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Consumer Engagement among Augmented Retail Marketing in the Retail Sector.

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ABSTRACT: In the era of technologies and digitalization, Brands are trying hard to increase the customer experience. They are using different strategies to launch and market their product. Augmented reality is one of them. Reality helps consumers find products easily and helps retailers target and attract consumers. The factors are consumer engagement, cost & investment, consumer trust & privacy, and technology readiness. The statistical tools through SPSS include regression analysis, independent sample t-test, and ANOVA. It found that Augmented retail marketing is shaping the consumer experience, and privacy concerns are transparent in the retail sector, ensuring the sustainability of the product.

INTRODUCTION

Augmented reality enables users to experience a real-time world using software-based content. AR gives ample scope for businesses to create awareness of new and existing products. Marketers will have an idea about consumers' expectations, which in turn helps the manufacturers of the industry to improve sales. Retail sector covers a wide variety of personal grooming products, Fashion & Apparel, Food & Grocery, sports, Healthcare, and Electronics & Appliances. As people become conscious about their health and looks, the online market gives an opportunity for retail companies to use AR in online apps and also in in-store experiences.

In the era of technologies and digitalization, Brands are trying hard to increase the customer experience. They are using different strategies to launch and market their product. Augmented reality is one of them. Augmented reality superimposes images and text in the surroundings. It gives a very interesting experience to buyers in the shop and entertains them. This not only educates the customer about the brand but also helps them shop in less time.

IMPACT OF AR IN THE RETAIL SECTOR

Implementing an AR approach will increase operational productivity and also support the manufacturer in knowing the preferences of the users before they start producing, and thus, the productivity of the retail industry will increase. Customers using AR technology can try on makeup before they purchase the product in a hygienic way and select their product. Augmented products add value to the purchase, and the customers perceive value for the product. So, it gives an opportunity for the companies to demand a premium price for the augmented product.

LITERATURE REVIEW

Dag K et al. (2026) examine augmented quality and expertise using augmented technology, the consumer expectation of the Atasun Optik brand in Türkiye. The factors, such as augmented reality marketing, consumer inspiration, and experience extension, are used in the study. Smart PLS and SEM statistical tools were used to analyse the data. It found that consumer inspiration is positive and significant differences exist between augmented reality quality and expertise. It exposed the growing augmented reality technology shaping consumer preferences and purchase intention.

Barari M et al. (2026) analyse the effect of augmented reality and virtual reality on consumer interaction and purchase intention. The researcher provides valuable insight by getting 206 articles and developing 235 independent studies to find the positive and negative impact of augmented and virtual reality marketing. It found that virtual reality is more useful than augmented reality marketing because it helps customers' decision-making, experiential, and technology approach. Consumer responses about products negatively impact privacy concerns and perceived risk of augmented and virtual reality marketing.

Pooja Misra, Aditya Brajbhushan Srivastava & Adyasha Das (2020) found that the buying behaviour of consumers increases with the usability of AR tools, as customers get products according to their taste and liking, and the time taken for making buying decisions is less. The researchers suggested that the retail industry has to concentrate on developing AR tools, especially for the products that are used by the age group of 20-35 years.

Beatriz Santos de Mendonca (2022) identified the impact of AR in online beauty products, especially L'Oréal products. The researcher said that the impact of AR is increasing after COVID-19, as consumers are more into online shopping, and advertising should be given through social media, as the customers of AR are teenagers. So that, in the future, this technology will enhance the marketing of beauty products.

Perannagari Krishna Teja (2022) studied the AR shopping experience in three different essays. The first essay is about factors influencing consumer decision-making in AR retail environments, and found that AR is flexible and convenient for the shopping process, so retailers have to find new ways to engage customers using AR. The second essay elaborates that AR technology provides information about customers' experience with retailers and gives retailers an opportunity to segment consumers based on their psychographic profile. The third essay is about developing a specific dictionary measure of AR experiential value through online reviews by customers, especially when online reviews are used for investigating negative experiences in AR technology.

RESEARCH GAP

The retail sector faces a high cost of implementing augmented retail marketing to attract and access the different consumer groups. The rapid growth of augmented marketing helps retailers reshape the opinion of the customer experience and attraction, influencing consumer purchasing decisions. It is innovative in its sector, but uncertain customer preferences impact the growth of the retail sector. Competitive pressure affects customer engagement and brand preferences for effective innovation in Augmented retail marketing.

Objectives

- To analyse the impact of consumer Engagement on AR in the retail sector.
- To identify the engagement of consumers in using AR for their retail sector purchases.

RESEARCH METHODOLOGY

The data is collected from secondary sources such as articles, magazines, newspapers, online references, and books. The descriptive and stratified random sampling methods were used to gather data from respondents via Google Forms and in-person contacts, yielding cluster-wide responses from participants. Two hundred questionnaires were distributed, and 151 were returned, out of which 103 were used in statistical analysis, 22 had missing variables, and 26 were unreachable respondents. The researcher uses linear multiple regression analysis to find the impact of set of independent variables on dependent factors.

