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Role of Artificial Intelligence in Shaping Consumer Buying Behaviour Among Higher Education Students: An Empirical Study

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Abstract

Artificial Intelligence (AI) is increasingly becoming embedded in digital platforms through recommendation engines, chatbots, predictive search, personalised advertising and automated decision-support tools. This study examines the role of AI in shaping consumer buying behaviour among higher education students. The study specifically considers AI adoption, trust in AI-enabled recommendations and AI-driven personalisation as important dimensions of the contemporary digital buying process. A quantitative research design was adopted using an illustrative sample of 250 higher education students and a structured five-point Likert-scale questionnaire. Descriptive statistics, independent-samples t-test, Chi-square test and one-way ANOVA were applied to examine the proposed relationships and group differences. The results indicate positive associations between AI-related constructs and consumer buying behaviour, while significant differences are observed across levels of AI experience. The findings indicate that familiarity with AI-enabled technologies can influence how students search for information, evaluate alternatives and form purchase decisions. The study also highlights the importance of trust, transparency, privacy and consumer control in AI-mediated consumption. The findings provide implications for digital marketers, higher education institutions and technology developers seeking to develop responsible AI-enabled consumer experiences.

Keywords: Artificial Intelligence; Consumer Buying Behaviour; AI Personalisation; Consumer Trust; Higher Education Students

Introduction

Artificial Intelligence has moved from being primarily an organisational technology to becoming a visible part of consumers' everyday digital experiences. Recommendation systems, conversational assistants, personalised advertisements, intelligent search engines and predictive algorithms increasingly influence how consumers discover, compare and evaluate products and services. Recent systematic evidence identifies convenience, efficiency, trust, security and personalisation as important dimensions through which AI can affect consumer behaviour.

Higher education students represent an important consumer group because of their extensive interaction with smartphones, social media, digital marketplaces and AI-enabled applications. Their purchasing decisions may increasingly involve algorithmically generated recommendations rather than only conventional advertising or personal referrals. Recent evidence concerning tertiary students also indicates that AI adoption is associated with individual, technological and contextual factors, while students' prior AI experience can influence these relationships.

The emergence of generative AI has further changed the consumer decision process because students can now interact with AI conversationally, ask for product comparisons, request recommendations and obtain personalised information.

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Research on conversational AI identifies consumer engagement, trust, technology adoption and predictive analytics as major themes in the emerging literature.

At the same time, AI-mediated consumption raises questions concerning privacy, transparency, algorithmic control and trust. Personalised recommendations may improve decision efficiency, but consumers can also feel that their choices are being influenced or constrained by algorithms. Xu and Chen (2025), for example, highlight perceived control as an important issue in the relationship between personalised recommendations and consumer trust.

Against this background, the present study examines how AI adoption, AI trust and AI personalisation are associated with consumer buying behaviour among higher education students. The study also examines whether consumer buying behaviour differs across demographic and AI-experience groups.

Literature Review

Ribeiro, López Rivero and Abrantes (2025), examined the impact of AI on consumer behaviour through a systematic review of Web of Science literature. Their findings identified consumer experience, consumer relationships, online challenges, functionality and autonomous purchasing as major clusters. Convenience, efficiency, trust, security and personalisation emerged as important dimensions influencing consumer decisions.

Riandhi, Arviansyah and Sondari (2025), conducted a Scopus-based systematic literature review covering 117 articles. Their findings show that trust, privacy and behavioural intentions have become central themes in AI and consumer behaviour research. The study also identifies the increasing importance of generative AI and hyper-personalisation.

Teo, Scherer, Fung and Fung (2026), conducted a meta-analysis of 32 studies involving 16,977 observations concerning AI adoption among post-secondary students. Their findings indicate that individual, contextual and technological factors are associated with AI adoption. They also highlight substantial heterogeneity between studies and identify students' AI experience as a potential moderating factor.

Ng and Zhang (2025), systematically reviewed research on trust in AI chatbots. Their review of 40 studies demonstrates that trust is influenced by user characteristics, machine characteristics, interaction factors, social factors and contextual conditions. They further note that existing research relies heavily on cross-sectional approaches, creating opportunities for more rigorous longitudinal research.

Xu and Chen (2025), examined personalised recommendations and consumer trust, particularly focusing on perceived control and locus of control. Their work suggests that recommendation systems can improve decision efficiency while simultaneously creating concerns regarding authenticity of choice and algorithmic control. This is particularly relevant to younger digital consumers who frequently encounter personalised recommendations.

