Artificial Intelligence, Consumer Behavior, and Online Shopping Practices among Students

Nestle Michael A. Piasan., Edzen A. Espina., Nenita I. Prado

Liceo de Cagayan University Cagayan de Oro City, Philippines

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ABSTRACT

This study examined the predictive influence of artificial intelligence (AI) and consumer behavior on online shopping practices among senior high school students. A sample of 337 Grade 12 Accountancy, Business and Management (ABM), Humanities and Social Sciences (HUMSS), and Science, Technology, Engineering, and Mathematics (STEM) strands at Liceo de Cagayan University participated in the research. Data were collected using a structured survey questionnaire covering gadget and social media usage, AI knowledge, consumer behavior, and online shopping practices. The study employed descriptive-correlational and causal-comparative designs, with analyses conducted through mean, standard deviation, Pearson correlation, and multiple regression. Results showed high levels of AI knowledge awareness and social media usage, and moderate levels of gadget usage and AI knowledge usefulness. Correlation analysis revealed highly significant positive relationships between online shopping practices and all study variables, with the strongest effects observed for spending habits, buying patterns, and social media usage. Regression analysis further identified consumer behavior as the strongest predictor of students' online shopping habits. These findings provide practical insights for educators and policymakers in promoting financial literacy and responsible digital consumption among students.

Keywords: Artificial Intelligence, Consumer Behavior, Online Shopping, Students, Responsible Consumption

INTRODUCTION

Technology has transformed how people engage with the world, including the way they shop. With the rise of artificial intelligence (AI), online platforms increasingly shape consumer behavior through personalized recommendations, targeted advertisements, and algorithm-driven content. Globally, e-commerce continues to expand, with AI technologies analyzing users' browsing histories and purchase patterns to suggest products—enhancing convenience but also encouraging impulsive buying.

In Southeast Asia, and particularly in the Philippines, this trend is highly evident among students. Platforms such as Shopee and Lazada use AI-powered features to capture young consumers' attention, many of whom engage in online shopping without adequate financial planning. Research suggests that emotional and social factors, amplified by AI-driven personalization and peer influence, significantly affect students' spending habits. Despite ongoing financial literacy programs, a substantial gap remains in preparing students to critically evaluate AI-driven consumer experiences.

This study responds to that gap by examining how AI and consumer behavior predict online shopping practices among Filipino senior high school students. By situating the research within the framework of Sustainable Development Goal (SDG) 12 on Responsible Consumption and Production, the study highlights the need to cultivate responsible digital consumption. It seeks to provide insights that will guide educators, policymakers, and parents in addressing the growing influence of AI on youth consumer behavior.

Framework

This study is grounded in three psychological and behavioral theories that explain how students engage with artificial intelligence and make purchasing decisions in online environments.

Maslow's Hierarchy of Needs (1943) provides insight into the internal motivations driving consumer behavior. In online shopping, AI-powered platforms often appeal to higher-order needs such as esteem and belongingness by recommending products that promise social approval or identity reinforcement. For adolescents, these psychological needs can trigger impulse purchases, as material goods become linked to peer validation and self-image.

Festinger's Social Comparison Theory (1954) highlights the role of peer influence in shaping consumer choices. Social media and online marketplaces encourage constant comparison through posts, reviews, and influencer content. This exposure cultivates a tendency among students to conform to perceived social norms, trends, or the fear of missing out (FOMO), thereby increasing the likelihood of unplanned purchases.

Pavlovian Conditioning Theory further explains how repeated exposure to AI-curated recommendations conditions students to respond favorably to certain stimuli, such as promotional alerts, discounts, and endorsements. Over time, these cues become associated with positive emotions, reinforcing habitual online shopping behaviors.

Together, these theories suggest that technological exposure, social pressure, and conditioned responses interact to influence students' online shopping practices. Based on this framework, the study postulates that gadget and social media usage, knowledge of AI, and consumer behavior serve as independent variables that predict students' level of engagement in online shopping. By integrating these theoretical perspectives, the study establishes a strong foundation for analyzing the psychological and technological drivers of digital consumerism.

