

The Role of AI Chatbots, Targeted Advertisements and Online Reviews in Shaping Online Consumer Buying Behaviour among International University Students

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DOI: <https://dx.doi.org/10.47772/IJRISS.2026.1014MG0068>

Received: 20 March 2026; Accepted: 25 March 2026; Published: 08 April 2026

ABSTRACT

The rapid growth of digital marketing and e-commerce has significantly transformed online consumer buying behaviour, particularly among technology-oriented consumers. The study was so limited especially for the international university students. Digital tools including AI-powered chatbots, targeted advertisements, and online reviews have become essential in shaping consumers' perceptions, trust, and purchase decisions. This study aims to examine the influence of AI chatbots, targeted advertisements, and online reviews on online consumer buying behaviour among international university students. A quantitative research approach was employed, and data were collected through a structured questionnaire distributed via Google Forms. A total of 105 valid responses were obtained from international students. The data were analysed using Statistical Package for Social Sciences (SPSS), incorporating descriptive analysis, reliability testing, correlation analysis, independent sample t-test, one-way ANOVA, and multiple regression analysis. The results show that AI chatbots strongly influence how people buy things online, making them the most important factor in this study. Although targeted ads and online reviews were viewed positively, they did not have a meaningful impact on buying decisions when analyzed statistically. Additionally, the study found no significant difference in online buying behaviour between male and female respondents, while nationality was found to significantly influence online purchasing behaviour. The findings provide valuable insights for online retailers and digital marketers in designing effective digital engagement strategies, particularly for tech-savvy and multicultural consumer segments.

Keywords: AI chatbots; targeted advertisements; online reviews; online consumer buying behaviour; international university students

INTRODUCTION

The growth of e-commerce and digital marketing has reshaped how consumers interact with brands and make purchasing decisions (Wilson et al., 2024). Because online buying is more accessible than in-store shopping, consumers prefer it over direct shopping in stores (Tan et al., 2025). Traditional face-to-face interactions have increasingly been replaced by digital touchpoints such as AI-powered chatbots, personalized advertisements, and user-generated online reviews. These tools not only provide information but also influence consumers' perceptions, attitudes, and trust toward products and services. As a result, understanding online consumer buying behaviour has become crucial for businesses operating in competitive digital markets.

The rapid advancement of digital technologies has significantly transformed consumer behaviour, particularly in the context of online shopping and digital marketing (Pires et al., 2022). The increasing penetration of the internet, smartphones, and e-commerce platforms has shifted consumer interactions from traditional physical channels to digital environments. Consumers today rely heavily on online touchpoints such as AI-powered

chatbots, targeted advertisements, and online reviews when searching for information, evaluating alternatives, and making purchase decisions.

AI chatbots have become an essential customer service tool for many online businesses, providing instant responses, personalized recommendations, and continuous support (Tariniprasadray, 2026). At the same time, targeted advertisements enable marketers to deliver customized promotional messages based on consumers' preferences, browsing history, and demographic characteristics (Rahmawaty et al., 2024). In addition, online reviews generated by other consumers play a critical role in shaping trust, credibility, and perceived product quality in online marketplaces (Andari et al., 2025).

International university students represent a unique and growing segment of online consumers. Due to their high digital literacy, frequent internet usage, and reliance on online shopping for convenience and affordability, they are more exposed to digital marketing tools compared to the general population. However, their purchasing behaviour may differ due to cultural diversity, financial constraints, and varying levels of trust in online platforms. Understanding how AI chatbots, targeted advertisements, and online reviews influence the online consumer buying behaviour of international university students is essential for businesses aiming to design effective digital marketing strategies.

Despite the widespread adoption of digital marketing tools, businesses continue to face challenges in understanding which online factors most significantly influence consumers' purchasing decisions (Kolesnik, 2025). While AI chatbots, targeted advertisements, and online reviews are extensively used by online retailers, their actual effectiveness in shaping online consumer buying behaviour remains inconsistent across different consumer groups.

