

THE INFLUENCE OF ARTIFICIAL INTELLIGENCE ON CONSUMERS' IMPULSE BUYING BEHAVIOR IN ONLINE

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ABSTRACT

This study investigates the influence of Artificial Intelligence (AI) on consumers' impulse buying behavior in online shopping in Sri Lanka. Grounded in the Technology Acceptance Model (TAM) and the Stimulus-Organism-Response (S-O-R) framework, it examines how AI-driven features including personalized recommendations, emotional triggers, promotional campaigns, perceived electronic word-of-mouth (eWOM), chatbot assistance, and consumer comfort affect impulsive purchasing. Data from 279 active online shoppers were analyzed using multiple regression and moderation analysis, with consumer awareness as a moderator. Results indicate that emotional triggers, promotional campaigns, chatbot assistance, and comfort significantly influence impulse buying, whereas personalized recommendations and eWOM do not. Importantly, consumer awareness strengthens several AI-behavior relationships.

Keywords: Artificial Intelligence, Chatbot Assistance, Consumer Awareness, Impulse Buying, Online Shopping

1. Introduction

The rapid evolution of Artificial Intelligence (AI) has significantly reshaped, especially within the realm of online shopping. With AI-driven technologies such as personal recommendation systems, chatbots, and

emotional targeting, businesses now use advanced tools to influence consumer behavior in real-time. These tools leverage user data, such as browsing history, preferences, and purchase patterns, to deliver customized shopping experiences. As the popularity of online shopping via platforms like Facebook and Instagram grows, in the Sri Lanka.

Impulse buying, defined as spontaneous and emotionally charged purchasing without preplanning, has been studied extensively. However, AI's influence in developing countries remains underexplored. This study addresses gaps in understanding consumer perceptions, trust, personalization, and comfort with AI technologies in Sri Lanka, using TAM and S-O-R frameworks to examine key AI features' effects, with consumer awareness as a moderator.

To explore this relationship, the research draws upon the Technology Acceptance Model (TAM) and the Stimulus-Organism-Response (S-O-R) framework. A quantitative research design was adopted, and data were collected through a structured online questionnaire distributed among Sri Lankan online shoppers. The study assessed the impact of AI features such as personalized recommendations, emotional triggers, chatbot assistance, promotional campaigns, and eWOM on impulse buying behavior, with consumer awareness acting as a moderator. Findings indicate that emotional triggers, chatbot assistance, promotional campaigns, and AI comfort significantly influence impulse buying, whereas personalized recommendations and eWOM do not and Consumer awareness moderates these effects.

2. Literature Review

The integration of Artificial Intelligence (AI) in digital marketing has transformed consumer experiences, especially online. This study uses the Technology Acceptance Model (TAM), emphasizing perceived usefulness and ease of use as key drivers of technology adoption (Liang et al., 2020), and the Stimulus-Organism-Response (S-O-R) framework, where external stimuli evoke internal responses shaping behavior (Changa et al., 2011).

Although AI's role in shaping impulse buying has been confirmed in various studies globally (Pillarisetty & Mishra, 2022; Arroyo & Máyne-

Guaderrama, 2022), the literature reveals a noticeable paucity of research within emerging markets. Specifically, in South Asian countries including Sri Lanka, challenges related to AI acceptance and awareness remain underexplored, leaving a critical gap in understanding how AI's marketing stimuli translate into behavioral responses. This gap underscores the need for studies examining the localized impact of AI marketing features, considering consumer comfort and awareness as key moderating factors.

2.1. AI in Marketing and Online Shopping

AI enables hyper-personalized marketing through recommendation engines, emotional targeting, and chatbots, which enhance decision-making and promote unplanned purchases (Pillarisetty & Mishra, 2022b)(Kumar et al., 2019). Chatbots simulate human conversations, easing the buyer journey (Jain & Owusu-Ansah, 2023). Ethical concerns such as algorithmic bias may affect trust, especially in emerging markets (Hermann, 2022).

Despite these advantages, some studies caution that excessive reliance on personalization may lead to consumer fatigue or skepticism, potentially moderating impulse buying effects negatively (Hardcastle et al., 2025). Furthermore, the ethical and transparency issues raise concerns that may hinder technological acceptance in less digitally mature markets, emphasizing the need to explore consumer comfort levels explicitly.

