The Indian Economic Journal
JOURNAL OF THE INDIAN ECONOMIC ASSOCIATION
Volume - 6 • Special Issue • December 2025

CONTEMPORARY ISSUES AND DEVELOPMENT IN TAMIL NADU

CONTENTS

Influence of AI-Personalized Cosmetic Branding on Consumer Perception, Loyalty, and Regional Adoption in Tamil Nadu

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Abstract:

Artificial Intelligence (AI) has transformed the background of consumer marketing, specifically in the beauty and cosmetics industry. Personalized branding where AI-driven algorithms analyze buyer preferences, purchase data, and demographic profile has emerged as a strong tool to enriched buyer engagement. This study examines the influence of AI personalized cosmetic branding on consumer perception and loyalty in Tamil Nadu. Artificial intelligence driven algorithms tailor product suggestions, promotion and promotions seeking to enhance brand reliability, faster acceptance of new cosmetics and emotional connection. The research objectives were to assess consumer perceptions of AI driven personalization in cosmetics and to examine the impact of AI personalization on customer loyalty and repurchase behavior in the cosmetic sector. A survey of predominantly young and less than 20 years, female of 83 %, undergraduate students, low to middle income and 72.5 % urban respondents, showed 59 % purchasing branded cosmetics rarely. It is found that Consumers perceived AI personalization as helping discover modern beauty trends, fulfilling needs, suggesting relevant quality products, and aiding decision making. Moreover, higher perception scores associated with stronger brand loyalty and increased repurchase intent, confirming a positive impact of AI personalization on loyalty. These results highlight that AI-driven personalization strengthens brand perception and loyalty, especially in urban markets, suggesting the need to focus on trust-building strategies for wider adoption.

Keywords: Artificial Intelligence, research objectives, cosmetics, perception

Introduction

1.1 Artificial Intelligence (AI) has transformed the background of consumer marketing, specifically in the beauty and cosmetics industry. Personalized branding where AI-driven algorithms investigates buyer preferences, purchase data, and demographic profile has emerged as a strong tool to enriched buyer engagement. By modifying product suggestions, packaging, and promotional strategies, AI enables brands to fashion exclusive consumer experiences that nurture trust and loyalty. In the Indian context, Tamil Nadu represents an active market with various cultural influences, rising disposable incomes, and collective digital adoption. The cosmetics industry here is not only shaped by global trends but also by regional preferences, ethical values, and socio-cultural norms. AI-driven personalization offers occasions to bridge these global-local changing aspects, making cosmetic branding more relevant and appealing to all consumers.

This study seeks to explore how AI-personalized cosmetic branding influences loyalty, consumer perceptionand regional adoption in the study area. It aims to understand whether personalization develops brand reliability, strengthens emotional associates, and quickens acceptance of new cosmetic products.

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Research Objectives:

1. To assess consumer perceptions of AI-driven personalization in cosmetics.

2. To examine the impact of AI personalization on customer loyalty and repurchase behavior in the cosmetic sector.

3. To investigate regional and demographic factors affecting the adoption of AI cosmetic tools.

Review of Literature

2.1 Sarika A. Nirmal (2025) employed a quantitative research design, using structured questionnaires administered to women in Pune who have engaged with AI-based beauty applications. Data analysis was conducted using SPSS software, applying descriptive statistics, Cronbach's Alpha for reliability testing, regression analysis, and ANOVA to validate the findings. Results revealed that AI personalization significantly impacts consumer purchasing intent and trust. Digital literacy and perceived ease of use emerged as critical determinants of consumer engagement, while ethical concerns and data privacy issues were identified as barriers to rapid AI adoption. The study concludes that cosmetic companies can strengthen customer satisfaction and loyalty in the digital marketplace by ensuring transparency in the ethical use of AI and by adopting user-centric personalization strategies.