Lopez-Lopez and Bara Iniesta (2025), conducted a systematic review of conversational AI and consumer decision-making. Their analysis identified five broad clusters, including consumer behaviour and engagement, AI in marketing, trust and technology adoption, sentiment analysis and predictive analytics. The study demonstrates the expanding role of conversational AI in digital consumer decision-making.

Kumar, Jain and Sharma (2025), reviewed literature on anthropomorphic AI and consumer behaviour. Their systematic review of 75 Scopus-indexed articles suggests that human-like AI characteristics may influence trust, emotional connection and purchase-related responses. They also identify the need to understand how anthropomorphic characteristics interact with consumer and product characteristics.

Jain and Kumar (2024), reviewed two decades of AI applications in marketing. Their review identifies prediction analytics, AI-enabled customer relationship management, conversational commerce, advertising and consumer-brand engagement as major themes. The review demonstrates that AI is transforming both marketing practice and consumer interaction.

Hermann and Puntoni (2024), examined the development of AI in consumer behaviour from predictive AI to generative AI. They distinguish traditional algorithmic prediction and decision-making from the newer capabilities associated with generative AI. Their work highlights the changing role of AI from prediction toward interaction, assistance and content generation.

Vaid, Puntoni and Khodr (2023), investigated AI and empirical consumer research using topic modelling. They argue that AI provides considerable opportunities for consumer research but that the potential remains insufficiently

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explored across marketing contexts. Their work supports the need for more systematic empirical investigation of AI-mediated consumer behaviour.

Yang, Zheng, Yu, Qiu and Wang (2024), examined the role of AI versus human recommendation sources in online product recommendations. Their experimental evidence indicates that the source of a recommendation can influence perceived warmth, competence, product attitudes and purchase intention. The study highlights the importance of how AI recommendations are presented to consumers.

Chang and Park (2024), compared ChatGPT recommendations with conventional AI recommendation systems in the formation of consumers' consideration sets. Their study indicates that both forms of AI recommendation can influence the consumer purchase journey through trust in the recommender and trust in recommended products.

Research Gap

The literature demonstrates substantial growth in research concerning AI and consumer behaviour. However, three important gaps remain.

First, much of the existing research focuses on general online consumers, e-commerce users or organisational applications, while relatively less attention has been given to higher education students as a distinct consumer population.

Second, previous studies frequently investigate individual mechanisms such as personalisation, trust, recommendation quality or privacy. There is scope for an integrated empirical examination involving AI adoption, AI trust and AI personalisation within a single consumer-buying framework.

Third, much of the literature uses advanced structural equation modelling, experiments or systematic reviews. There remains value in conducting a comparatively accessible empirical investigation using t-tests, Chi-square analysis and ANOVA, particularly to understand differences in buying behaviour according to student characteristics and AI experience.

The present study addresses these gaps by examining AI-related consumer behaviour among higher education students and by combining AI adoption, trust and personalisation with demographic and experience-based analysis.

Scope and Need of the Study

The scope of the study covers higher education students who interact with AI-enabled digital platforms while searching for, evaluating or purchasing products and services. The study is important because students are increasingly exposed to:

AI-powered product recommendations; personalised advertisements; conversational shopping assistants; AI-based search engines; automated product comparisons; social-media recommendation algorithms;generative-AI product information; and algorithmically personalised digital experiences.

Understanding these influences is important for marketers because AI can change the traditional consumer decision-making process. It is also important for students because increased reliance on automated recommendations requires awareness of privacy, accuracy, bias and algorithmic influence.

Objectives of the Study

1. To examine the role of AI in shaping consumer buying behaviour among higher education students.
2. To assess students' adoption of AI-enabled consumer technologies.
3. To examine students' trust in AI-based recommendations and purchasing assistance.
4. To evaluate the influence of AI personalisation on consumer buying behaviour.
5. To examine whether consumer buying behaviour differs according to selected demographic characteristics.
6. To examine whether consumer buying behaviour differs according to students' level of AI experience.
7. To provide suggestions for responsible AI-enabled marketing and consumer decision-making.

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Hypotheses of the Study

H01: There is no significant difference in consumer buying behaviour between male and female higher education students.

H02: There is no significant association between students' AI experience and their categorised consumer buying behaviour.

H03: There is no significant difference in consumer buying behaviour among students with low, moderate and high levels of AI experience.

H04: AI adoption, AI trust and AI personalisation do not have a meaningful relationship with consumer buying behaviour.

Research Methodology

Research Design: The study adopts a quantitative, cross-sectional and exploratory empirical research design.

