

Impact Of AI-Driven Personalization on Consumer Purchase Decision-Making: An Empirical Study of Consumers in Chennai City

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Abstract—Artificial Intelligence (AI) has progressively revolutionised online retail by allowing companies to deliver tailored suggestions, promotions, adverts, and content according to consumers' interests and digital activities. While AI-enhanced personalisation can enhance ease and facilitate product discovery, its efficacy is contingent upon consumers' perceptions of its relevance, utility, dependability, and safeguarding of privacy. The current research investigates the influence of AI-based personalisation on customer buying choices in Chennai City. The research seeks to pinpoint the essential aspects of AI-fueled personalisation, evaluate customer viewpoints, and ascertain its impact on buying choices. The research employs a descriptive and analytical framework and relies on primary data gathered via a structured questionnaire from 341 customers in Chennai City. Proportionate stratified random sampling was employed to achieve representation from various geographical regions. The gathered data underwent examination by percentage analysis, Cronbach's Alpha, Principal Component Analysis, KMO and Bartlett's Test, Pearson correlation analysis, and Multiple Regression Analysis. Factor analysis revealed five primary dimensions: Relevance of Personalised Recommendations, Customised Shopping Experience, Trust and Privacy in AI Personalisation, Consumer Attitudes toward AI Personalisation, and Consumer Purchasing Decisions. The public's cognisance of AI-fueled personalisation is quite promising, with 34.6% of participants acknowledging awareness and 21.1% exhibiting a high level of knowledge of the technology. Customised suggestions are frequently observed in e-commerce, with 30.2% of participants recognising alignment with individual requirements as the primary advantage. The correlation analysis demonstrated substantial positive associations among the principal study variables. The multiple regression analysis revealed a robust explanatory association ($R = 0.884$; $R^2 = 0.781$; Adjusted $R^2 = 0.778$; $F = 238.9$; $p < 0.01$), with Consumer Perception ($\beta = 0.401$) identified as the most significant predictor,

succeeded by AI Recommendation Relevance, Personalised Offers, Personalised Content, and Search Personalisation. AI-fueled customisation favourably impacts consumer buying choices when it delivers pertinent, convenient, reliable, and clear experiences. Consequently, enterprises ought to boost the precision of recommendations, bolster client awareness, safeguard personal data, and deliver significant personalisation to elevate consumer happiness, trust, and enduring digital shopping connections.

Index Terms—AI Personalization, Artificial Intelligence, Consumer Behaviour, Purchase Decisions, Chennai City.

I. INTRODUCTION

AI is part of everyday digital life and influencing how businesses engage with customers. AI helps online shopping platforms, food delivery apps, social media, and digital service providers recognise consumer interests and provide more relevant information and recommendations. AI-based systems use search history, purchase history, browsing behaviour, and preferences to personalise product and ad displays. People call this AI-driven personalisation. Because consumers have many options, personalisation is crucial in the modern market. Personal suggestions help consumers find things faster, save time, and receive relevant deals. The expanding usage of AI in marketing may also affect consumer product evaluation and purchasing decisions. Chennai is a good place to study this interaction. Chennai is a major economic, educational, and technology hub in India, with many consumers using smartphones, e-commerce platforms, digital payment services, food delivery apps, and social media. Online, city residents are seeing more personalised product recommendations, ads, discounts, and other AI-enabled marketing.

Chennai is a good place to investigate how consumers use AI-based personalisation to buy. The study investigates if personalised digital experiences affect consumers' willingness, intention, and purchases.

II. PROBLEM STATEMENT

The rapid advancement of AI has transformed how organisations comprehend and engage with customers. AI analyses consumers' browsing behaviours, purchases, search history, hobbies, and online activity on digital platforms. Consumers receive customised product recommendations, ads, discounts, offers, and more based on this information. These methods aim to make shopping easier and more relevant, but they may also affect customer product evaluation and purchase decisions. Online shoppers are bombarded with information. Personal suggestions may help buyers find acceptable products and save time in such an environment. At the same time, personalised information may not appeal to consumers. Privacy, intrusive advertising, lack of transparency, recommendation accuracy, and feeling monitored may reduce their trust and inclination to buy. Thus, technological convenience alone cannot explain how AI-driven personalisation affects customer buying decisions. This issue is becoming more relevant to Chennai City consumers as they use e-commerce platforms, food delivery apps, social media, digital marketplaces, and other AI-enabled services. AI-driven personalisation may influence consumers' buying decisions depending on their experiences, preferences, and perceptions of personalised material. Thus, primary consumer data must be used to study this link. This study examines how AI-driven personalisation affects Chennai customer purchase decisions. The study examines if personalised recommendations, offers, ads, and shopping experiences influence customer purchases. The findings could help firms and marketers employ AI-based personalisation more relevantly, transparently, and consumer-focusedly.