2.2. AI and Impulse Buying Behavior

The literature highlights AI's ability to stimulate emotional responses, amplify scarcity cues (e.g., time-limited offers), and leverage electronic Word-of-Mouth (eWOM) to drive impulse purchases. Personalized recommendations aligned with individual preferences reduce cognitive load and prompt spontaneous buying (Cavazos-Arroyo & Máñez-Guaderrama, 2022). Emotional triggers presented in compelling contexts increase impulsivity (Aragoncillo & Orús, 2018). Social influences via eWOM reinforce decisions through peer validation, with AI integrating user feedback and popularity indicators that enhance

social proof, Scarcity tactics create urgency, further boosting impulse buying tendencies (Koch & Benlian, 2015).

However, findings on eWOM's influence are mixed, with some studies detecting weak or culturally contingent effects, highlighting a need to consider local consumer trust and digital literacy factors (Beyari & Hashem, 2025). Moreover, emotional triggers and scarcity cues consistently emerge as robust predictors, justifying their inclusion as independent variables in the conceptual model.

2.3. Consumer Perception and Moderating Effects

Consumers' comfort levels and awareness of AI significantly influence their behavioral responses. Higher trust in AI-powered systems and familiarity with digital environments correlate positively with impulse purchasing (Teodorescu, Aivaz, et al., 2023). Conversely, discomfort or ethical concerns may hinder spontaneous transactions, especially in emerging markets like Sri Lanka, where exposure to AI features in social commerce is still developing (Sirajuddin & P, 2020).

2.4. Conceptual Model and Hypotheses

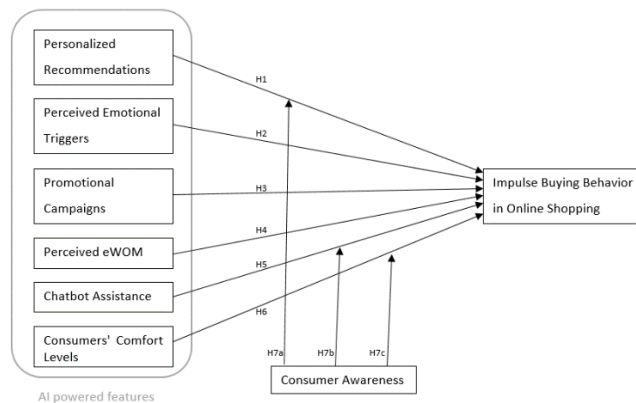


Figure 1: Conceptual Framework

The study proposes a model where AI-powered features include personalized recommendations, emotional triggers, chatbot assistance, promotional campaigns, perceived eWOM, and consumer comfort serve as independent variables influencing impulse buying behavior. Consumer awareness is introduced as a moderator.

Hypotheses have logically derived from the reviewed literature and underlying theoretical frameworks to ensure a sound foundation for the study. Drawing on the Technology Acceptance Model (TAM) and the Stimulus-Organism-Response (S-O-R) framework, each hypothesis is formulated by synthesizing prior empirical findings and highlighting theoretical premises. For instance, the hypothesis regarding the influence of personalized recommendations on impulse buying is supported by literature indicating that such AI-driven features reduce cognitive load and promote spontaneous purchases (Arroyo & Máñez-Guaderrama, 2022). Emotional triggers are hypothesized to impact impulse buying based on evidence that emotionally charged contexts enhance impulsive decisions (Aragoncillo Caballero & Orús, 2018). Where conflicting evidence exists, such as the role of electronic word-of-mouth, the hypothesis reflects an exploratory stance acknowledging cultural nuances and skepticism in the Sri Lankan context.

3. Methodology

This study employed a quantitative research approach to investigate the influence of Artificial Intelligence (AI) on consumers' impulse buying behavior in online shopping. The methodology was designed to ensure objectivity, reproducibility, and statistical validity in testing the proposed hypotheses derived from the literature review.

3.1. Research Design

A cross-sectional survey method was adopted, utilizing a structured online questionnaire to gather data from Sri Lankan consumers who actively shop online via social media platforms (e.g., Facebook and Instagram) and e-commerce websites. This approach enabled the collection of quantifiable data to explore relationships between AI-powered features and impulse buying behavior.

3.2. Data Sources

The study targeted Sri Lankan online shoppers using social media and e-commerce platforms. Convenience sampling focused on social media users. A sample of 300 was considered sufficient given the user base and study scope. This sample size aligns with recommendations for studies

using a 95% confidence level in populations ranging from 1 to 10 million (Chi & Hoang Vu, 2023).