One of the key issues is that consumers may experience information overload due to excessive targeted advertisements, which can lead to annoyance, ad avoidance, or reduced trust (Kusi et al., 2022). Similarly, although AI chatbots are designed to enhance customer experience, poorly designed or impersonal chatbot interactions may fail to meet consumer expectations and negatively affect purchase decisions (Nagy & Hajdu, 2021). Furthermore, the credibility of online reviews has become a growing concern, as fake or biased reviews can reduce consumer trust and create uncertainty during decision-making (Cao, 2023).

For international university students, these challenges may be more pronounced due to cultural differences, language barriers, and limited purchasing power. However, existing studies have largely focused on general consumers or specific national populations, with limited attention given to international students as a distinct consumer group. As a result, there is insufficient empirical evidence to explain how these digital marketing tools influence the online buying behaviour of international university students. This lack of clarity creates difficulty for businesses in optimizing their digital engagement strategies for this segment.

Therefore, this study aims to examine the influence of AI chatbots, targeted advertisements and online reviews on online consumer buying behaviour among international university students.

LITERATURE REVIEW

Online Consumer Buying Behaviour

Online consumer behaviour can be referred to the cognitive, affective, and behavioural processes that people take when looking for, evaluating, and making purchases of goods and services online. Due to the lack of in-person connection with items and sellers, customers frequently experience uncertainty, and previous research has consistently identified that trust and perceived risks are the essential predictors of consumers' online buying behaviours (Pavlou, 2014). According to meta-analytic data by Al-Adwan et. al.(2024), perceived risk impacts negatively on customers' propensity to participate in e-commerce transactions while trust positively influences online buying decisions. Hence, online shoppers heavily rely on external cues as information to reduce the confusion and enhance confidence to make a purchase.

One of the most powerful informative cues in online shopping contexts is electronic word-of-mouth (eWOM), especially in the forms of online reviews and ratings. The studies by Filieri and McLeay (2024) show that reliable and excellent online reviews significantly increase consumer trust and reduce perceived risks by consumers, leading to purchase intention. Moreover, research indicates that seasoned shoppers are better equipped to evaluate the reliability of online content, and so customers' prior online buying experience impact on the efficacy of eWOM (Mansour & Diab, 2022). Additionally, according to the Technology Acceptance Model (Venkatesh & Davis, 2000), elements like perceived utility and usability which are related to technology can significantly influence how consumers behave online. The existing literature collectively demonstrates that online buying behaviour is a multidimensional construct which necessitates trust building mechanisms and credible online information in digital market places.

AI Chatbots in Online Shopping

Concerning trust and perceived risk in online shopping, AI chatbots have now become prominent in the online shopping process. These are computerized conversation agents who can interact with users 24/7 and provide information, offering guidance, answering questions, and recommending products (Jan et al., 2023). In the case of international students whose time is limited and hectic in most cases, chatbots are quite helpful and convenient to help them with their online shopping than traditional online shopping, which is not easily accessible. Moreover, the Technology Acceptance Model suggests that students will be more willing to apply an easy-to-use technology, while chatbots make searches easier and the latter process much simpler, thereby satisfying the need (Zheng & Li, 2020).

In addition, chatbots enable the cost of search to be lower because the relevant information on the products is instantly available, and recommendations are provided on a case-by-case basis. Rather than browsing through the different pages manually or changing options, students can be provided with instant responses that will support their specific preferences. Not only is time saved, but uncertainty is reduced by this real-time support that benefits the students in terms of confidence when they make their buying decisions. Besides, chatbots and their capacity to store previous communication and sell the appropriate products provide an additional dimension of personalization that increases perceived value and satisfaction.

On the other hand, chatbots are not without challenges. Others may feel uncomfortable or skeptical when interacting with a non-human agent, especially when the communication is revealed as robotic or unfeeling. This is commonly known as the "uncanny valley" and may decrease the level of trust and make the shopping experience less intimate. Also, the risk perception and the overall effectiveness of the technology can be reduced by errors or incorrect responses (Alipour et al., 2025). To sum it up, the opportunities and limitations of AI chatbots are mixed. They build efficiency, customization, and convenience, while also emphasizing the limits of human-like interaction in online shopping.