2.2 KhangwanTungkhang (2025) investigated exploratory study on the role of AI in cosmetic product usage, with specific objectives to assess consumer awareness of AI-based sentiment analysis and to evaluate the challenges associated with virtual try-on technologies in accurately simulating product trials. A purposive sample of 100 female respondents, actively engaged with AI-enabled cosmetic applications, was collected through both primary and secondary data sources. Insights from prior research highlight AI's potential to enhance personalization, increase purchase intent, and improve consumer satisfaction, while also drawing attention to challenges such as technological limitations, algorithmic biases, cost implications, and ethical concerns. Building on this foundation, the present study contributes to understanding how AI facilitates mass customization and influences consumer behavior in the cosmetics sector, while acknowledging critical barriers that demand strategic and regulatory interventions for sustainable adoption. In summary, AI demonstrates substantial potential to enrich personalization and consumer engagement in the cosmetics industry. However, issues related to awareness, trust, and the realism of virtual simulations remain significant challenges that must be addressed to fully realize its benefits.

III Research Metodology:

3.1 This study employs a quantitative research approach to investigate AI-Personalized Cosmetic Branding on Consumer Perception, Loyalty, and Regional Adoption in Tamil Nadu. A survey questionnaire will be administered to a sample of 200 respondents, who have influence OF AI personalized cosmetic branding. The questionnaire will assess respondents' demographic information, Consumer Perception and Loyalty. The collected data was analyzed using SPSS (frequency, descriptive statistics and ANOVA).

3.2 Limitations of the study:

1. The number of respondents is limited to 200 only.

2. Time Constraint

IV Analysis and Interpretation

4.1 Introduction

This section dels with the analysis and interpretation of the data collected from the 192 respondents about AI Personalization in Cosmetic Branding and Digital Adoption in Tamil Nadu.

4.2 Demographic Profile of Respondents:

It is crucial to study the consumers demographic characteristics such as age, place of residence, education, marital status, income level, and occupation to understand their perception about the role of AI in cosmetic branding. The frequency distribution of the sample responders is displayed in the following table.

Table 4.1

Demographic Profile of Respondents

Variable	Classification	Frequency	Percent
Age	<20	146	73.0
	21–30	30	15.0
	31–40	17	8.5
	41–50	4	2.0
	>50	3	1.5
Gender	Male	34	17.0
	Female	166	83.0
Education	UG	168	84.0
	PG	16	8.0
	Doctorate	2	1.0
	Others	14	7.0
Occupation	Student	159	79.5
	Professional	19	9.5
	Homemaker	10	5.0
	Entrepreneur	2	1.0
	Other	10	5.0
Monthly Income	<25,000	143	71.5
	25,000–50,000	39	19.5
	50,000–1,00,000	16	8.0
	>1,00,000	2	1.0
Location	Urban	145	72.5
	Semi Urban	30	15.0
	Rural	25	12.5
Purchase Frequency	Rarely	118	59.0
	Occasionally	39	19.5
	Monthly	34	17.0
	Weekly	9	4.5

It is observed from the above table that

- Majority of the respondents are belongs to the age category below 20 in this study.
- Majority 83% of the respondents are female consumers.
- Majority of the respondents are qualified up to UG (84%) followed by PG(8%)
- The majority of the respondents are students (79.5%).

- Majority of the respondents earns below 25,000 (71.5%) and 25000-50000 (19.5%) followed by 50000-1,00,000 (8%) and above 1,00,000 1%.Majority of the sample includes low earners,

middle-class individuals predominate. .72.5 % of the respondents from urban area , semi urban (15%) and (12.5%) are from rural.

- 59% of the consumers purchasing the branded cosmetics rarely followed by 19.5% of the respondents purchasing it occasionally.

4.3 Consumers Perception about the AI personalized Cosmetic Branding :

The descriptive statistical tool has been applied to analyze the Consumers Perception about the AI personalized Cosmetic Brandingand the same has been presented below.

Table 4.3

Descriptive Statistics

Perception	Mean	Std. Deviation	Rank
AI branding makes cosmetic products feel tailored to the needs.	3.70	1.008	2
AI-driven branding reflects innovation and modern beauty trends.	3.72	.956	1
AI personalization improves product relevance and quality.	3.66	1.005	3
Trust cosmetic brands more when they use AI tools	3.44	1.050	8
AI branding helps me discover products Iwouldn't have considered otherwise.	3.48	1.007	5
I perceive AI branding as more customer-centric.	3.50	1.022	7
AI branding adapts better to my changing needs compared to traditional branding.	3.48	1.022	6
AI personalization makes me feel more confident in choosing cosmetics.	3.60	1.028	4

Interpretation

It is inferred from the above descriprive table that consumers felt that the AI personalized branding helps to find the recent modern beauty trends, it fulfil their needs , suggesting the relevant products with quality and helps them to make better decision.