Although structural equation modeling (SEM) is commonly used for multi-construct models, multiple regression was selected due to the sample size (N= 279), the exploratory nature of the study in a developing market context, and the focus on moderation analysis. Convenience sampling was employed to reach active online shoppers efficiently, as social media platforms offer direct access to the target population. While this approach may limit generalizability, it allows for timely and cost-effective data collection within the constraints of this study.

3.3. Data Collection Instrument

Data was collected via a structured online questionnaire, which included both closed-ended and Likert-scale questions designed to capture perceptions and behaviors related to AI-powered shopping experiences. The survey items were adapted from previously validated scales in the literature.

3.4. Operationalization of Variables

Table 1: Operationalization of Variables

Dimensions	Indicators
Personalized Recommendations (Rodrigues, 2021)	Recommendations tailored to user interests & needs
Emotional Triggers (Chi & Hoang Vu, 2023)	Emotional Triggers, AI understands feelings & viewpoints, delivers info quickly
Promotional Campaigns	Promotional campaigns, Discounts, Offers, Seasonal promotions influence buying
Perceived eWOM	Perceived eWOM, Influence of reviews, Influencer recommendations, Online comments
Chatbot Assistance	Chatbot Assistance, Ease of use, Info clarity, Human-like understanding
Consumer Comfort Levels	Consumer comfort levels, Trust in AI's care, Safety, Efficiency
Consumer Awareness	Consumer awareness, Awareness of rights, Risks, Info evaluation, Promotional tactics

3.5. Data Analysis

The data was analyzed using SPSS software. Initial steps included data cleaning, normality testing, and reliability analysis using Cronbach's alpha. Descriptive statistics were used to profile the respondents. To test the hypotheses, multiple regression analysis and moderation analysis were conducted. These techniques helped evaluate the direct and moderate relationships between AI-driven features and impulse buying behavior.

4. Results and Discussion

This section presents the findings derived from the data analysis and discusses their alignment with the research objectives.

4.1. Reliability Analysis

Table 2: Results of Reliability Analysis

	Cronbach's alpha
Personalized Recommendations	0.930
Perceived Emotional Triggers	0.927
Promotional Campaigns	0.912
Perceived Electronic Word-of-Mouth	0.880
Chatbot Assistance	0.938
Consumer's Comfort Level	0.938
Impulse Buying Behavior	0.909
Consumer Awareness	0.926

4.2. Collinearity Diagnostics

Variance Inflation Factor (VIF) values for all predictors ranged from 1.735 to 2.284, below the acceptable threshold of 3, indicating no multicollinearity concerns.

4.3. Respondent Profile and Descriptive Statistics

The majority of respondents (66.7%) were aged 19–29, and 65.9% identified as female. The private sector employed the largest group (39.1%), with most respondents earning between LKR 100,000–

200,000. Descriptive statistics showed favorable perceptions of AI features, particularly personalized recommendations (M=5.32), promotional campaigns (M=5.19), and chatbot assistance (M=5.09).

4.4. Correlation and Regression Analysis

Pearson correlations indicated significant positive relationships between all independent variables and impulse buying ($r = 0.51-0.61$, $p < 0.01$).

Table 3: Correlation Analysis

	Pearson Correlation	Sig. (2- tailed)	Relationship
Personalized Recommendations	.510**	.000	Moderate Positive
Perceived Emotional Triggers	.599**	.000	Moderate Positive
Promotional Campaigns	.612**	.000	Moderate Positive
Perceived Electronic Word-of-Mouth	.576**	.000	Moderate Positive
Chatbot Assistance	.566**	.000	Moderate Positive
Consumer's Comfort Level	.521**	.000	Moderate Positive

4.5. Multivariate Analysis

Multiple regression analysis explained 52.6% of variance in impulse buying behavior ($R^2 = 0.526$, $p < 0.001$). Significant predictors included Promotional Campaigns ($\beta = 0.262$, $p < 0.001$), Perceived Emotional Triggers ($\beta = 0.229$, $p < 0.001$), Chatbot Assistance ($\beta = 0.147$, $p = 0.016$), and Comfort Level with AI ($\beta = 0.172$, $p = 0.002$). Personalized Recommendations ($\beta = 0.008$, $p = 0.894$) and Perceived eWOM ($\beta = 0.089$, $p = 0.161$) were not significant. The ANOVA analysis confirms the overall significance of the regression model ($F = 50.209$, $p < .001$).