H1: There is a significant relationship between AI Chatbots and online consumer buying behaviour.

Targeted Advertisements

Targeted advertising is the process by which the company dispatches individualized advertising messages to particular groups of consumers, applying their personal information, Web behaviour and inclinations and demographics. As the use of social media and online platforms has risen, the concept of targeted advertising has emerged as a leading marketing tool to enhance the relevance and effectiveness of ads. The attention and engagement of the consumer is enhanced by targeted advertisements as the content becomes more relevant to their needs and interests (Bindah & Gunnoo, 2024). Consequently, consumers will remember the brands better and form positive attitudes of advertised products.

The success of targeted advertising, however, highly depends on the perception of privacy and intrusiveness by the consumer. Boerman et al. (2025) note that although it may increase relevance and persuasion, too much data gathering might lead to privacy concerns and lack of consumer trust. Chen et al. (2024) also indicates that the response of consumers to targeted advertisements is conditioned by the attitude perception of recommendation algorithms, in particular, the trust and the sense of a threat. On the same note, Niarossa and Haryanto (2025)

stated that the greater the awareness of consumers on persuasion strategies, the greater the ad avoidance behaviour. In general, the literature indicates that targeted advertising has a positive effect on the purchase intention, in case there is a balance between personalization and transparency as well as respect to consumer privacy.

H2: There is a significant relationship between targeted advertisements and online consumer buying behaviour.

Online Reviews

The online reviews in the digital marketplace have played a vital role as critical eWOM, electronic word-of-mouth, which has a profound impact on the decision making process of the international university students. Consumers tend to calculate risks of the online transaction and compare them with the outcomes (Aiolfi et al., 2021). The presence of online reviews can be considered a kind of a risk-reduction strategy, where people are given the evidence of the quality of products and the credibility of the sellers in the form of peer-reviewed information. In the case of international students who might be going through unfamiliar local markets or global shipping operations, quality and quantity reviews need to be of high quality so that they can develop the trust necessary to make the transition and switch between browsing and Purchase Intention.

A study regarding Gen Z demographics, in particular, indicates that the content of the review is equally significant as the medium used. Visual and entertaining content offered by the TikTok and Instagram platforms offers views more effective market influence than the traditional literature review provided by textual sources. This will work especially well when it comes to international students, as they are quite active on social media and do not give much thought to professional advertisement. Seeing familiar faces reviewing a product the perceived value goes up, which may also cause the Impulse Buying behavior.

Nevertheless, the impact of the online reviews is not that positive all the time. Similarly to AI-powered ads, in case reviews look manipulated or too salesy, they will suggest Intrusiveness Concerns, and psychological reactance (Selem et al., 2024). Being a digital native, international students are prone to not trusting fake (or sponsored) reviews. Thus, credibility and attractiveness of the source of the review are the strongest predictors of whether the feedback will help them to influence their ultimate buying behaviour.

H3: There is a significant relationship between online reviews and online consumer buying behaviour.

In regards to the previous discussion, a research framework has been established between the independent variables and the dependent variable. The following “Diagram 1” illustrates the conceptual framework of this study.

