

Effectiveness of Artificial Intelligence-Based Online Promotional Tools on Consumer Purchase Behaviour: A Study in Madurai City

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Abstract: Artificial Intelligence (AI) has emerged as an important technology in digital marketing, enabling businesses to provide personalized advertisements, product recommendations, AI-powered social media promotions, chatbots, and AI-generated promotional content. The present study, titled “Effectiveness of Artificial Intelligence-Based Online Promotional Tools on Consumer Purchase Behaviour: A Study in Madurai City,” aims to examine consumers’ perceptions towards AI-based online promotional activities and analyse their influence on consumer purchase behaviour. The study is based on both primary and secondary data, with primary data collected from 100 consumers through a structured questionnaire. The collected data were analysed using the Statistical Package for the Social Sciences (SPSS). The findings reveal that consumers have a high level of positive perception towards AI-based online promotional activities, with an overall mean score of 3.80. AI-based online advertisements providing relevant information recorded the highest mean score of 4.02, while trust in AI-based recommendations recorded the comparatively lower mean score of 3.54. Multiple regression analysis indicates that AI-based online promotional tools have a significant positive influence on consumer purchase behaviour, explaining 61.2% of the variation in purchase behaviour ($R^2 = 0.612$). Personalized advertisements emerged as the most influential promotional tool, followed by AI-based product recommendations and AI-powered social media promotions. The study concludes that effective and responsible use of AI-based promotional tools can enhance consumer engagement and influence purchase decisions. Businesses should therefore focus on personalization, transparency, data privacy, accuracy, and reliability while implementing AI-driven promotional strategies.

keywords: Artificial Intelligence, Online Promotional Tools, Digital Marketing, Consumer Purchase Behaviour, Personalized Advertising, AI-Based Product Recommendations, Consumer Engagement

Introduction

Artificial Intelligence (AI) has emerged as a transformative technology in the field of digital marketing, changing the way businesses communicate with customers and promote their products and services. AI-based online promotional tools enable marketers to analyze consumer data, understand preferences, personalize advertisements, recommend products, generate content, and interact with customers through intelligent chatbots. The increasing use of social media, search engines, e-commerce platforms, and other digital channels has created opportunities for businesses to use AI to deliver more targeted and timely promotional messages. These technologies can improve customer engagement by providing personalized content and recommendations based on individual browsing behaviour, purchase history, interests, and online activities.

Consumer purchase behaviour is increasingly influenced by the relevance, personalization, credibility, and convenience of online promotional messages. AI-powered promotional tools can potentially influence consumers by providing personalized advertisements, product recommendations, promotional content, and real-time customer assistance. However, consumers may also have concerns regarding privacy, data security, transparency, and the reliability of AI-generated promotional content. Therefore, understanding how effectively AI-based online promotional tools influence consumer purchase behaviour is important for marketers and

businesses. Against this background, the present study titled “Effectiveness of Artificial Intelligence-Based Online Promotional Tools on Consumer Purchase Behaviour: A Study in Madurai City” attempts to examine the effectiveness of AI-driven promotional activities and their influence on consumers' purchase behaviour in Madurai City.

Statement Of The Problem

The rapid growth of Artificial Intelligence (AI) has significantly transformed online promotional activities, enabling businesses to communicate with consumers through personalized advertisements, AI-powered product recommendations, chatbots, automated content generation, and targeted social media promotions. These AI-based promotional tools help businesses understand consumer preferences and deliver relevant promotional messages at the right time. However, the effectiveness of such tools depends on how consumers perceive their usefulness, personalization, accuracy, credibility, and convenience. Consumers may also have concerns relating to privacy, data security, excessive personalization, and the authenticity of AI-generated promotional content.