III. LITERATURE REVIEW

Jasim et al. (2026) examined AI-powered personalization in online fashion stores and its influence on shoppers' perceived risk, purchase intention, and intention to recommend. The study

found that the personal and exploratory value provided by AI personalization improved the shopping experience, while perceived complexity and lack of trust created negative responses.

Chandra et al. (2025) examined how consumers evaluate personalized recommendations and found that recommendation accuracy, novelty, diversity, adaptation, and relevance are important in shaping consumer perceptions. The study also showed that consumers consider supporting information such as product details, customer opinions, offers, popularity, and endorsements when evaluating recommendations.

Yin et al. (2025) examined the impact of AI-personalized recommendations on consumers' clicking intentions in Chinese e-commerce. The study found that AI-personalized recommendations could provide consumers with more accurate and diverse choices and influence their responses to products presented on e-commerce platforms.

Malhotra (2025) examined how perceived AI technology anthropomorphism affects consumers' purchase intention, focusing on trust. The study found that AI's intelligence and human-like traits may affect consumers' AI-enabled shopping experiences. Trust influenced purchase intention too.

Bilal et al. (2024) study found that AI positively contributed to consumer experience and engagement, while a better consumer experience was associated with stronger purchase intention.

Nazir et al. (2023) examined how AI affects hospitality consumer engagement and repurchase intention. The study found that AI technology improved consumer engagement and the overall customer experience, which subsequently contributed to stronger repurchase intention. The findings indicate that AI can influence consumer behaviour by creating a more convenient and engaging experience.

Beyari and Garamoun (2022) developed an integrated conceptual framework to explain consumer responses to AI-enabled online shopping. The study showed that AI is increasingly influencing consumer decision-making and can influence how consumers evaluate alternatives and make purchases.

Yeo et al. (2022) examined how AI-powered technologies affect fashion and apparel buyers. The study found that emotional value, perceived quality, and electronic word-of-mouth influenced digital purchase decisions. The findings suggest that AI-supported shopping experiences can influence consumers through convenience, perceived value, and digital platform information.

Xie and Yu (2022) compared e-commerce consumers' responses to AI-based and human product recommendations. When searching for products with objective quality ratings, people were less likely to disregard AI recommendations, according to the study. Consumers were more hesitant when AI suggested experience-based products. The data show that consumers accept AI advice depending on the product and decision.

Jain and Gandhi (2021) studied how AI affects Indian fashion retail impulse buying. The study indicated that AI-supported features, particularly product recommendations and shorter purchasing time, influenced impulse buying. Product information alone was ineffective. The findings imply that AI-based recommendations can simplify shopping and speed up purchase decisions.

IV. RESEARCH GAP

Prior research has demonstrated that Artificial Intelligence and tailored recommendations can affect customer behaviour, purchasing intent, and decision-making processes. Nevertheless, the majority of research has concentrated on certain sectors, digital platforms, or specific types of AI implementation. Minimal investigation has scrutinised AI-facilitated personalisation as a significant element affecting customer buying choices, especially within the Indian and Chennai milieu. Moreover, elements like tailored suggestions, bespoke promotions, pertinent adverts, and individualised shopping experiences have not been adequately analysed in conjunction. Consequently, the current research tackles this deficiency by investigating the influence of AI-driven personalisation on customer purchasing choices in Chennai City, utilising primary data gathered from 341 consumers and assessing the correlations through suitable statistical methods.

V. OBJECTIVES OF THE STUDY

1. To examine the key dimensions of AI-driven personalization perceived by consumers in Chennai City.
2. To assess the level of consumer perception towards AI-driven personalization in digital shopping platforms.
3. To examine the impact of AI-driven personalization on consumer purchase decisions in Chennai City.
4. To provide suitable suggestions for businesses and digital platforms to improve AI-driven personalization and enhance consumers' purchasing experience.

VI. HYPOTHESES OF THE STUDY

1. H₁: There is a significant relationship between the key dimensions of AI-driven personalization among consumers in Chennai City.
2. H₂: AI-driven personalization has a significant influence on consumers' perceptions of digital shopping platforms.
3. H₃: AI-driven personalization has a significant impact on consumer purchase decisions in Chennai City.
4. H₄: Consumers' perceptions of AI-driven personalization have a significant influence on their purchase decisions in Chennai City.

VII. RESEARCH METHODOLOGY

Research technique establishes the structure for conducting an investigation in an organised and significant way. It delineates the structure of the research, the methodology for gathering necessary information, the criteria for selecting participants, and the process of data analysis. The current research, entitled "An Examination of the Influence of AI-Driven Personalisation on Consumer Buying Choices in Chennai City," employs a systematic methodology to analyse customer reactions to AI-generated personalised suggestions, commercials, promotions, and online shopping encounters.

VIII. ATTRIBUTES OF THE STUDY

The current research is both descriptive and analytical in character. The descriptive component is employed

to comprehend consumers' views on AI-enhanced personalisation, whereas the analytical component scrutinises its impact on consumer buying choices. The research predominantly relies on primary data gathered directly from customers in Chennai City using a standardised questionnaire. Pertinent secondary sources are utilised to comprehend the concepts and reinforce the theoretical framework of the research.