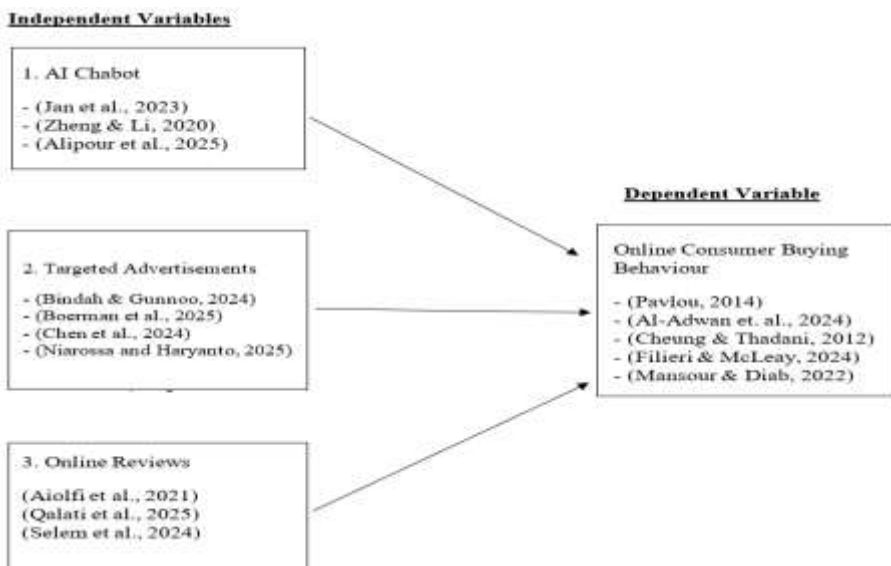


Diagram 1: Framework of Variables

METHODOLOGY

This study adopts a quantitative research design to examine the relationships between AI chatbots, targeted advertisements, online reviews, and online consumer buying behaviour among international university students. A quantitative approach is appropriate as it allows for objective measurement of variables and statistical testing of hypotheses. By using numerical data and statistical analysis, this study aims to identify patterns, relationships, and the significance of the proposed variables, thereby ensuring accuracy, reliability, and generalizability of the findings.

Data Collection

Primary data for this study were collected using a survey method. The data collection process involved distributing an online questionnaire to international students of Albukhary International University. Google Forms was used as the platform for data collection due to its accessibility, efficiency, and ease of distribution. Respondents were invited to participate voluntarily, and all responses were collected anonymously to ensure confidentiality and reduce response bias. A total of 105 valid responses were obtained and used for data analysis. The research instrument used in this study was a structured questionnaire, designed based on previous literature related to online consumer buying behaviour, AI chatbots, targeted advertisements, and online reviews. The questionnaire was administered through Google Forms and consisted of several sections. In this study, a coding scheme was developed for each question in the online questionnaire based on the predetermined response categories. Most of the questions were close-ended with five response options ranging from “Strongly Disagree” to “Strongly Agree,” which were coded from 1 to 5.

RESULT

Demographic Analysis

The study involved a total of 105 international university students as respondents. Male students represented 61% of the respondents, while female students accounted for 39%. Most respondents were aged between 22 to 25 years old (72.4%), followed by those aged 18 to 21 (20%) and 26 to 30 years old (7.6%). In terms of nationality, respondents were mainly from Africa (32.4%), followed by the Middle East (19%), ASEAN and South Asia (16.2% each), and Central Asia (15.2%). The majority of respondents were pursuing a Bachelor’s Degree (84.8%), while Foundation, Diploma, and Doctoral students each represented 6.7%, and Master’s students accounted for 1.9%. Regarding the field of study, most respondents were from Social Sciences (41.1%) and Computer Sciences/Information Technology (39.1%), followed by Business and Management (18.1%) and Health Sciences (1%). In terms of length of stay in the host country, most respondents had stayed for 1–2 years (57.1%), followed by 3–5 years (32.4%), less than one year (8.6%), and more than five years (1.9%). Table 1 presents the demographic characteristics of the respondents.

Table 1. International University Students’ Demographic Profile

Characteristics		Frequency	Percentage (%)
Gender	Male	64	61
	Female	41	39
Age Group	18-21	21	20
	22-25	76	72.4
	26-30	8	7.6
Nationality	ASEAN	17	16.2
	South Asia	17	16.2
	Central Asia	16	15.2

	Middle East	20	19
	Africa	34	32.4
Level of Study	Foundation	7	6.7
	Diploma	7	6.7
	Bachelor's Degree	89	84.8
	Master's Degree	2	1.9
	Doctoral Degree	7	6.7
Field of Study	Business/Management	19	18.1
	Computer Sciences/Information & Technology	41	39.1
	Social Sciences	43	41.1
	Health Sciences	1	1
Length of Stay in Host Country	Less than 1year	9	8.6
	1-2years	60	57.1
	3-5years	34	32.4
	More than 5years	2	1.9

Reliability Test

Reliability testing is conducted to assess the internal consistency of the questionnaire items and to determine whether the measurement scales are stable and dependable for further statistical analysis. Cronbach's Alpha coefficient is employed as the primary reliability indicator, as it is widely used in social science research to evaluate the consistency of multiple-item scales.

