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ARTIFICIAL INTELLIGENCE AND CONSUMER BUYING BEHAVIOUR IN E-COMMERCE: AN EMPIRICAL INVESTIGATION

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ABSTRACT

Artificial intelligence (AI) now shapes how Indian consumers discover, evaluate and buy products online, through personalised recommendations, targeted promotions, conversational assistants and AI-driven search. This research paper examines the relationship between AI and consumer buying behaviour in e-commerce in India by considering personalisation, trust, perceived relevance and the ethical concerns associated with algorithmic decision support. The study is an empirical investigation based on the systematic examination of published empirical evidence, drawn from academic literature, industry reports and published research on Indian online shoppers. Existing evidence indicates that AI is operating in a large and fast-growing market: India's e-retail market reached about US$65-66 billion in 2024, growing 19-21% year on year, with the annual shopper base at 290-300 million (Bain & Company & Flipkart, 2024). Empirical studies link AI-enabled personalisation positively with purchase intention, but show that the relationship is mediated by consumer trust and perceived relevance (Hiremath, Saikumari, & Vimala, 2024), and experimental research shows that consumers may avoid algorithms after seeing them err (Dietvorst, Simmons, & Massey, 2015). The study argues that e-commerce firms, regulators and researchers need to look beyond personalisation metrics and examine how trust, transparency and ethical concerns shape consumers' response to AI in everyday buying decisions.

KEYWORDS

Artificial Intelligence, E-Commerce, Consumer Buying Behaviour, Personalisation, Recommendation Systems, Consumer Trust, India.

INTRODUCTION

Artificial intelligence has become an important approach through which online retailers in India engage consumers, replacing static catalogues and keyword search with recommendations, personalised offers and conversational assistance that adapt to each shopper. India's online retail market reached a gross merchandise

value of about US$65-66 billion in 2024, growing 19-21% in value terms, and the annual shopper base reached nearly 300 million, according to the Bain & Company and Flipkart report How India Shops Online 2024 (Bain & Company & Flipkart, 2024). The same report notes that conversational commerce powered by AI is emerging, though still nascent, and that India has become the world's second-largest market for ChatGPT, with a user base of more than 160 million in 2024.

AI therefore influences several stages of the consumer buying process, including discovery of products, evaluation of alternatives, the decision to buy and post-purchase engagement. Its consequences, however, depend on how relevant consumers find the recommendations, how far they trust the platform and its algorithms, and how comfortable they are with the collection and use of their personal data.

REVIEW OF LITERATURE

1. **Xiao and Benbasat (2007)** reviewed research on e-commerce product recommendation agents and proposed a framework linking the use and characteristics of such agents, and the credibility of their provider, to consumers' decision processes and outcomes. The review showed that recommendation agents can reduce consumers' decision effort and improve decision quality, but that the effects depend on how the agent is designed and whether consumers trust it.

2. **Dietvorst, Simmons, and Massey (2015)** reported experiments in which participants who saw an algorithm make errors were subsequently less willing to rely on it, even when the algorithm outperformed human judgement. The finding of "algorithm aversion" implies that a single poor AI recommendation can disproportionately damage consumers' willingness to use AI-driven shopping tools.

3. **Venkatesh, Thong, and Xu (2012)** extended the Unified Theory of Acceptance and Use of Technology to the consumer context (UTAUT2) by adding hedonic motivation, price value and habit to performance expectancy, effort expectancy, social influence and facilitating conditions. The model is widely used to explain consumers' acceptance of AI-enabled shopping technologies.

4. **Hiremath, Saikumari, and Vimala (2024)** examined the effect of AI-enabled personalisation on consumer purchase intentions among regular users of e-commerce platforms, using a structured questionnaire and correlation, regression and mediation analyses. They found a positive relationship between AI-enabled personalisation and purchase intention, significantly mediated by consumer trust and perceived relevance, indicating that personalisation works better when users find it trustworthy and relevant rather than intrusive.

5. **Tiwari (2024)** collected primary data from 410 active online shoppers in India, using income-based stratified random sampling, to examine the combined effects of trust, satisfaction and ethical concerns on consumers' responses to AI-based recommendations. The study applied reliability and validity testing, correlation and multiple regression analysis, and addressed the limited empirical evidence on how these factors jointly influence buying behaviour in the Indian digital market.

STATEMENT OF THE PROBLEM

Indian e-commerce platforms are investing heavily in AI-driven personalisation and assistance, yet the assumption that more personalisation produces more buying is not always borne out. E-commerce firms and policymakers face difficulty in understanding how AI-based recommendations and automated interaction influence consumers' buying decisions, when they build trust and when they provoke discomfort, particularly among consumers who are concerned about data use and algorithmic opacity. Existing research has concentrated on technology acceptance and on the technical performance of recommendation systems, while comparatively little evidence addresses how AI shapes consumer buying behaviour at the individual level in the Indian e-commerce setting. There is, therefore, a need to examine the relationship between AI and consumer buying behaviour in e-commerce in India.

SIGNIFICANCE OF THE STUDY

The study is significant because it explains how AI contributes to changes in the buying behaviour of Indian online consumers. It can help e-commerce firms design personalisation that consumers find relevant and trustworthy, assist regulators in framing data-protection and algorithmic-transparency expectations, and support researchers in understanding the evolving relationship between AI-enabled retail and consumer decision-making in India.

SCOPE OF THE STUDY

The study covers AI applications used by e-commerce platforms in India, with particular attention to personalised recommendations, targeted promotions and conversational assistance, and their influence on consumers' purchase intention and buying behaviour. It considers the influence of trust, perceived relevance, satisfaction and ethical concerns on these outcomes, using published empirical evidence and secondary information from academic and industry sources.