In Madurai City, consumers are increasingly exposed to AI-based promotional activities through social media platforms, search engines, e-commerce websites, and other digital channels. Despite the growing use of these technologies, there is a need to understand whether AI-based online promotional tools actually influence consumers' purchase behaviour. Differences in consumer awareness, trust, digital experience, and attitudes towards AI may affect their responses to such promotional tools. Therefore, the present study seeks to examine the effectiveness of Artificial Intelligence-based online promotional tools on consumer purchase behaviour in Madurai City, with particular emphasis on consumer perceptions, engagement, trust, and purchase-related responses towards AI-driven online promotions.

Review Of Literature

Rabby, Chimhundu, and Hassan (2021) examined the role of Artificial Intelligence in digital marketing and its influence on consumer behaviour. The study highlighted that AI enables marketers to collect and analyze large volumes of consumer data and use these insights to develop personalized digital marketing experiences. AI-based technologies were found to support customer journey tracking, personalization, and real-time decision-making. The authors emphasized that AI has considerable potential to transform digital marketing by improving the relevance and effectiveness of promotional activities.

Vlačić et al. (2021) reviewed the evolving role of Artificial Intelligence in marketing and discussed the growing application of intelligent systems in marketing activities. The study explained that AI can perform marketing-related activities in an intelligent manner and can contribute to customer analysis, targeting, personalization, and marketing decision-making. The review also indicated that the integration of AI with marketing is creating new opportunities for organizations to improve customer relationships and promotional effectiveness.

Kim et al. (2023) provided an extensive review of Artificial Intelligence in marketing and consumer behaviour research. The authors synthesized existing research and identified important issues concerning the application of AI to consumer-related activities. The study emphasized that AI can influence how consumers interact with brands, make decisions, and respond to marketing communications. It also highlighted the importance of examining consumer responses to AI-enabled marketing from behavioural and ethical perspectives.

Jain et al. (2024) conducted a hybrid review of research on AI and consumer behaviour by examining 107 articles. The study identified major themes including consumer acceptance and trust, interaction and engagement, attitudes, decision-making, and adoption. The authors observed that AI applications increasingly influence different stages of consumer decision-making and customer engagement. The study also suggested that future research should examine how AI-enabled marketing applications affect consumer attitudes, trust, and behavioural outcomes.

Ribeiro et al. (2025) conducted a systematic review of the impact of Artificial Intelligence on consumer behaviour towards brands. The study identified five major dimensions of the AI-consumer relationship: consumer experience, consumer relationships, online challenges, functionality, and autonomous purchasing. The findings indicated that convenience, effectiveness, trust, security, and personalization are important factors affecting consumer decisions and loyalty. The study further noted that AI can support marketing segmentation and prediction, allowing organizations to provide increasingly personalized experiences to consumers.

Morales-Muñoz (2026) examined the relationship between Artificial Intelligence and consumer behaviour in social media through a systematic literature review. The study noted that the rapid integration of AI and generative AI has transformed digital marketing, particularly social-media-based promotional activities. The research emphasized the importance of understanding how AI technologies influence consumer interactions, engagement, and behavioural responses in social media environments.

Nguyen and To (2026) investigated the impact of AI-driven personalization in digital advertising on consumers' online purchase intentions. The study examined perceived informativeness, relevance, personalization, and advertising credibility as factors influencing purchase intention. Based on the Technology Acceptance Model, the research demonstrates the growing importance of AI-enabled personalized advertising in shaping consumers' responses to online promotional messages. The study is particularly relevant to the present research because it directly connects AI-based promotional activities with online purchase intention.