Based on the reliability analysis conducted using SPSS, all variables recorded Cronbach's Alpha values above 0.60, indicating acceptable to good internal consistency. Online Consumer Buying Behaviour shows a Cronbach's Alpha value of 0.779 with seven items, reflecting good reliability. AI Chatbots achieved a Cronbach's Alpha of 0.807 across five items, indicating strong internal consistency. Online Reviews also demonstrate good reliability with a Cronbach's Alpha value of 0.773 based on five items. Meanwhile, Targeted Advertisements recorded a Cronbach's Alpha of 0.621 with five items, which indicates an acceptable level of reliability for exploratory research. No items were deleted during the reliability testing process, suggesting that all questionnaire items were relevant, consistent, and easily understood by the respondents. Overall, the results confirm that the measurement instruments used in this study are reliable and suitable for further analysis.

Table 2. Result of Cronbach's Alpha for the Variable Items

Variable	Cronbach's Alpha	Number of Items
Online Consumer Buying Behaviour	.779	7
AI Chatbots	.807	5
Targeted Advertisements	.621	5
Online Reviews	.773	5

Descriptive Analysis

The descriptive analysis provides an overview of the responses collected from 105 international university students regarding their online consumer buying behaviour, AI chatbots, targeted advertisements, and online reviews. This analysis summarizes the central tendencies and variability of the data to highlight general patterns, preferences, and perceptions among the respondents.

Online Consumer Buying Behaviour

Based on Table 3, the highest mean among the items measuring online consumer buying behaviour is CB2 (“I compare different brands before making a purchase decision”), with a mean of 4.13 and a standard deviation of 0.961. This indicates that international students actively compare brands before purchasing, reflecting careful consideration in their online shopping behaviour. The lowest mean is CB5 (“Online shopping improves my ability to make the right decisions about products”), with a mean of 3.74 and SD of 1.185, suggesting that some respondents are less confident that online shopping improves their decision-making. Overall, the means for all items range between 3.74 and 4.13, showing a generally positive inclination toward online consumer buying behaviour.

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CB1	105	1	5	3.80	1.196
CB2	105	1	5	4.13	.961
CB3	105	1	5	3.90	1.131
CB4	105	1	5	3.88	1.141
CB5	105	1	5	3.74	1.185
CB6	105	1	5	3.90	1.181
CB7	105	1	5	3.79	1.115
Valid N (listwise)	105				

AI Chatbots

For AI chatbots, the highest mean is AC2 (“I find AI chatbots useful when making purchase decisions”) at 3.98 (SD = 1.009), indicating that students perceive chatbots as helpful tools in supporting their online purchase decisions. The lowest mean is AC3 (“I trust the information provided by AI chatbots”) at 3.63 (SD = 1.129), which shows that some students may be skeptical about fully trusting chatbot information. The overall means, ranging from 3.63 to 3.98, reflect that AI chatbots are generally viewed positively but trust remains a moderate concern.

Table 4. Descriptive Statistics: AI Chatbots

	N	Minimum	Maximum	Mean	Std. Deviation
AC1	105	1	5	3.77	.993
AC2	105	1	5	3.98	1.009
AC3	105	1	5	3.63	1.129
AC4	105	1	5	3.97	1.087
AC5	105	1	5	3.68	1.114
Valid N (listwise)	105				

Targeted Advertisements

Among the targeted advertisement items, the highest mean is TA2 (“I notice ads that are tailored to my online behavior”) at 3.98 (SD = 0.951), showing that students are aware of personalized ads while browsing online. The lowest mean is TA1 and TA4 (“Targeted online advertisements match my personal interests” and “I am more likely to click on ads that are relevant to my needs”), both at 3.76 (SD = 1.070 and 1.221 respectively), suggesting that not all targeted ads are perceived as fully relevant or engaging. Overall, the responses indicate that targeted ads are moderately effective in capturing students’ attention and influencing their awareness.