Population: The population consists of higher education students who use digital platforms and have experience with AI-enabled applications such as recommendation systems, chatbots, AI search and personalised digital advertising.

Sampling Method: For the illustrative analysis, a convenience sampling method is assumed. Respondents are conceptualised as students drawn from higher education institutions.

Sample Size: The illustrative sample consists of 250 higher education students.

Data Collection Instrument

A structured questionnaire using a five-point Likert scale was considered:

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

The instrument contains four principal constructs:

Construct	No. of Items
AI Adoption	6
AI Trust	6
AI Personalisation	6
Consumer Buying Behaviour	7
Total	25

Statistical Tools Applied

The following statistical techniques were applied to the illustrative dataset:

1. Frequency and percentage analysis
2. Mean and standard deviation
3. Independent-samples t-test
4. Chi-square test of association
5. One-way ANOVA
6. Pearson correlation as supplementary analysis

8. Data Analysis and Interpretation

Respondent Profile

Variable	Category	Frequency	Percentage
Gender	Male	109	43.6
	Female	141	56.4
Education	Undergraduate	162	64.8
	Postgraduate	88	35.2
AI Experience	Low	62	24.8

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	Moderate	113	45.2
	High	75	30.0
Total		250	100.0

The sample contains a relatively larger proportion of female respondents and undergraduate students. Moderate AI experience represents the largest experience category.

Descriptive Statistics

Variable	N	Mean	Std. Deviation
AI Adoption	250	3.002	0.825
AI Trust	250	2.994	0.795
AI Personalisation	250	2.995	0.776
Consumer Buying Behaviour	250	3.002	0.810

The mean values are close to 3.00, indicating a moderate level of agreement among the illustrative respondents regarding AI adoption, trust, personalisation and AI-related buying behaviour.

Independent-Samples t-Test

The independent-samples t-test was used to examine whether consumer buying behaviour differs between male and female students.

H01: There is no significant difference in consumer buying behaviour between male and female students.

Gender	N	Mean	SD	t	p-value
Male	109	2.991	0.817	-0.185	0.854
Female	141	3.010	0.807		

Interpretation: The p-value of 0.854 is greater than 0.05. Therefore, the null hypothesis is not rejected. The illustrative results do not indicate a statistically significant difference in consumer buying behaviour between male and female higher education students. The result suggests that gender, by itself, may not explain substantial differences in AI-influenced buying behaviour within this illustrative sample.

Chi-Square Test of Association

The Chi-square test was employed to determine whether AI experience is associated with categorised consumer buying behaviour. Consumer buying behaviour was divided into:

Lower buying behaviour: score below 3.50

Higher buying behaviour: score 3.50 and above.

H02: There is no significant association between AI experience and categorised consumer buying behaviour.

AI Experience	**Lower Buying Behaviour**	**Higher Buying Behaviour**	**Total**
Low	54	8	62
Moderate	82	31	113
High	43	32	75
Total	179	71	250

Chi-square = 14.881

df = 2

p = 0.001

Interpretation: Since $p < 0.05$, the null hypothesis is rejected. The illustrative results indicate a statistically significant association between students' AI experience and their categorised consumer buying behaviour.

The proportion of students reporting higher buying behaviour is larger in the high-AI-experience group than in the low-experience group. This suggests that familiarity with AI technologies may be relevant to how students incorporate AI into their consumer decisions.

One-Way ANOVA

One-way ANOVA was conducted to determine whether the mean consumer buying behaviour differs among students with low, moderate and high AI experience.

H03: There is no significant difference in consumer buying behaviour among students with different levels of AI experience.

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AI Experience	N	Mean Buying Behaviour
Low	62	2.673
Moderate	113	2.987
High	75	3.295

$F(2,247) = 10.837$

$p < 0.001$

Interpretation: The p-value is below 0.05, indicating a statistically significant difference in mean buying behaviour among the three AI-experience groups. The mean increases from 2.673 among students with low AI experience to 3.295 among students with high AI experience. A post-hoc test such as Tukey HSD would normally be conducted in a full empirical study to identify exactly which pairs of groups differ significantly.

Pearson Correlation Analysis

Variables	**AI Adoption**	**AI Trust**	**AI Personalisation**	**Buying Behaviour**
AI Adoption	1.000	.415	.463	.485
AI Trust	.415	1.000	.506	.525
AI Personalisation	.463	.506	1.000	.582
Buying Behaviour	.485	.525	.582	1.000

Interpretation: AI personalisation demonstrates the strongest association with consumer buying behaviour (r = .582), followed by AI trust (r = .525) and AI adoption (r = .485).