OBJECTIVE OF THE STUDY

To examine the relationship between artificial intelligence and consumer buying behaviour in e-commerce in India.

RESEARCH METHODOLOGY

The study adopted a descriptive and analytical research design based on the systematic examination of published empirical studies and secondary data from academic research, industry reports and credible e-commerce sources.

1. AI IN INDIAN E-COMMERCE: MARKET CONTEXT AND APPLICATIONS

AI operates in a market that is large, young and expanding. The Bain & Company and Flipkart report estimates that India's e-retail market has more than doubled over five years, that the shopper base reached 290-300 million in 2024, and that Gen Z accounted for 40-45% of e-retail shoppers and about half of incremental

orders in 2024 (Bain & Company & Flipkart, 2024). The 2024 edition of the report had recorded about 270 million online shoppers in 2024, up from 140 million in 2020 (Marketing4eCommerce, 2024). Growth is increasingly led by smaller towns and by younger shoppers, for whom discovery often begins in video and social feeds rather than in a search box.

In this setting, AI performs several functions: ranking and recommending products from browsing and purchase history, customising content and promotions, supporting search, and, more recently, enabling conversational shopping. The Bain and Flipkart report observes that conversational commerce powered by AI is still nascent but aligns closely with how Gen Z prefers to shop, which is guided, visual and instant (Outlook Business, 2024). The scale and youth of the market mean that even small changes in how consumers respond to AI can have large commercial effects.

2. PERSONALISATION, RECOMMENDATION AGENTS, AND PURCHASE DECISIONS

Research on recommendation agents supplies the foundation for understanding AI's influence on purchase decisions. Xiao and Benbasat (2007) concluded that recommendation agents can reduce consumers' decision effort and improve decision quality, which explains why consumers may welcome AI-assisted selection in categories with a large number of options. More recent Indian evidence points in the same direction. Hiremath et al. (2024) report a positive relationship between AI-enabled personalisation, such as customised content, targeted promotions and personalised recommendations, and consumers' purchase intentions.

Technology-acceptance research suggests why. In the UTAUT2 framework, habit, hedonic motivation and price value, along with usefulness and ease of use, determine consumers' intention to use technology (Venkatesh et al., 2012). AI recommendations deliver usefulness by saving search effort, hedonic value by surfacing interesting products, and habit by making each visit easier than the last. Personalisation therefore influences buying behaviour not only through the recommendations themselves but also through the repeated use of the platform that it encourages.

3. TRUST, PERCEIVED RELEVANCE, AND ALGORITHM AVERSION

The influence of AI on buying is not automatic. Hiremath et al. (2024) found that the effect of personalisation on purchase intention was significantly mediated by consumer trust and perceived relevance, indicating that AI-driven personalisation works better when users find it trustworthy and relevant rather than intrusive. The same mediating role of trust has been observed in other AI service contexts, such as banking chatbots, where trust explained a meaningful share of satisfaction and behavioural intention (Alagarsamy & Mehrolia, 2023).

Dietvorst et al. (2015) add an important caution. Their experiments showed that people who see an algorithm err become less willing to use it, even when it is more accurate than human judgement. For e-commerce, this implies that a conspicuously irrelevant recommendation, an incorrect AI-generated product answer or an obviously repetitive suggestion may reduce trust in the platform's AI as a whole, and not only in

that one recommendation. Trust and perceived relevance therefore operate as conditions that determine whether AI strengthens or weakens buying intention.

4. PRIVACY, ETHICAL CONCERNS, AND THE RESEARCH GAP

AI-driven shopping depends on large amounts of personal data, and consumers' concerns about privacy, algorithmic bias and opacity can erode trust. Tiwari (2024) specifically studies how trust, satisfaction and ethical concerns jointly influence responses to AI-based recommendations among 410 Indian online shoppers, in recognition that earlier research had not addressed these factors together in the Indian market. India's growth in digital commerce, with a large share of first-time online shoppers from smaller towns, makes this question particularly relevant, because many such consumers may be less familiar with how their data are used.

Much of the evidence reviewed here is based on cross-sectional questionnaires that measure intention rather than actual purchases, on samples drawn from particular cities or platform users, and on abstracts or short conference outputs whose methods are only partly reported (Hiremath et al., 2024; Tiwari, 2024). Evidence linking AI exposure to actual purchase data, comparing categories, or separating the effects of recommendation, search and conversational tools is scarce. The literature reviewed here therefore indicates that although the growth of AI in Indian e-commerce and the importance of trust and relevance are reasonably well established, systematic evidence on how AI shapes consumer buying behaviour at the individual level remains limited. This is the central gap that the present study seeks to address through its stated objective.

CONCLUSION

AI has become embedded in India's e-commerce market, which reached about US$65-66 billion in 2024 and serves nearly 300 million annual shoppers (Bain & Company & Flipkart, 2024). The study indicates that AI-enabled personalisation is positively associated with purchase intention, but that its influence depends on consumer trust and perceived relevance, and that consumers may withdraw trust quickly when algorithms err (Dietvorst et al., 2015; Hiremath et al., 2024). Indian evidence suggests that ethical concerns, satisfaction and data privacy are part of the same decision process, but that systematic research linking AI exposure to actual buying behaviour is still limited. E-commerce firms, regulators and researchers should therefore look beyond personalisation and engagement metrics to understand how AI shapes consumers' actual decisions, particularly as conversational commerce expands. Continuous monitoring and context-specific research remain essential for ensuring that AI in e-commerce supports informed and confident buying rather than merely more frequent buying.

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