Objectives Of The Study

This study aimed to explore the predictive relationship between artificial intelligence, consumer behavior, and students' online shopping practices. Specifically, the study sought to: (1) determine the level of gadget and social media usage in terms of laptops, desktops, tablets, Facebook, Twitter, and TikTok; (2) assess the level of knowledge on artificial intelligence in the aspects of awareness of AI applications, perceived usefulness, and comfort level in interacting with AI; (3) evaluate consumer behavior in terms of buying patterns and spending habits; (4) identify the level of online shopping practices among Grade 12 students; (5) analyze the significant relationships between students' online shopping practices and their use of gadgets and social media platforms, knowledge on artificial intelligence, and consumer behavior; and (6) identify which among these variables, either singly or in combination, significantly influence students' online shopping practices.

METHODOLOGY

Research Design

This study employed a combination of descriptive-correlational and causal-comparative designs to examine the predictive influence of artificial intelligence and consumer behavior on students' online shopping practices. The descriptive-correlational design was used to identify patterns and relationships among variables without manipulating any of them, allowing the researcher to describe the natural association between gadget and social media use, AI knowledge, and consumer behavior in relation to online shopping. Meanwhile, the causal-comparative design enabled an exploration of whether differences in students' levels of online shopping practices could be attributed to variations in these predictor variables. These designs support the study's goal of identifying significant predictors of online shopping behavior without implying causality.

Research Setting

The study was conducted at Liceo de Cagayan University in Cagayan de Oro City, Philippines. The university caters to a diverse population of senior high school students across the ABM, HUMSS, and STEM strands. As a private academic institution located in an urban environment, Liceo de Cagayan University offers a relevant and dynamic setting for investigating digital consumer behavior. Students enrolled in this university frequently engage with various technologies and platforms, making them ideal respondents for examining how artificial intelligence and consumer habits influence online shopping practices. This setting provides a valuable context for capturing insights into the online behaviors of digitally literate Filipino youth.

Participants of the Study and Sampling Procedure

The study involved a total of 337 Grade 12 students from the ABM, HUMSS, and STEM strands of Liceo de Cagayan University. These students were selected based on their active use of digital technologies and exposure to online shopping platforms. There were no restrictions based on age or gender. The sampling procedure involved proportionate stratified random sampling to ensure that all three strands were adequately represented. The sample size of 337 was determined using the Raosoft Sample Size Calculator, considering a 95% confidence level, a 5% margin of error, and a 50% response distribution. The chosen methodology ensured that the sample was statistically sound and reflected the broader student population. Informed consent was obtained from all participants before data collection commenced.

Research Instruments

The study utilized a self-developed survey questionnaire designed to assess four main constructs: gadget and social media usage, knowledge of artificial intelligence, consumer behavior, and online shopping practices.

For gadget and social media usage, items asked about the frequency and purpose of digital engagement. Sample statements included: *"I frequently use my laptop or mobile phone for browsing online shops"* and *"I spend more than two hours daily on social media platforms such as Facebook or TikTok."*

For AI knowledge, items measured awareness, perceived usefulness, and comfort level in using AI applications. Examples included: *"I am aware that product recommendations in Shopee or Lazada are generated by AI algorithms," "I find AI-powered features (e.g., chatbots, product suggestions) useful when making online purchases,"* and *"I feel comfortable interacting with AI features in online shopping platforms."*

For consumer behavior, the questionnaire focused on buying patterns and spending habits. Sample items were: *"I often purchase items online even if they are not planned," "Peer influence affects my decision to buy products online,"* and *"I tend to spend beyond my budget when shopping online."*

Finally, online shopping practices were assessed through frequency and tendencies in e-commerce use. Example items included: *"I purchase products online at least once a month,"* and *"I usually buy items that are suggested to me by online platforms."*

The questionnaire items were validated by three experts in education and social sciences, and the tool was pilot-tested on a small sample of senior high school students to ensure clarity and accuracy. Cronbach's alpha was calculated for each construct to establish reliability. Reliability analysis was conducted to examine the internal consistency of the survey instrument. Cronbach's alpha values indicated acceptable to excellent reliability across all scales: gadget use ($\alpha = .831$), social media use ($\alpha = .822$), awareness of AI applications ($\alpha = .926$), perceived usefulness of AI ($\alpha = .959$), comfort in interacting with AI ($\alpha = .944$), buying patterns ($\alpha = .822$), spending habits ($\alpha = .926$), and online shopping practices ($\alpha = .885$). These results confirm that the instrument was reliable for measuring the intended variables.