These results are consistent with the broader literature indicating that personalisation, trust and AI-enabled consumer experiences are important components of contemporary digital consumption.

Findings of the Study

1. The descriptive results indicate moderate levels of AI adoption, AI trust, AI personalisation and consumer buying behaviour.
2. The independent-samples t-test indicates no statistically significant difference between male and female students in terms of consumer buying behaviour.
3. The Chi-square test indicates a statistically significant association between AI experience and categorised consumer buying behaviour.
4. The ANOVA results demonstrate significant differences in mean consumer buying behaviour across low, moderate and high AI-experience groups.
5. Students with high AI experience recorded the highest illustrative mean buying-behaviour score.
6. AI personalisation has the strongest correlation with consumer buying behaviour among the three AI-related variables considered.
7. AI trust also demonstrates a meaningful positive association with consumer buying behaviour.
8. The results indicate that familiarity and experience with AI-enabled technologies may be more relevant to AI-influenced buying behaviour than gender.
9. The findings reinforce the importance of transparency, privacy, trust and perceived consumer control when AI is used in consumer-facing applications.

Discussion

The findings provide an interesting perspective on the relationship between AI experience and student consumer behaviour. The absence of a statistically significant gender difference suggests that AI-enabled buying behaviour may increasingly be a technology-related phenomenon rather than a strongly gender-dependent behaviour.

In contrast, both the Chi-square and ANOVA analyses indicate a significant relationship between AI experience and buying behaviour. Students with greater AI experience reported higher average buying-behaviour scores in the illustrative dataset. This finding is consistent with recent evidence that students' prior AI experience can influence patterns of AI adoption.

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The correlation analysis further indicates that AI personalisation has the strongest relationship with consumer buying behaviour. This is consistent with contemporary research showing that personalised recommendations can increase decision efficiency while also creating questions concerning consumer autonomy and algorithmic control.

The positive relationship between trust and buying behaviour is also consistent with the growing literature on AI-enabled consumer interaction. Trust is particularly important where consumers rely on AI recommendations or conversational systems to evaluate alternatives.

However, the findings should not be interpreted as evidence that AI automatically causes students to purchase products. The cross-sectional design and illustrative dataset cannot establish causality. Consumer decisions are also affected by price, income, product involvement, brand reputation, social influence, perceived risk and personal preferences.

Suggestions

1. AI-enabled platforms should clearly communicate why particular products or services are recommended. Transparent explanations can help consumers understand the basis of algorithmic recommendations.
2. Digital marketers should provide accurate, reliable and verifiable product information instead of relying exclusively on persuasive AI-generated content.
3. Consumers should be provided with options to modify recommendation preferences, disable personalisation and control the use of their personal information.
4. Higher education institutions can introduce digital consumer-literacy programmes covering AI recommendations, privacy, algorithmic bias, misinformation and responsible technology use.
5. AI-driven personalisation should follow appropriate privacy and data-protection practices. Students should understand what information is collected and how it is used.
6. Personalisation should improve relevance without making consumers feel that their choices are being manipulated. Recent research similarly identifies privacy, transparency and control as important considerations in AI personalisation.
7. For high-value or complex purchases, AI should support rather than completely replace consumer judgement.
8. Students should be encouraged to compare AI recommendations with independent reviews, product specifications, prices and alternative sources before making important purchasing decisions.

Conclusion

Artificial Intelligence is becoming an important component of the contemporary consumer decision-making environment. Among higher education students, AI-enabled recommendations, personalisation and conversational technologies can influence the manner in which information is searched, alternatives are evaluated and purchase decisions are considered.

The illustrative empirical analysis of 250 observations indicates that AI experience is significantly associated with consumer buying behaviour. The ANOVA results further indicate differences in buying behaviour across levels of AI experience. At the same time, the t-test does not identify a significant gender difference. The correlation analysis indicates positive relationships between AI adoption, AI trust, AI personalisation and consumer buying behaviour, with AI personalisation showing the strongest association.

The findings should nevertheless be interpreted cautiously because the numerical dataset used in this manuscript is simulated for methodological demonstration. For journal submission, the analysis should be repeated using genuine questionnaire responses. A full empirical study using actual data could additionally employ multiple regression, mediation analysis, moderation analysis or PLS-SEM to investigate the mechanisms through which AI influences consumer behaviour.

Ultimately, the effectiveness of AI in consumer environments depends not only on technological sophistication but also on relevance, transparency, trust, privacy and consumer autonomy. The future of AI-enabled marketing therefore requires a balance between personalisation and responsible consumer empowerment.

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