Table 5. Descriptive Statistics: Targeted Advertisements

	N	Minimum	Maximum	Mean	Std. Deviation
TA1	105	1	5	3.76	1.070
TA2	105	1	5	3.98	.951
TA3	105	1	5	3.92	.948
TA4	105	1	5	3.76	1.221
TA5	105	1	5	3.83	1.189
Valid N (listwise)	105				

Online Reviews

For online reviews, the highest mean is OR2 (“Online reviews help me evaluate the quality of a product or service”) at 4.23 (SD = 0.869), indicating that international students rely heavily on reviews to judge product quality. The lowest mean is OR4 (“Negative online reviews discourage me from buying a product or service”) at 3.93 (SD = 1.120), suggesting that while negative reviews are influential, they are slightly less impactful than positive or evaluative reviews. Overall, the means range from 3.91 to 4.23, demonstrating that online reviews are a significant factor in students’ online purchase decisions.

Table 6. Descriptive Statistics: Online Reviews

	N	Minimum	Maximum	Mean	Std. Deviation
OR1	105	1	5	3.91	1.110
OR2	105	1	5	4.23	.869
OR3	105	1	5	3.99	1.014
OR4	105	1	5	3.93	1.120
OR5	105	1	5	4.10	1.091
Valid N (listwise)	105				

Correlation

The correlation analysis is conducted to examine the relationships between Online Buying Behaviour and the independent variables, namely AI Chatbots, Targeted Advertisements, and Online Reviews. Pearson correlation analysis was employed to determine the strength, direction, and significance of the relationships between the variables in this study.

Refer Table 7, the correlation coefficient between Online Buying Behaviour and AI Chatbots indicates a low positive relationship at 0.255 with a significant level of 0.009. Next, the findings show that Online Buying Behaviour and Targeted Advertisements have a low positive relationship with a correlation coefficient of 0.229 and a significant level of 0.019. However, the relationship between Online Buying Behaviour and Online Reviews is very weak at 0.063 and not statistically significant with a significant level of 0.522. Overall, the results reveal that AI Chatbots and Targeted Advertisements have significant relationships with Online Buying

Behaviour, while Online Reviews do not show a significant relationship. The significant levels for AI Chatbots and Targeted Advertisements are less than 0.05, indicating statistically significant relationships.

Table 7. Correlation Analysis

Variables		Online Consumer Buying Behaviour	AI Chatbots	Targeted Advertisement	Online Reviews
Online Consumer Buying Behaviour	Pearson Correlation	1	.255**	.299*	.063
	Sig. (2-tailed)		.009	.019	.522
	N	105	105	105	105
AI Chatbots	Pearson Correlation	.255**	1	.236*	.168
	Sig. (2-tailed)	.009		.015	.087
	N	105	105	105	105
Targeted Advertisements	Pearson Correlation	.229*	.236*	1	.208*
	Sig. (2-tailed)	.019	.015		.033
	N	105	105	105	105
Online Reviews	Pearson Correlation	.063	.168	.208*	1
	Sig. (2-tailed)	.522	.087	.033	
	N	105	105	105	105

** Correlation is significant at the 0.01 level (2-tailed).
 * Correlation is significant at the 0.05 level (2-tailed).

T-Test

An independent sample t-test was conducted to examine whether there is a significant difference in Online Consumer Buying Behaviour between male and female respondents. Table 8 presents the independent sample t-test results comparing Online Consumer Buying Behaviour between male and female respondents. The mean score for male respondents is 3.8884, while the mean score for female respondents is slightly lower at 3.8641. Although there is a small difference in the mean values between the two groups, the difference is minimal. Based on the analysis, the results indicate that there is no significant difference in Online Consumer Buying Behaviour between male and female respondents. Therefore, gender does not have a significant influence on online consumer buying behaviour in this study.