Data Gathering Procedure

The data gathering procedure followed ethical research protocols. First, approval was secured from the Dean of the School of Business, Management, and Accountancy. Following this, the proposal was reviewed and endorsed by the university's Research Ethics Board. Once all internal approvals were obtained, a formal letter was sent to the Principal of the Senior High School Department requesting permission to conduct the survey. Upon approval, the researcher scheduled classroom visits for data collection.

Before distributing the questionnaires, the researcher explained the purpose of the study to the participants and secured informed consent. Participation was voluntary, and students were assured of confidentiality and the right to withdraw at any point. The questionnaires were distributed and collected within the same session. Completed forms were checked for completeness before tabulation and statistical analysis.

Statistical Treatment and Data Analysis

Descriptive statistics such as mean and standard deviation were used to summarize and interpret the levels of gadget and social media use, AI knowledge, consumer behavior, and online shopping practices. Pearson's product-moment correlation was employed to identify the strength and direction of relationships between each independent variable and online shopping practices. Multiple regression analysis was used to determine which variables, either singly or in combination, significantly influenced students' online shopping behaviors. These methods allowed the researcher to answer the study's key questions and establish the most prominent predictors among the variables examined.

RESULTS AND DISCUSSION

Descriptive Findings

Table 1 Summary of Mean Scores of Key Study Variables

Variable	Mean	SD	Interpretation
Gadget Usage	3.04	0.95	Moderate
Social Media Usage	3.61	0.76	High
AI Knowledge – Awareness	3.77	0.83	High
AI Knowledge – Usefulness	3.47	0.89	Moderate
AI Knowledge – Comfort	3.09	0.86	Moderate
Buying Patterns	3.15	0.88	Moderate
Spending Habits	2.88	1.00	Moderate
Online Shopping Practices	3.07	0.71	Moderate

Table 1 presents the consolidated mean scores across all major variables studied. The highest mean was observed in Awareness of AI Applications (M = 3.77, SD = 0.83), indicating that students are highly aware of how AI functions within their online environments. This is followed by Social Media Use (M = 3.61, SD = 0.76), suggesting that students are highly engaged in social networking platforms, where AI-driven content and marketing are prevalent. On the other hand, the lowest mean was reported in Spending Habits (M = 2.88, SD = 1.00), pointing to moderate but cautious financial behavior. While students actively use social media and display strong awareness of AI applications, this does not necessarily translate to excessive or impulsive spending. Their online engagement is largely shaped by exploration and convenience, balanced with financial self-control.

Correlation Analysis

Table 2 Correlation Analysis between Online Shopping Practices and Study Variables

Variables	R	Effect Size	p-value	Interpretation
Use of Gadgets	.351	Moderate	< .001**	Highly Significant
Use of Social Media	.504	Large	< .001**	Highly Significant
Awareness of AI Applications	.288	Small	< .001**	Highly Significant
Perceived Usefulness of AI	.389	Moderate	< .001**	Highly Significant
Comfort Level in Interacting with AI	.438	Moderate	< .001**	Highly Significant
Buying Patterns	.748	Large	< .001**	Highly Significant
Spending Habits	.801	Large	< .001**	Highly Significant

