and appearance during online shopping.
2. Trust in AI-based AR try-on accuracy is found to be a crucial factor influencing consumer perceptions, with respondents demonstrating higher purchase confidence when AR features are perceived as reliable.
3. Correlation analysis indicates a strong positive relationship between trust in AR accuracy and purchase confidence, highlighting the importance of accuracy and realism in AI-enabled virtual product experiences.
4. Regression analysis confirms that AI-enabled virtual product experience significantly influences consumer buying behaviour, explaining a substantial proportion of variation in purchase confidence.
5. Among the virtual product experience dimensions, trust in AR accuracy emerges as the strongest predictor of consumer purchase confidence.
6. The hypothesis testing results lead to the rejection of both null hypotheses, establishing a statistically significant impact of AI-enabled virtual product experience on consumer buying behaviour.

Conclusion:

The study concludes that Artificial Intelligence-enabled virtual product experience plays a significant role in shaping consumer buying behaviour in online retail environments. AI-driven AR try-on features enhance consumers' understanding of products, build trust, and increase purchase confidence, thereby reducing uncertainty associated with online shopping. The empirical results demonstrate that trust in AR accuracy is a key determinant influencing consumer

decision-making. By confirming the statistical significance of AI-enabled virtual product experience through Excel-based analysis, the study provides practical and academic insights into the growing relevance of immersive technologies in digital commerce. Retailers and digital platforms should therefore prioritize the development of accurate and trustworthy AI-powered virtual experiences to improve consumer engagement and purchasing outcomes.

References:

- a. *Indian Journal of Marketing (2023). Tech-driven e-commerce transformation in India: Consumer perspectives and behavioral shifts.*
 - b. *IKEA Annual Report (2023). Digital innovation and augmented reality implementation strategies.*
 - c. *Smink, A. R., et al. (2019). Try online before you buy: How does shopping with augmented reality affect brand responses. Electronic Commerce Research and Applications, 35, 100854.*
 - d. *McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. Computers in Human Behavior, 101, 210-224.*
 - e. *Poushneh, A., & Vasquez-Parraga, A. Z. (2017). Discernible impact of augmented reality on retail customer's experience. Journal of Retailing and Consumer Services, 34, 229-234.*
2. *Hilken, T., de Ruyter, K., Chylinski, M., Mahr, D., & Keeling, D. I. (2017). Augmenting the eye of the beholder: Exploring the strategic potential of augmented reality to enhance online service experiences. Journal of Retailing, 93(2), 127-140.*
 3. *Huang, T. L., & Liao, S. (2017). Creating e-shopping multisensory flow experience through augmented-reality. Internet Research, 27(2), 449-475.*
 4. *Scholz, J., & Smith, A. N. (2016). Augmented reality: Designing immersive experiences that maximize consumer engagement. Business*

- Horizons*, 59(2), 149-161.
5. Javornik, A., et al. (2016). Revealing the shopper experience of using augmented reality make-up application. *Proceedings of ACM DIS*, 871-882.
6. Gupta, S., & Ramachandran, D. (2023). Impact of augmented reality on purchase intentions in Indian e-commerce: A consumer perspective. *Journal of Retailing and Consumer Services*, 73, 103347.
7. Sharma, V., & Singh, R. (2022). Adoption of AI-driven technologies in online retail: Evidence from Indian millennials. *International Journal of Retail & Distribution Management*, 50(8), 1045-1062.

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