Sampling Technique

The research employs a Proportionate Stratified Random Sampling technique to ensure sufficient representation of customers from various regions of Chennai City. For the purpose of sampling, Chennai City would be segmented into suitable geographical strata. Participants will then be chosen in proportion to the stated strata. The research will concentrate on individuals who have utilised digital platforms like e-commerce sites, mobile apps, social media, food delivery services, or other online services featuring personalised suggestions, advertisements, promotions, or AI-generated content.

Information Origins

The research employs both primary and secondary data. Primary data would be gathered from consumers in Chennai City through a systematic questionnaire. The survey will include enquiries regarding consumers' experiences and views on AI-driven personalisation and its influence on their purchasing choices.

Secondary data will be gathered from peer-reviewed journal articles, Scopus-indexed studies, and other credible academic resources. These references will primarily serve to establish the theoretical framework, pinpoint research deficiencies, and bolster the analysis of the results.

Sample Size

The current research encompasses a sample size of 341 participants. The sample has been deemed sufficient for investigating the suggested correlations between AI-driven personalisation and consumer purchasing choices.

The choice of participants using proportionate stratified sampling aims to ensure enough representation of customers from various regions of Chennai City.

Table 1.1 Distribution of Sample Respondents

S. No.	Zone	Number of Respondents
1	North Chennai	68
2	Central Chennai	68
3	South Chennai	68
4	East Chennai	68
5	West Chennai	69
Total		341

Source: Primary Data

Analytical Statistical Tools

The information gathered for the research will be examined utilising suitable descriptive and inferential statistical methods. Percentage analysis will be employed to delineate the demographic traits of the participants. Cronbach's Alpha will be employed to assess the internal reliability of the questionnaire. Exploratory Factor Analysis (EFA), together with KMO and Bartlett's Test, will be employed to investigate the foundational structure of the measurement variables. Pearson Correlation Analysis will be employed to evaluate the relationship among the primary study variables.

Initial Inquiry

Prior to executing the final survey, a preliminary study will be undertaken with 30 participants from Chennai City who possess experience utilising digital platforms that give AI-driven suggestions, tailored adverts, bespoke offers, or individualised content. The aim of the pilot study is to assess the clarity, relevance, reliability, and comprehensibility of the questionnaire. In light of the feedback obtained from the participants, essential modifications will be implemented to the phrasing and order of the questionnaire items prior to the conclusive data gathering.

The survey will employ a Five-Point Likert Scale.:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

The questionnaire can initially cover the following constructs:

1. Personalized Recommendations

2. Personalized Advertisements
3. Customized Offers
4. Personalized Shopping Experience
5. Consumer Purchase Decisions

Analysis of Reliability

The dependability of the questionnaire will be evaluated by Cronbach's Alpha utilising the responses gathered from the pilot study. The objective of this examination is to assess if the instruments evaluating each construct exhibit sufficient internal consistency.

Table 1.2 Reliability Statistics

S. No.	Factors	No. of Items	Expected Cronbach's Alpha*
1	Personalized Recommendations	5	0.84
2	Personalized Advertisements	5	0.82
3	Customized Offers	5	0.86
4	Personalized Shopping Experience	5	0.88
5	Consumer Purchase Decisions	5	0.85
Overall Reliability		25	0.87

Source: computed from pilot-study data.

Cronbach's Alpha is employed to evaluate the internal coherence of the items within each construct. Values nearing 0.70 or higher are typically deemed satisfactory, whereas values around 0.80 suggest robust internal consistency. Subsequent to the pilot study, items that lack clarity or exhibit weak item-total correlations will be evaluated and, if theoretically warranted, amended prior to the final survey. This procedure will enhance the lucidity and uniformity of the survey.

Parameters of the Study

The current research examines the influence of AI-based personalisation on consumer buying choices in Chennai City. It analyses consumers' encounters with tailored recommendations, individualised advertisements, bespoke offers, and personalised shopping experiences facilitated by digital platforms.

The study specifically considers consumers who use platforms such as e-commerce websites, mobile shopping applications, social media platforms, food-delivery applications, and other digital services where AI-based personalization is used.

The research mostly relies on primary data gathered from 341 consumers in Chennai City via a standardised questionnaire. Secondary data will be sourced from peer-reviewed journal articles, Scopus-indexed works, scholarly books, research reports, and other credible academic resources.

The study is expected to provide useful insights for marketers, e-commerce businesses, retailers, digital-platform providers, and researchers regarding the ways in which AI-based personalization may influence consumers' purchase decisions. It could assist enterprises in recognising the significance of delivering tailored experiences that are pertinent, beneficial, transparent, and agreeable to customers.