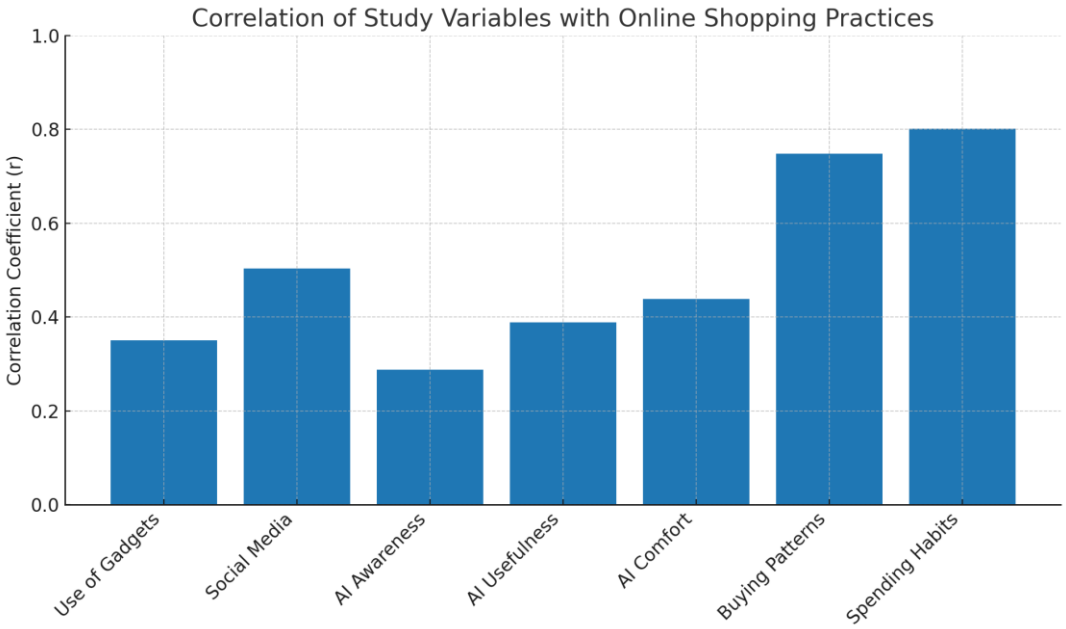
Notes: r = Pearson correlation coefficient; significance: $p < .05$, $p < .001$ = highly significant. Effect sizes interpreted as small (r = 0.10–0.29), moderate (r = 0.30–0.49), large ($r \geq 0.50$).

Table 2 presents the Pearson *r* correlations between online shopping practices and the study variables. All correlations were positive and highly significant ($p < .001$), with the strongest associations observed for Spending Habits ($r = .801$) and Buying Patterns ($r = .748$). Technological variables, including Comfort with AI ($r =$

.438), Perceived Usefulness of AI (*r* = .389), Use of Gadgets (*r* = .351), and Awareness of AI (*r* = .288), also showed significant positive correlations, indicating that both consumer behavior and AI-related factors influence students' online shopping practices.

These results highlight the primacy of social media as a driver of student shopping behavior. Social platforms not only enable transactions but also shape preferences through peer influence and algorithmic recommendations, consistent with Festinger's Social Comparison Theory. The significant link between consumer behavior and online shopping underscores how motivational drivers and habits—explained by Maslow's Hierarchy of Needs—translate into real purchasing activity. This supports Maslow's proposition that unmet esteem and belongingness needs drive consumption patterns, particularly visible in students' preference for socially validated online purchases.

Figure 1 Correlation Coefficients of Study Variables with Online Shopping Practices



Note. r values are significant at p < .001.

As illustrated in Figure 1, consumer behavior variables (spending habits and buying patterns) had the strongest correlations with online shopping practices, compared to technology-related variables such as gadget use and AI awareness.

Regression Analysis

Table 3 Multiple Regression Analysis for the Variables that Singly or in Combination Best Influence Students' Online Shopping Practices

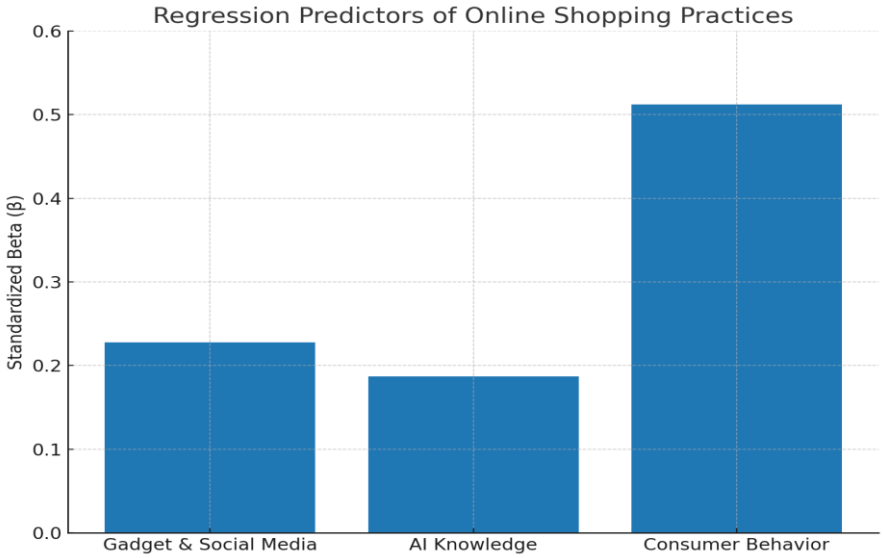
Variables	**B**	**Std. Error**	**Beta**	**T**	**p-value**	**Interpretation**
Constant	0.435	0.152	—	2.863	< .01	Significant
Use of Gadgets	0.102	0.029	0.114	3.529	< .001	Significant
Use of Social Media	0.108	0.045	0.097	2.425	< .05	Significant
Awareness of AI Applications	0.018	0.052	0.017	0.343	> .05	Not Significant
Perceived Usefulness of AI	–0.069	0.063	–0.07	–1.09	> .05	Not Significant
Comfort Level in Interacting with AI	–0.008	0.052	–0.00	–0.15	> .05	Not Significant
Buying Patterns	0.258	0.055	0.269	4.711	< .001	Significant
Spending Habits	0.460	0.043	0.542	10.63	< .001	Significant