4.4. Relationship between consumer region and their perception:

- The ANOVA test has been performed to test whether there is any significant difference between the consumers region and their perception about the AI personalized cosmetic branding and the same has been presented in this section.

- The null and alternative hypothesis are,

- H0: There is no significant difference between consumers region and their perception about the AI personalized cosmetic branding.

- H1: There is a significant difference between consumers region and their perception about the AI personalized cosmetic branding.

Table 4.4

Results of Anova

VARIABLE	F	Sig.
AI branding makes cosmetic products feel tailored to the needs.	1.007	.367
AI-driven branding reflects innovation and modern beauty trends.	.663	.516
AI personalization improves product relevance and quality.	4.315	.015*
trust cosmetic brands more when they use AI tools	3.244	.041*
AI branding helps me discover products I wouldn't have considered otherwise.	7.780	.001*
perceive AI branding as more customer-centric.	1.669	.191
AI branding adapts better to my changing needs compared to traditional branding.	.320	.726
AI personalization makes me feel more confident in choosing cosmetics.	1.690	.187

- *-Significant at 5%

- Inference:

- It is inferred from the above table that, there is a significant difference between the consumers region and their perception that AI personalization gives the product relevance and quality products, trust level on AI suggestion and the exploration of new products, since the p value is less than .05. Also it is observed from the analysis that the AI personalization helped the urban consumers to find the relevant quality products and they are trusting the AI personalization. Additionally it is noted that the rural consumers felt that the AI personalization helps them to explore about the branded cosmetic products.

FINDINGS:

Demographic Profile of Respondents

- Majority of the respondents are belongs to the age category below 20 in this study.
- Majority 83% of the respondents are female consumers.
- Majority of the respondents are qualified up to UG (84%) followed by PG (8%)
- The majority of the respondents are students (79.5%).
- Majority of the respondents earns below 25,000 (71.5%) and 25000-50000 (19.5%) followed by 50000-1,00,000 (8%) and above 1,00,000 1%.Majority of the sample includes low earners, middle-class individuals predominate. .72.5 % of the respondents from urban area , semi urban (15%) and (12.5%) are from rural.

- 59% of the consumers purchasing the branded cosmetics rarely followed by 19.5% of the respondents purchasing it occasionally.

Consumers Perception about the AI personalized Cosmetic Branding:

It is inferred from the above descriprive table that consumers felt that the AI personalized branding helps to find the recent modern beauty trends, it fulfil their needs , suggesting the relevant products with quality and helps them to make better decision.

Relationship between consumer region and their perception:

There is a significant difference between the consumers region and their perception that AI personalization gives the product relevance and quality products, trust level on AI suggestion and the exploration of new products, since the p value is less than .05. Also it is observed from the analysis that the AI personalization helped the urban consumers to find the relevant quality products and they are trusting the AI personalization.

Suggesstion:

Cosmetic brands should implement transparent, region tailored AI personalization tools for urban customers, leverage advanced recommendation that highlight relevant, quality products and build trust through verified reviews and influencer authenticity. For semi-urban and rural segments, simplify AI interfaces and emphasize clear product information, and reinforce credibility via local endorsements and visible quality cues. Investing in trust building measures, consistent brand messaging, and easy to use digital experiences which strengthen loyalty and encourage wider adoption across Tamil Nadu.

Conclusion:

This study confirms that AI-personalized cosmetic branding positively design consumer perception and loyalty in Tamil Nadu with higher perception scores strongly associated with stronger brand loyalty and increased repurchase intention which Significant regional differences exist urban users trust AI suggestions more and find product relevance higher ($p < 0.05$) while semi-urban and rural respondents need simpler and trust focused approaches. By aligning AI capabilities with regional expectations and consistently delivering quality and credibility, brands can achieve sustainable growth and deeper consumer relationships across the state.

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