Table 8. T-Test

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Online Consumer Buying Behaviours	Male	64	3.8884	.68274	.08534
	Female	41	3.8641	.83541	.13047

Anova

A one-way Analysis of Variance (ANOVA) was conducted to examine whether there are significant differences in Online Consumer Buying Behaviour among respondents from different nationality groups. Based on Table 9, the one-way ANOVA results indicate that the significant value is $p = 0.011$, which is lower than the significance level of 0.05. This shows that there is a statistically significant difference in Online Consumer Buying Behaviour

among respondents from different national groups, namely ASEAN, South Asia, Central Asia, Middle East, and Africa. This suggests that nationality has a significant influence on online consumer buying behaviour in this study.

Table 9. Anova

Online Consumer Buying Behaviour	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.946	17	.997	2.149	.011
Within Groups	40.351	87	464		.006
Total	57.297	104			

Multiple Regression Analysis

Multiple regression analysis was conducted to examine the combined effect of AI Chatbots, Targeted Advertisements, and Online Reviews on Online Buying Behaviour. Table 10 presents the results of the multiple regression analysis conducted to examine the influence of AI Chatbots, Targeted Advertisements, and Online Reviews on Online Buying Behaviour. The constant value of 2.567 indicates the expected level of Online Buying Behaviour when all independent variables are held constant.

Based on the findings, AI Chatbots show a positive and statistically significant relationship with Online Buying Behaviour ($\beta = 0.215$, $p = 0.031$), which is lower than the significance level of 0.05. This indicates that AI chatbots have a significant influence on online buying behaviour, and an increase in the effectiveness of AI chatbots leads to an increase in consumers' online buying behaviour. Therefore, ***H1 is accepted.***

Targeted Advertisements also show a positive relationship with Online Buying Behaviour ($\beta = 0.181$); however, the significance value ($p = 0.071$) is higher than 0.05. This suggests that targeted advertisements do not have a statistically significant influence on online buying behaviour in this study. As a result, ***H2 is rejected.***

In contrast, Online Reviews demonstrate a negative and very weak relationship with Online Buying Behaviour ($\beta = -0.010$) and are not statistically significant ($p = 0.916$). This indicates that online reviews do not significantly influence online buying behaviour among the respondents. Consequently, ***H3 is rejected.***

In terms of the relative importance of the independent variables, AI Chatbots have the highest standardized beta value, making them the most influential predictor of Online Buying Behaviour in this model. Overall, the results indicate that only AI Chatbots significantly predict Online Buying Behaviour, while Targeted Advertisements and Online Reviews do not show significant effects.

Table 10. Coefficient Table of Multiple Regression

Model		Understanding Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.567	.505		5.079	<.001
	AI Chatbots	.199	.091	.215	2.186	.031
	Targeted Advertisements	.156	.085	.181	1.825	.071
	Online Reviews	-.010	.096	-.010	-.106	.916
a. Dependent Variable: Online Buying Behaviour						

DISCUSSION

The findings of this study provide insights into the online consumer buying behaviour of international university students and the influence of digital marketing tools such as AI chatbots, targeted advertisements, and online reviews.

The descriptive analysis revealed that international students generally exhibit positive online buying behaviour, with mean scores ranging from 3.74 to 4.13 across the items. Among these, the highest mean was for CB2 (“I compare different brands before making a purchase decision”) at 4.13, suggesting that students tend to make informed decisions by evaluating alternatives before making purchases. This aligns with previous studies highlighting that educated consumers rely on comparison and evaluation when shopping online (Ahmad et al., 2018; Alyami & Spiteri, 2015).