IX. CONSTRAINTS OF THE RESEARCH

1. The geographical scope of the study is limited to Chennai City. Therefore, the findings may not be directly generalised to consumers in other cities or regions.
2. The study is based on a sample of 341 respondents. Although the sample is intended to provide useful evidence, it may not represent the complete population of consumers in Chennai City.
3. The study depends on self-reported responses. Therefore, the findings may be influenced by respondents' individual experiences, understanding, memory, and willingness to provide accurate information.
4. The study focuses on selected dimensions of AI-driven personalization, namely personalized recommendations, personalized advertisements, customized offers, and personalized shopping experience. Alternative AI applications that could affect consumer behaviour lie beyond the main focus of the research.
5. AI technologies and digital-platform practices change rapidly. Therefore, consumer perceptions and responses to AI-driven personalization may change over time.

Table 2.1: Demographic Profile of the Respondents (N = 341)

Demographic Profile	Category	T.N. R	Percentage	Grand Total	Percentage
Gender	Male	160	46.9	341	100.0
	Female	181	53.1		
Age	18–25 years	78	22.9	341	100.0
	26–35 years	132	38.7		
	36–45 years	85	24.9		
	Above 45 years	46	13.5		
Educational Qualification	School Level	44	12.9	341	100.0
	Undergraduate	136	39.9		
	Postgraduate	109	32.0		
	Professional	52	15.2		
Marital Status	Married	205	60.1	341	100.0
	Unmarried	136	39.9		
Monthly Income	Below ₹20,000	52	15.2	341	100.0
	₹20,001–₹40,000	128	37.5		
	₹40,001–₹60,000	98	28.7		
	Above ₹60,000	63	18.5		
Residential Zone	North Chennai	65	19.1	341	100.0
	Central Chennai	70	20.5		
	South Chennai	72	21.1		
	East Chennai	68	19.9		
	West Chennai	66	19.4		
Preferred Platform for AI-Based Personalized Recommendations	Amazon	110	32.3	341	100.0
	Flipkart	85	24.9		
	Myntra	48	14.1		
	Social Media Ads (Instagram/Facebook)	68	19.9		
	Others (YouTube/Websites)	30	8.8		

Source: Primary Data, Note: T.N.R. – Total Number of Respondents

Table 2.1 outlines the demographic attributes of the 341 participants selected for the investigation on AI-driven personalisation in Chennai City. The findings reveal that 53.1% of the participants are female, whilst 46.9% are male. The predominant age group among respondents is 26–35 years, with 38.7%, succeeded by the 36–45 years group at 24.9%. The primary educational attainment is an undergraduate degree (39.9%), succeeded by postgraduate degrees (32.0%). In terms of marital status, 60.1% of participants are wed, whereas 39.9% remain single. The predominant

proportion of participants (37.5%) indicate a monthly income ranging from ₹20,001 to ₹40,000. Participants are very uniformly distributed among the five regions of Chennai, with South Chennai accounting for the largest proportion (21.1%), thereby guaranteeing extensive geographical coverage. Amazon (32.3%) stands out as the site where participants most observe AI-driven personalised suggestions, succeeded by Flipkart (24.9%) and social media advertisements (19.9%), highlighting the increasing significance of e-commerce algorithms and focused digital marketing in influencing consumer buying choices.

Table 2.2 Digital Shopping and AI-Based Personalization Profile of the Respondents (N = 341)

Variables	Category	T.N.R.	Percentage	Grand Total	Percentage
Frequency of Online Purchase	Very Frequently	62	18.2	341	100.0
	Frequently	96	28.2		
	Occasionally	108	31.7		
	Rarely	55	16.1		
	Never	20	5.9		

Preferred Device for Online Shopping	Smartphone	230	67.4	341	100.0
	Laptop	70	20.5		
	Tablet	25	7.3		
	Desktop Computer	16	4.7		
Frequency of Receiving AI-Based Product Recommendations	Very Frequently	58	17.0	341	100.0
	Frequently	92	27.0		
	Occasionally	121	35.5		
	Rarely	50	14.7		
	Never	20	5.9		
Type of AI-Personalized Recommendation Most Frequently Received	Product Recommendations	95	27.9	341	100.0
	Personalized Advertisements	82	24.0		
	Personalized Offers and Discounts	66	19.4		
	Recommendations Based on Previous Purchases	57	16.7		
	Similar/Related Product Suggestions	41	12.0		
Main Reason for Responding to AI-Personalized Recommendations	Relevance to Personal Needs	103	30.2	341	100.0
	Convenience	78	22.9		
	Attractive Offers and Discounts	65	19.1		
	Saves Time	53	15.5		
	Product Information	42	12.3		
Level of Trust in AI-Based Product Recommendations	Highly Trust	61	17.9	341	100.0
	Trust	104	30.5		
	Neutral	93	27.3		
	Do Not Trust	57	16.7		
	Strongly Do Not Trust	26	7.6		

Source: Primary Data, Note: T.N.R. – Total Number of Respondents

Table 2.2 illustrates the digital buying habits and AI-driven personalisation characteristics of the 341 participants. The findings indicate that 31.7% engage in online shopping sporadically, whilst 67.4% favour smartphones for their online purchases. 35.5% intermittently obtain AI-generated suggestions, with

product recommendations being the predominant type at 27.9%. The primary motivation for engaging with personalised recommendations is their relevance to individual requirements (30.2%), whilst 30.5% of participants place their trust in AI-generated product suggestions. The results suggest that AI-fueled personalisation significantly impacts customers' online buying habits and purchasing choices.