The regression equation without the moderator is:

$$Y = \epsilon + \beta_1 \times PR + \beta_2 \times PET + \beta_3 \times PC + \beta_4 \times PEWOM + \beta_5 \times CBA + \beta_6 \times CL$$

$$IBB = 0.035 + 0.009 \times PR + 0.241 \times PET + 0.279 \times PC + 0.093 \times PEWOM + 0.165 \times CBA + 0.164 \times CL$$

where, PR – Personalized Recommendations, PET – Perceived Emotional Triggers, PC – Promotional Campaigns, PEWOM – Perceived

Electronic Word-Of-Mouth, CBA – Chatbot Assistance, CL – Consumer's Comfort Levels.

4.6. Moderation Analysis

Using the PROCESS macro in SPSS, consumer awareness significantly moderates relationships between AI features and impulse buying. For all three variables, the effect on impulse buying behavior became stronger at higher levels of consumer awareness, highlighting the importance of AI familiarity in enhancing behavioral responses.

5. Conclusion and Implications

This study explored the influence of Artificial Intelligence (AI) on consumers' impulse buying behavior in online social media shopping, applying the Technology Acceptance Model (TAM) and Stimulus-Organism-Response (S-O-R) framework. The findings offer theoretical and practical insights into digital consumer behavior in emerging markets like Sri Lanka.

5.1. Summary of Findings and Generalizations

The results indicate that emotional triggers, promotional campaigns, chatbot assistance, and comfort with AI technologies significantly influence consumers' impulse buying behavior. These findings support the notion that AI features embedded within online shopping platforms act as stimuli that evoke cognitive and emotional responses leading to spontaneous purchases. The non-significant effects of personalized recommendations and eWOM may reflect contextual factors such as consumer trust, digital literacy, and cultural perceptions in Sri Lanka. Consumers may be less responsive to automated recommendations or peer feedback when unfamiliar with AI technologies.

5.2. Theoretical Implications

This study applies the Technology Acceptance Model (TAM) and the Stimulus-Organism-Response (S-O-R) framework in the novel context of AI-powered social media shopping in an emerging market. It extends TAM by demonstrating that perceived usefulness and ease of use not

only drive technological adoption but also significantly influence impulse buying behavior through features like chatbot assistance and consumer comfort with AI. By integrating comfort theory, and highlights the role of trust, ethical perceptions, and perceived safety in shaping spontaneous purchases. This multi-theoretical integration offers a more comprehensive understanding of AI's impact on impulse buying behavior than prior uni-dimensional approaches (Liang et al., 2020). Validating these models in Sri Lanka addresses the gap concerning emerging markets, contributing to global marketing theory by contextualizing digital consumer behavior within distinct socio-cultural and technological adoption environments (Teodorescu, Kamer-Ainur, et al., 2023).

5.3. Managerial and Practical Implications

For marketers and online retailers, the findings offer several actionable insights. Such as leveraging emotional triggers and promotional scarcity in AI campaigns to boost impulse purchases, designing chatbots that are helpful, intuitive, and personalized, and enhancing consumer awareness of AI through education and ethical practices. Strategies should be tailored to consumer familiarity with AI, as less aware users may respond less to features like personalized recommendations or eWOM.

5.4. Limitations

The study has several limitations such as the sample size was limited to 300 participants and skewed toward younger, tech-savvy demographics, which may impact generalizability. Convenience sampling and reliance on online surveys may introduce response bias or limit the depth of insight. The scope focused on set of AI features, excluding more advanced technologies. Trust and privacy concerns, while acknowledged, were not fully explored as independent constructions.

5.5. Future Research Directions

To build on this study, future research can utilize mixed methods (e.g., interviews or focus groups) to gain deeper insight into consumer motivations and emotional responses to AI. Investigating individual differences such as personality traits, digital literacy, and culture as

moderators is recommended. Ethical issues including algorithmic bias, data privacy, and consumer autonomy warrant further study. Expanding analysis to emerging AI technologies like voice assistants, real-time recommender engines, and immersive shopping experiences will deepen understanding.

Acknowledgement

I would like to extend my gratitude to my research supervisor, Dr. Achini Ranaweera, a Senior Lecturer at the Department of Textile and Apparel Engineering, University of Moratuwa, for her guidance, feedback, and support throughout this study. I am grateful to the University of Moratuwa for the resources provided, and to my family, friends, and participants for their time and encouragement, which made this work possible.

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