DATA ANALYSIS & INTERPRETATION:

Objective 1: Impact of consumer engagement on AR in the retail sector

The regression analysis determines predictor factors that predict the dependent variable and identifies significant variables predicting the dependent variable. A multiple regression model is developed as follows:

$$Y = A + B.X_1 + C.X_2 + D.X_3$$

Where Y = Consumer Engagement

X₁ = Consumer Trust & Privacy

X₂ = Technology Readiness

X₃ = Cost & Investment

The value of R is 0.919, showing a very strong positive relationship between the factors of augmented retail marketing in the retail sector. R-squared value of 84.5% indicating the model fit. The adjusted R-squared confirms the model strongly fit with the multiple predictors as consumer trust, technology and cost & investment.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919 ^a	.845	.840	1.30524
a. Predictors: (Constant), Consumer Trust & Privacy, Technology Readiness, Cost & Investment				

From the ANOVA table, the significant value F (177.463) = 0.000(sig. value), the significant value is less than 0.05, which concludes there is a statistically significant difference in Consumer Experience & Engagement.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	907.003	3	302.334	177.463	.000 ^b
	Residual	166.958	98	1.704		
	Total	1073.961	101			
a. Dependent Variable: Consumer Experience & Engagement						
b. Predictors: (Constant), Consumer Trust & Privacy, Technology Readiness, Cost & Investment						

The table shows the coefficients and significance test values. And the table shows the coefficient. Hence, the predicted linear regression model is given as:

$$Y = -0.681 + 0.397X_1 + 0.320X_2 + 0.311X_3$$

Where Y = Consumer Engagement X₁ = Consumer Trust & Privacy, X₂ = Technology Readiness, X₃ = Cost & Investment

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.681	.903		-.755	.452
	Technology Readiness	.397	.082	.419	4.869	.000
	Cost & Investment	.320	.116	.284	2.755	.007
	Consumer Trust & Privacy	.311	.063	.303	4.949	.000

a. Dependent Variable: Consumer Experience & Engagement

The table shows that the technology readiness factor is the most influential factor and highly significant for consumer engagement. Consumer engagement is not statistically significant, and the value of p is greater than 0.05.

Objective 2: To identify the engagement of consumers in using AR for their retail sector purchases.

H0: Age is not statistically significant with the factors of augmented retail marketing in the retail sector

The table shows that the consumer engagement F value is 11.813, and the p value of 0.000 is statistically significant with the age group of augmented retail marketing using consumers. The F-value of technology readiness is 11.131, and the p-value is 0.000, showing statistically significant results for the age group of augmented retail marketing using consumers. Cost & investment value of F is 11.525, and p value is 0.00 is statistically significant with the age factor in the retail sector consumers. Consumer trust and privacy F value is 3.363, and p value is 0.022, statistically significant with the age factor using AR consumers.

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
Consumer Experience & Engagement	Between Groups	285.217	3	95.072	11.813	.000
	Within Groups	788.744	98	8.048		
	Total	1073.961	101			
Technology Readiness	Between Groups	303.665	3	101.222	11.131	.000
	Within Groups	891.158	98	9.093		
	Total	1194.824	101			
Cost & Investment	Between Groups	220.906	3	73.635	11.525	.000
	Within Groups	626.114	98	6.389		
	Total	847.020	101			
Consumer Trust & Privacy	Between Groups	95.226	3	31.742	3.363	.022
	Within Groups	924.852	98	9.437		
	Total	1020.078	101			

It concludes that all the factors are statistically significant, with the age factor, because it helps to shape the consumer experience and cost, ensuring the long-term stability and credibility of the retail sector using augmented retail marketing.

Independent T-test:

H0: Gender is not statistically significant with the factors of augmented retail marketing in the retail sector

Factors		T	df	Sig. (2-tailed)
Consumer Experience & Engagement	Equal variances assumed	.734	100	.465
	Equal variances not assumed	1.329	13.073	.207
Technology Readiness	Equal variances assumed	2.954	100	.004
	Equal variances not assumed	5.406	13.274	.000
Cost & Investment	Equal variances assumed	1.088	100	.279
	Equal variances not assumed	3.201	61.442	.002
Consumer Trust & Privacy	Equal variances assumed	.744	100	.459
	Equal variances not assumed	2.561	93.000	.012

The table indicates that gender is statistically significant with technology, but the other factors, such as consumer engagement, cost & investment, and consumer trust & privacy, are not statistically significant. Perception, trust, and privacy are based on consumer engagement and transparency of the retail sector, not based on gender.

FINDINGS

In Regression analysis, $R=0.919$ shows a strong relationship between consumer trust, technology, and cost & investment with consumer engagement. 84.5% of the variation in R-squared is explained by the model, indicating good accuracy in consumer engagement. F value is 177.463, and p value is 0.000, highly significant for consumer engagement. Technology readiness is a strong, significant positive in consumer engagement.

In ANOVA, the value is less than 0.05, and the null hypothesis is accepted. Age is not statistically significant in the consumer engagement factors of augmented retail marketing in the retail sector.

In the Independent T-test, the value is greater than 0.05, and the null hypothesis is rejected for consumer engagement and experience. P-value is less than 0.05, and the null hypothesis is accepted and strongly significant with technology, cost & investment, and consumer trust and privacy.

CONCLUSION

Augmented Retail marketing helps reshape the retail sector with privacy concerns and accessibility, and provides a clear vision of the product, strengthening brand loyalty through customer experience and purchase intention. AR provides a real shopping experience to the customers through innovation, enhancing brand loyalty and consumer perception. It concludes that the consumer experience and engagement are strongly significant with the consumer trust, technology, and cost. Technology is statistically significant with gender, not other factors. Augmented retail marketing is shaping the consumer experience, and privacy concerns are transparent in the retail sector, ensuring the sustainability of the product.

PRACTICAL IMPLICATION

The retailers provide a balance of overreliance on visualization transparency in privacy, engaging consumers' perception in augmented retail marketing. It should prioritise the augmented reality experience through mobile apps, online stores, and outlets to reach consumer engagement effectively. The authorities must provide orientation programs to guide and educate the customer for a seamless experience. Transparency builds trust and loyalty in the brand and avoids the misuse of consumers' privacy. The retailer provides practical applications for customers through virtual try-ons and store navigation with an augmented retail marketing experience.

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