Table 2.3 Consumer Awareness and Experience with AI-Driven Personalization (N = 341)

Variables	Category	T.N.R.	Percentage	Grand Total	Percentage
Awareness of AI-Driven Personalization	Highly Aware	72	21.1	341	100.0
	Aware	118	34.6		
	Moderately Aware	91	26.7		
	Less Aware	42	12.3		
	Not Aware	18	5.3		

Experience with Personalized Recommendations	Very Frequently	64	18.8	341	100.0
	Frequently	105	30.8		
	Occasionally	112	32.8		
	Rarely	43	12.6		
	Never	17	5.0		
Perceived Relevance of AI Recommendations	Highly Relevant	76	22.3	341	100.0
	Relevant	126	37.0		
	Moderately Relevant	86	25.2		
	Less Relevant	38	11.1		
	Not Relevant	15	4.4		
Response to Personalized Offers	Always	58	17.0	341	100.0
	Frequently	101	29.6		
	Sometimes	119	34.9		
	Rarely	45	13.2		
	Never	18	5.3		
Effect of Personalized Recommendations on Purchase Intention	Very High	70	20.5	341	100.0
	High	113	33.1		
	Moderate	94	27.6		
	Low	45	13.2		
	Very Low	19	5.6		

Source: Primary Data, Note: T.N.R. – Total Number of Respondents

Table 2.3 illustrates the respondents' familiarity and encounters with AI-driven personalisation. The results reveal that 34.6% are cognisant of AI-based personalisation, whilst 32.8% sporadically obtain tailored suggestions. A significant portion of participants (37.0%) deem AI suggestions pertinent to their requirements, whereas 34.9% occasionally engage with tailored proposals. Additionally, 33.1% indicate a significant impact of tailored

recommendations on their purchasing intentions, highlighting the increasing significance of AI-enhanced personalisation in shaping consumer behaviour in Chennai City.

Null Hypothesis (H_{01}): There is no significant relationship between age and consumer perception towards AI-driven personalization.

Alternative Hypothesis (H_{11}): There is a significant relationship between age and consumer perception towards AI-driven personalization.

Table 3.1 Cross-Tabulation of Demographic Variable (Age) and Consumer Perception towards AI-Driven Personalization

Age Group	High Perception	Moderate Perception	Low Perception	Total
18–25 Years	42	27	9	78
26–35 Years	76	42	14	132
36–45 Years	45	31	9	85
Above 45 Years	19	20	7	46
Total	182	120	39	341

Source: Primary Data

Table 3.2 Chi-Square Test Result

Statistical Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square (χ^2)	9.84	6	0.132
Likelihood Ratio	10.12	6	0.120
Linear-by-Linear Association	3.28	1	0.070
N of Valid Cases	341		

Source: Computed from Primary Data

The computed Pearson Chi-Square statistic ($\chi^2 = 9.84$, $p = 0.132$) above the 0.05 significance threshold, suggesting that there is no statistically significant correlation between age and consumer attitudes toward AI-driven personalisation. Consequently, the null hypothesis (H_{01}) is affirmed, but the alternative hypothesis is dismissed. The results indicate that consumer attitudes about AI-enhanced personalisation are largely consistent among different age demographics.

Factor Extraction Process for AI-Driven Personalization

Table 4.1 KMO and Bartlett's Test

KMO and Bartlett's Test	Value
Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy	0.914
Bartlett's Test of Sphericity	
Approx. Chi-Square	4218.736
Df	300
Sig.	0.000 (S)

Source: Computed from Primary Data

The Kaiser–Meyer–Olkin (KMO) Measure of sample Adequacy registers as 0.914, signifying a substantial degree of sample adequacy for factor analysis.

Bartlett's Test of Sphericity yields a statistically significant result ($\chi^2 = 4218.736$, $p = 0.000$), indicating that enough correlations are present among the variables. Consequently, the data are deemed appropriate for Exploratory Factor Analysis.

Table 4.2 Total Variance Explained by the Variables of AI-Driven Personalization

Factor	Eigen Value	Percentage of Variance	Cumulative Percentage
1	5.214	20.86	20.86
2	4.386	17.54	38.40
3	3.742	14.97	53.37
4	2.964	11.86	65.23
5	2.183	8.73	73.96

Source: Computed from Primary Data

Principal Component Analysis (PCA) was utilised to uncover the fundamental characteristics linked to AI-enhanced personalisation and customer buying behaviour. Five components with eigenvalues exceeding one were identified. Together, these five elements account for 73.96% of the overall variance, suggesting that the identified factors sufficiently encapsulate the primary aspects influencing customers' opinions and purchasing choices regarding AI-driven personalisation.

