

A Study on Factors Affecting Adoption of AI Tools on Consumers While Shopping Online

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Abstract

This research investigates the factors influencing the adoption of AI tools, particularly chatbots, by consumers during online shopping. By integrating the Technology Acceptance Model (TAM) and Behavioral Reasoning Theory (BRT), the study explores how perceptions like ease of use, usefulness, trust, discomfort, and optimism affect consumer attitudes and intentions. Data collected from 182 respondents was analyzed using SmartPLS. The results show that attitude, perceived usefulness, and perceived ease of use significantly influence consumer intention to adopt AI chatbots. Innovation, optimism, and complexity also affect perceptions and attitudes. This research contributes theoretical insights and practical strategies for enhancing AI adoption in digital retail.

Keywords

AI Chatbots, Consumer Behavior, E-Commerce, TAM, BRT, Perceived Usefulness, Perceived Ease of Use, Digital Adoption

1. Introduction

The use of Artificial Intelligence (AI) in online shopping has rapidly increased, with AI-powered chatbots now playing a critical role in customer service, recommendation systems, and overall user experience. These tools offer 24/7 assistance, product guidance, and problem resolution. However, the extent to which consumers trust and adopt such tools depends on multiple psychological, behavioral, and technological factors. This study focuses on identifying and analyzing those factors.

2. Objectives of the Study

- To analyze factors such as optimism and innovativeness affecting chatbot adoption.
- To assess how discomfort and insecurity hinder perceived ease of use.
- To study relationships between perceptions, attitudes, and intention to use AI chatbots.
- To offer practical recommendations for improving AI tool adoption in e-commerce.

3. Hypotheses

- H1: Perceived usefulness positively influences AI tool adoption.
- H2: Ease of use affects consumer willingness.

- H3: Trust enhances adoption.
 - H4: Personalization increases engagement.
 - H5: Privacy concerns reduce adoption intention.
 - H6: Social influence impacts decisions.
 - H7: Digital literacy moderates ease-of-use effects.
 - H8: Positive past experience increases reuse.
 - H9: Enjoyment leads to higher adoption.
 - H10: Price sensitivity influences decisions.
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4. Literature Review

Studies highlight that users are more likely to adopt technology that they find useful, trustworthy, and easy to use. TAM and BRT provide strong theoretical frameworks. Kasilingam (2020) found chatbot usefulness to be the key determinant of intention. Chung et al. (2020) emphasized trust and satisfaction. Luo et al. (2019) noted that over-personalization may reduce trust. The review also includes insights from Rahevar & Darji (2024), showing that intelligent assistants affect decision-making positively, but complexity and data security concerns remain barriers.

5. Research Methodology

- **Approach:** Quantitative
 - **Sample Size:** 182 consumers using online shopping platforms
 - **Sampling Technique:** Purposive sampling
 - **Data Collection Tool:** Structured questionnaire
 - **Analysis Tool:** Structural Equation Modeling (SEM) via SmartPLS
 - **Variables Tested:** Perceived usefulness, ease of use, attitude, intention, innovation, complexity, insecurity, discomfort
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6. Data Analysis and Interpretation

- **Demographics:** Majority were aged 18–35; most were students and young professionals.
 - **Model Results:**
 - Attitude strongly influenced intention to adopt AI chatbots.
 - Optimism and innovativeness positively affected perceived usefulness.
 - Complexity had a negative effect on ease of use.
 - Insecurity and discomfort were not significantly associated with ease of use.
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- The structural model confirmed most hypotheses using standard path coefficient analysis and t-values.
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7. Key Findings

- Attitude is the strongest predictor of intention.
 - Perceived usefulness is influenced by optimism, innovation, and relative advantage.
 - Ease of use significantly impacts both usefulness and attitude.
 - Complexity remains a barrier to adoption.
 - Emotional factors like discomfort and insecurity had minimal impact.
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8. Recommendations

- Simplify chatbot interfaces to reduce perceived complexity.
 - Build trust through transparency, clear policies, and feedback loops.
 - Emphasize personalization benefits without compromising privacy.
 - Promote the practical advantages (time-saving, problem-solving).
 - Focus marketing efforts on tech-savvy, younger users to drive adoption.
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9. Conclusion

The study confirms that consumer adoption of AI tools, especially chatbots in online shopping, is influenced by a mix of cognitive and emotional factors. Attitude, perceived usefulness, and ease of use are the most impactful. Companies must address complexity and enhance trust to boost adoption. The results have practical implications for e-commerce businesses looking to optimize their AI strategies for better consumer engagement.

10. References

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