Notes: B = unstandardized coefficient; Beta = standardized coefficient; t = t-statistic. Significance: p < .05; p < .001 = highly significant. All predictors included.

Table 3 shows the regression results for predictors of online shopping practices. The model was significant, $F(7, 329) = 108.28$, $p < .001$, with an R^2 of .697, indicating that 69.7% of the variance in online shopping practices was explained by the predictors. Significant contributors included Spending Habits, Buying Patterns, Use of Gadgets, and Use of Social Media Platforms, while AI-related variables—while recognized and moderately engaged with—do not significantly predict online shopping practices when compared to behavioral and technological influences.

This indicates that while AI exposure and device availability provide a backdrop for digital engagement, it is students' behavioral tendencies and social media use that directly drive their online shopping practices. These findings resonate with Pavlov's Conditioning Theory, as repeated exposure to social media cues (e.g., advertisements, influencer promotions) reinforces purchasing habits.

Figure 2 Regression Predictors of Online Shopping Practices



Note. Standardized beta coefficients (β) are shown; all predictors are significant at $p < .001$.

As shown in Figure 2, results showed that consumer behavior emerged as the strongest predictor ($\beta = .512$, $p < .001$), followed by gadget and social media use ($\beta = .228$, $p < .001$) and AI knowledge ($\beta = .187$, $p < .001$). Together, the three variables explained 65.2% of the variance in online shopping practices.

CONCLUSIONS

This study revealed that students' online shopping practices are strongly influenced by the interplay of technology, psychology, and consumer behavior. High social media engagement reflects Festinger's Social Comparison Theory, as peer influence and digital trends shape many purchase decisions. Students' strong awareness but cautious trust in AI features supports Pavlovian Conditioning Theory, where repeated exposure to AI-driven promotions reinforces buying responses. Most importantly, consumer behavior—particularly spending habits and buying patterns—emerged as the strongest predictor of online shopping practices, consistent with Maslow's Hierarchy of Needs, as purchases often addressed esteem and belongingness through peer validation. These findings highlight the need for targeted interventions in financial literacy and responsible consumption, aligning with SDG Goal 12 on Responsible Consumption and Production.

RECOMMENDATIONS

In light of the findings and conclusions, the following recommendations are proposed to relevant stakeholders:

Department of Education may consider integrating AI awareness and digital financial literacy into the senior high school curriculum. This includes educating students on how algorithms influence consumer choices and the importance of evaluating product suggestions critically.

School Heads and Teachers. Educators may be empowered to organize seminars and workshops that promote responsible digital behavior. Topics may include digital self-regulation, understanding AI-powered advertisements, and basic budgeting skills tailored to students' contexts.

Parents are encouraged to monitor their children's digital activities and spending behavior. Open communication regarding responsible consumption and distinguishing needs from wants is essential in guiding students toward healthier financial habits.

Students are encouraged to practice mindful consumption, evaluate the necessity of purchases, and be critical of AI-suggested content. They are urged to develop budgeting skills and avoid impulsive online shopping.

Future Researchers may incorporate qualitative methods such as interviews or focus group discussions to gain deeper insights into the emotional and social dimensions of students' online shopping behavior. Additionally, longitudinal studies could be conducted to track behavioral changes over time.

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