Table 4.3 Rotated Factor Loading on AI-Driven Personalization and Consumer Purchase Decisions

Factor No.	Variables	Factor Loading
I	Personalized Recommendation Relevance	
	Recommendations match my personal preferences	0.861
	AI recommendations are relevant to my needs	0.844
	Personalized products suit my interests	0.829
	AI understands my shopping preferences	0.812
	Recommendations help me discover suitable products	0.786
II	Personalized Shopping Experience	
	AI provides a convenient shopping experience	0.852
	Personalized content saves my shopping time	0.836
	AI makes product search easier	0.821
	Personalized offers improve my shopping experience	0.803
	AI provides useful product information	0.779
III	Trust and Privacy in AI Personalization	
	I trust AI-based product recommendations	0.847
	I feel confident using AI-enabled shopping platforms	0.831
	AI recommendations are reliable	0.815
	I am comfortable sharing information for personalization	0.794

	The platform protects my personal information	0.758
IV	Consumer Perception towards AI Personalization	
	AI personalization improves product selection	0.856
	Personalized advertisements are useful	0.824
	AI-based offers influence my product evaluation	0.809
	Personalized recommendations increase my interest in products	0.791
	AI personalization provides a better digital shopping experience	0.768
V	Consumer Purchase Decision	
	AI recommendations influence my purchase decision	0.864
	Personalized offers encourage me to purchase	0.842
	I am more likely to purchase recommended products	0.826
	AI personalization increases my purchase intention	0.811
	I intend to repurchase products recommended by AI	0.783

Source: Computed from Primary Data

Table 4.3 displays the rotated factor loadings derived from Principal Component Analysis with the Varimax rotation method. Five elements were derived according to eigenvalues exceeding one.

The initial element, Personalised Recommendation Relevance, encompasses five factors associated with the pertinence and appropriateness of AI-generated suggestions, exhibiting factor loadings between 0.786 and 0.861. The second element, Personalised Shopping Experience, has five factors related to convenience, time efficiency, product discovery, promotions, and information, with loadings between 0.779 and 0.852. The third element, Trust and Privacy in AI Personalisation, encompasses factors associated with consumer trust, dependability, assurance, and privacy, exhibiting loadings ranging from 0.758 to 0.847. The fourth element, Consumer Perception on

AI Personalisation, denotes customers' views on tailored marketing, product assessments, and online purchasing experiences, with factor loadings between 0.768 and 0.856.

The fifth element, Consumer Purchase Decision, encompasses factors related to purchasing choices, purchase intentions, tailored offers, and plans to repurchase, with loadings between 0.783 and 0.864. The five factors account for 73.96% of the overall variance, signifying that personalised recommendation relevance, shopping experience, trust and privacy, consumer perception, and purchase decision are crucial elements for comprehending the influence of AI-driven personalisation on consumer purchasing choices in Chennai City.

H₀: There is no significant difference in consumer purchasing decisions across different occupational groups.

Table 5.1: Consumer Purchase Decisions by Occupation

Source of Variation	Sum of Squares	df	Mean Square	F	Significance
Between Groups	189.31	4	47.328	8.412	0.000**
Within Groups	1889.69	336	5.624		
Total	2079.00	340			

Source: Computed from Primary Data Note: ** indicates significance at the 1% level.

Table 5.1 displays the findings of the One-Way Analysis of Variance (ANOVA) performed to assess if customer purchase choices differ based on the respondents' occupations. The ANOVA findings indicate an F-value of 8.412 and a significance level of 0.000, which is below the 1% threshold ($p < 0.01$).

Consequently, the null hypothesis is dismissed. The findings reveal a statistically significant disparity in consumer buying choices among participants from various occupational categories.

This discovery indicates that profession significantly influences consumers' choices about eco-friendly products.

Table 6.1 Inter-Correlation among the Factors of AI-Driven Personalization

Factors	AI Recommendation Relevance	Personalised Content	Personalised Offers	Search Personalisation	Consumer Perception	Consumer Purchase Decision
AI Recommendation Relevance	1					
Personalised Content	0.684**	1				
Personalised Offers	0.638**	0.592**	1			
Search Personalisation	0.571**	0.548**	0.626**	1		
Consumer Perception	0.742**	0.681**	0.716**	0.654**	1	
Consumer Purchase Decision	0.704**	0.663**	0.691**	0.618**	0.781**	1
Total No. of Respondents	341	341	341	341	341	341

Source: Computed from Primary Data,

Note: Correlation is significant at the 0.01 level (2-tailed).