Regarding AI chatbots, the respondents generally had a positive perception, with mean scores ranging from 3.63 to 3.98. The highest-rated item was AC2 (“I find AI chatbots useful when making purchase decisions”) at 3.98, indicating that chatbots are valued for their efficiency in providing product information and supporting decision-making. However, trust in the information provided by chatbots (AC3) was slightly lower (3.63), suggesting that while students appreciate the convenience, they remain cautious about the reliability of automated responses. For targeted advertisements, mean scores ranged from 3.76 to 3.98, reflecting moderate effectiveness. Respondents were most aware of personalized ads tailored to their online behaviour (TA2 = 3.98), but perceived relevance and engagement were slightly lower (TA1 and TA4 = 3.76), indicating that not all ads fully capture their attention or influence purchase decisions. Online reviews showed the highest reliance among the digital marketing tools, with means ranging from 3.91 to 4.23. The highest mean was for OR2 (“Online reviews help me evaluate the quality of a product or service”) at 4.23, demonstrating that international students place considerable trust in peer feedback when assessing product quality. Negative reviews (OR4 = 3.93) were influential but slightly less impactful than positive evaluative reviews, emphasizing the stronger effect of constructive and quality information on purchase decisions.

The correlation analysis further supports these findings. AI chatbots ($r = 0.255$, $p = 0.009$) and targeted advertisements ($r = 0.229$, $p = 0.019$) showed low but statistically significant positive relationships with online buying behaviour, indicating that both tools play a role in influencing purchase decisions. In contrast, online reviews did not show a significant correlation ($r = 0.063$, $p = 0.522$), suggesting that while students rely on reviews, other factors may mediate their influence on actual buying behaviour. Independent sample t-test results indicated no significant difference in online buying behaviour between male and female students (male mean = 3.8884, female mean = 3.8641), suggesting that gender does not significantly affect purchasing patterns in this population. However, ANOVA results showed significant differences in online buying behaviour across nationalities ($F = 2.149$, $p = 0.011$), indicating that cultural background and regional factors may influence students’ shopping patterns and preferences.

Finally, the multiple regression analysis highlighted that AI chatbots are the most influential predictor of online buying behaviour ($\beta = 0.215$, $p = 0.031$), confirming the importance of interactive and responsive digital tools in enhancing consumer experience and decision-making. In contrast, targeted advertisements ($\beta = 0.181$, $p = 0.071$) and online reviews ($\beta = -0.010$, $p = 0.916$) were not statistically significant predictors in this study. These findings suggest that while awareness and reliance on advertisements and reviews exist, AI-driven support mechanisms, such as chatbots, have a stronger impact on shaping students’ online purchasing decisions.

The findings of this study indicate that AI chatbots significantly enhance online buying behaviour, targeted advertisements have limited influence, and online reviews, despite being important, may not directly predict purchase decisions among international university students. The results emphasize the importance for online retailers to invest in reliable, personalized, and interactive digital tools to engage this tech-savvy demographic effectively.

CONCLUSION AND RECOMMENDATION

The findings of this study provide meaningful insights that extend beyond the statistical results, offering implications for theory, practice, and society. This study contributes to the academic understanding of digital marketing tools and online consumer behaviour, particularly in the context of international university students.

By examining AI chatbots, targeted advertisements, and online reviews, the research provides empirical evidence of their relative influence on online buying behaviour.

For online retailers, e-commerce platforms, and digital marketers, the results emphasize the critical role of AI chatbots in influencing students' online buying behaviour. Investing in reliable, personalized, and user-friendly chatbots can improve customer engagement, build trust, and increase purchase intention. While targeted advertisements and online reviews remain relevant for awareness, marketers should prioritize interactive digital tools that provide real-time assistance and enhance consumer experience. Marketing managers can use these insights to design strategies that align with tech-savvy international audiences. Policy makers and regulatory bodies can leverage these findings to guide ethical and responsible use of AI and digital marketing technologies. The study highlights the need for transparency, data privacy, and consumer protection in AI-driven marketing. Society, particularly students and young consumers, benefits from more informed and supportive digital environments, where AI tools enhance decision-making without compromising trust or privacy. These insights can help shape regulations that ensure safe, effective, and equitable use of digital marketing technologies.

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