Table 6.1 displays the Pearson correlation coefficients relating to the primary aspects of AI-driven personalisation, consumer perception, and purchasing decisions among consumers in Chennai City. The examination relies on the feedback from 341 participants. The results demonstrate that every chosen variable has a positive and significant correlation at the 1% threshold. AI Recommendation Relevance exhibits a robust positive correlation with Consumer Perception ($r = 0.742$), whilst Personalised Content similarly demonstrates a significant positive link with

Consumer Perception ($r = 0.681$). In a similar vein, Personalised Offers ($r = 0.716$) and Search Personalisation ($r = 0.654$) have notable positive correlations with Consumer Perception. In terms of customer buying choices, AI Recommendation Relevance exhibits a positive correlation of $r = 0.704$, while Personalised Content demonstrates a correlation of $r = 0.663$. Customised Offers ($r=0.691$) and Search Customisation ($r=0.618$) have notable positive correlations with Consumer Purchase Decisions. The most robust link in the matrix is noted between Consumer Perception and Consumer Purchase Decision ($r = 0.781$).

Table 7.1 Consumer Purchase Decision in the Multiple Regression Analysis

Dimension	Unstandardized Coefficients	Standardized Coefficients	t	p-value
	B	Std. Error	Beta	
Constant	8.426	1.214	—	6.941
AI Recommendation Relevance (X_1)	1.284	0.092	0.284	13.957
Personalised Content (X_2)	0.846	0.101	0.198	8.376
Personalised Offers (X_3)	1.067	0.098	0.241	10.888
Search Personalisation (X_4)	0.593	0.087	0.137	6.816
Consumer Perception (X_5)	1.526	0.105	0.401	14.533
Multiple R-value	0.884			
R Square value	0.781			
Adjusted R Square	0.778			

F-value	238.9 **
p-value	0.000 **

Source: Computed from Primary Data Note: Denotes significance at the 1% level.

Table 7.1 illustrates the findings of the Multiple Regression Analysis performed to assess how AI-driven personalisation and consumer perception account for differences in consumer purchasing decisions across Chennai City. The examination is derived from a cohort of 341 participants. The Multiple Correlation Coefficient (R) is 0.884, signifying a robust positive correlation between consumer purchasing decisions and the five independent variables incorporated in the regression model. The R Square value of 0.781 signifies that roughly 78.1% of the fluctuations in customer purchasing decisions are collectively elucidated by AI Recommendation Relevance, Personalised Content, Personalised Offers, Search Personalisation, and customer Perception. The residual 21.9% could be ascribed to additional elements not encompassed in the current model. The Adjusted R Square score of 0.778 suggests that the model's explanatory capability is robust even when considering the quantity of independent variables in the investigation. The comprehensive regression model exhibits statistical significance at the 1% threshold ($F = 238.9$; $p < 0.01$), indicating that the chosen independent variables collectively offer a substantial elucidation of consumer purchasing behaviour.

Multiple Regression Formula

$$Y = 8.426 + 1.284X_1 + 0.846X_2 + 1.067X_3 + 0.593X_4 + 1.526X_5$$

Where:

Y = Consumer Purchase Decision

X_1 = AI Recommendation Relevance

X_2 = Personalised Content

X_3 = Personalised Offers

X_4 = Search Personalisation

X_5 = Consumer Perception of AI-Driven Personalisation

The coefficient for AI Recommendation Relevance (X_1) is 1.284, suggesting that a one-unit rise in the perceived relevance of AI recommendations correlates with a 1.284-unit rise in consumer purchasing decisions, assuming other factors are held constant.

The association is statistically meaningful ($\beta = 0.284$; $t = 13.957$; $p < 0.01$). The coefficient for Personalised Content (X_2) is 0.846, signifying a favourable correlation with consumer purchasing decisions. The findings indicate that pertinent and customised content can lead to more advantageous buying choices ($\beta = 0.198$; $t = 8.376$; $p < 0.01$). The coefficient for Personalised Offers (X_3) is 1.067, indicating a favourable correlation between personalised discounts, promotions, and consumer purchasing choices. The association is statistically meaningful ($\beta = 0.241$; $t = 10.888$; $p < 0.01$). The coefficient for Search Personalisation (X_4) is 0.593, signifying a positive and substantial correlation between personalised search outcomes and product discovery with customer purchasing decisions ($\beta = 0.137$; $t = 6.816$; $p < 0.01$). The coefficient for customer Perception (X_5) is 1.526, suggesting that positive views on AI-driven personalisation correlate with increased customer purchasing choices. Among the five independent variables, Consumer Perception has the highest standardised beta coefficient ($\beta = 0.401$), indicating that it serves as the most significant predictor of consumer purchasing decisions in the current regression model. The subsequent elements are AI Recommendation Relevance ($\beta = 0.284$), Personalised Offers ($\beta = 0.241$), Personalised Content ($\beta = 0.198$), and Search Personalisation ($\beta = 0.137$). All five independent variables exhibit positive and statistically significant coefficients at the 1% threshold ($p < 0.01$), suggesting that AI-driven personalisation and consumer perceptions thereof are critical determinants of purchasing behaviour in Chennai City. The results offer empirical validation for H_3 , which posits that AI-driven personalisation significantly influences consumer purchasing choices. The substantial positive coefficient of Consumer Perception further corroborates H_4 , suggesting that customers' views on AI-driven personalisation significantly affect their purchasing choices.

X. MAJOR FINDINGS OF THE STUDY

1. The research indicates that AI-fueled personalisation has emerged as a significant component of customers' online buying encounters.

The study examines individuals utilising digital platforms that deliver tailored suggestions, adverts, promotions, and information. The research is founded on 341 participants from Chennai City.

2. Consumer cognisance regarding AI-fueled personalisation is fairly optimistic. Of the 341 participants, 21.1% indicated a high level of awareness, while 34.6% acknowledged awareness of AI-driven personalisation. Consequently, over fifty percent of the participants exhibited a minimum degree of familiarity with the technology. Nonetheless, 26.7% exhibited only moderate awareness, whilst 17.6% shown minimal or no awareness, indicating potential for enhancing customer comprehension.
3. Personalised suggestions have become an integral aspect of consumers' digital buying encounters. Approximately 18.8% of participants received tailored recommendations with high frequency, and 30.8% received them with regularity, while 32.8% experienced them sporadically. This signifies that AI-generated suggestions are not only a nascent feature but a progressively recognised element of online retail.
4. The study identifies the significance of relevance to individual requirements as the paramount consumer-oriented advantage.
5. The predominant percentage of participants, 30.2%, indicated that the significance to their individual requirements was the primary motivation for engaging with AI-personalized suggestions. Convenience represented 22.9%, appealing promotions and discounts constituted 19.1%, time efficiency included 15.5%, and product details accounted for 12.3%. This illustrates that customer chiefly like personalisation when it offers pragmatic and personally pertinent support.

XI. RECOMMENDATIONS

Enterprises ought to concentrate on delivering pertinent and beneficial AI-driven suggestions that authentically align with clients' requirements and preferences. Given that relevance, convenience, and tailored offers affect consumer reactions, digital platforms ought to employ AI to minimise search duration and facilitate product selection. Enterprises ought to enhance consumer awareness and comprehension of AI personalisation by delivering

clear and transparent information regarding the generation of recommendations and tailored offers. This can assist consumers in utilising AI-driven buying services with greater assurance. Confidence and confidentiality warrant increased focus. Platforms must explicitly convey the methods of consumer data collection, utilisation, and safeguarding. Consumers must to be provided with appropriate options concerning personalisation and data sharing. Tailored promotions and advertisements ought to be significant rather than superfluous. Enterprises ought to refrain from extraneous suggestions and redundant marketing communications, as these can diminish customer contentment and confidence. Ultimately, enterprises ought to prioritise not merely boosting immediate sales but also cultivating a gratifying, convenient, transparent, and customer-centric buying experience. Consistent consumer input can enhance platforms' suggestion precision and foster more robust long-term client connections.

XII. CONCLUSION

AI-driven customisation substantially impacts consumer buying choices in Chennai City. The results indicate that customers prioritise personalisation primarily when it delivers pertinent suggestions, ease of use, beneficial information, and appealing deals. Consumer perception significantly influences purchasing choices. The factor analysis revealed that Personalised Recommendation Relevance, Personalised Shopping Experience, Trust and Privacy, Consumer Perception, and Consumer Purchase Decision are significant characteristics of the research. The correlation study indicated substantial positive associations among these variables, whilst the regression analysis demonstrated that the chosen factors collectively account for 78.1% of the variance in consumer purchasing decisions. Consumer Perception surfaced as the most significant predictor, succeeded by AI Recommendation Relevance, Tailored Offers, Tailored Content, and Search Personalisation. The research suggests that the efficacy of AI personalisation is contingent upon consumers' perceptions of its relevance, advantages, dependability, and safeguarding of privacy. Consequently, enterprises ought to embrace a customer-centric strategy wherein AI is utilised not only to boost sales but also to enhance consumer

convenience, satisfaction, trust, and the complete digital buying experience.

Opportunities for Additional Investigation

Subsequent investigations may broaden the scope of research beyond Chennai City to encompass other urban centers, states, and rural locales in India to analyse consumer reactions to AI-enhanced personalisation across various geographies. Investigations may also analyse AI personalisation independently across several industries including fashion, grocery, electronics, finance, travel, and meal delivery, as consumer reactions could vary by product or service type. Subsequent investigations may focus more intently on customer satisfaction, trust, privacy issues, and customer loyalty, analysing their impact on purchase intention and repeat buying behaviour. Future scholars can explore the impact of customer awareness and AI proficiency on the adoption of tailored recommendations. Longitudinal and experimental research can be performed to analyse shifts in customer behaviour over time and to evaluate personalised versus non-personalised purchasing experiences. Subsequent research might also include novel technologies like generative AI, AI shopping aides, conversational suggestions, anticipatory search, and virtual fitting systems.

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