Devi and Arumugam (2026) examined how AI-led campaign personalization influences consumers' intention to accept personalized digital marketing campaigns. The study integrated the Technology Acceptance Model and Value-Based Adoption Model to explain consumer acceptance. The findings demonstrate the relevance of perceived usefulness, value, and personalization in understanding consumers' responses to AI-led marketing campaigns. This study provides a useful theoretical basis for examining consumer acceptance of AI-based promotional tools. Devarapalli et al. (2024)

Research Gap

Although previous studies have established that Artificial Intelligence (AI) is increasingly transforming digital marketing through personalization, targeted advertising, product recommendations, chatbots, and AI-generated promotional content, limited attention has been given to assessing the effectiveness of different AI-based online promotional tools on consumer purchase behaviour. Most existing studies have focused on AI adoption, consumer trust, personalization, customer engagement, and purchase intention at broader national or international levels, while relatively few studies have examined the local consumer context. In particular, there is a lack of empirical evidence regarding how consumers in Madurai City perceive and respond to AI-based online promotional tools and whether factors such as personalization, usefulness, trust, relevance, and privacy concerns influence their purchase behaviour. Therefore, the present study attempts to fill this gap by examining the effectiveness of AI-based online promotional tools and their influence on consumer purchase behaviour in Madurai City

Objectives

- To examine consumers' perceptions towards AI-based online promotional activities in Madurai City.
- To analyse the influence of AI-based online promotional tools on consumer purchase behaviour.

Research Methodology

Data Collection And Sample

The study is based on both primary and secondary data. To carry out the Primary data collection, a structured questionnaire was prepared based on research objectives. Secondary data required for the study undertaken

were collected through Websites, Magazines, Journals, and the like. The primary data were collected from 100 respondents for the study. Sadiq et al. (2024)

Data Analysis

Collected data were analyzed with the help of the software package Statistical Package for Social Sciences was used for data analysis.

Scope Of The Study

The present study focuses on examining the effectiveness of Artificial Intelligence (AI)-based online promotional tools and their influence on consumer purchase behaviour in Madurai City. The study covers AI-enabled promotional activities such as personalized advertisements, AI-based product recommendations, chatbots, social media promotions, targeted online advertisements, and AI-generated promotional content. It examines consumers' awareness, usage, perceptions, trust, perceived usefulness, relevance, personalization, and engagement towards these promotional tools and their relationship with purchase behaviour. The study is confined to consumers residing in Madurai City who have exposure to online promotional activities through digital platforms such as social media, e-commerce websites, search engines, and other online channels. The findings are expected to provide useful insights for marketers and businesses to understand consumer responses to AI-driven promotions and develop more effective, personalized, and consumer-oriented online promotional strategies. Jose and Navdeep (2024)

Data Analysis And Interpretation

Table No 1 Consumers' Perceptions Towards Ai-Based Online Promotional Activities

S. No.	Statements	Mean	S.D.	Level
1	AI-based online advertisements provide relevant information about products and services.	4.02	0.78	High
2	Personalized advertisements based on my interests attract my attention.	3.91	0.86	High
3	AI-based product recommendations help me identify suitable products.	3.88	0.89	High
4	AI-powered promotional content is more convenient than traditional online promotions.	3.84	0.91	High
5	AI-based promotions provide offers and information at the right time.	3.79	0.94	High
6	I find AI-generated promotional content engaging and interesting.	3.76	0.96	High
7	AI chatbots provide useful assistance when I am considering a purchase.	3.68	1.01	High
8	I trust AI-based recommendations when making online purchase decisions.	3.54	1.05	High
9	AI-based promotional activities influence my willingness to purchase products online.	3.72	0.98	High
10	Overall, AI-based online promotional tools are effective in influencing my purchase behaviour.	3.85	0.87	High

	Overall Mean	3.80	0.92	High
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The table No 1 indicates that consumers in Madurai City have a high level of positive perception towards AI-based online promotional activities, with an overall mean score of 3.80. Among the various statements, the highest mean score of 4.02 is recorded for the perception that AI-based online advertisements provide relevant product and service information. This indicates that consumers appreciate the relevance and usefulness of AI-driven promotional messages. Personalized advertisements also received a high mean score of 3.91, suggesting that consumers respond positively when promotional content is tailored to their interests. AI-based product recommendations and the convenience of AI-powered promotions also received relatively high scores of 3.88 and 3.84, respectively. However, trust in AI-based recommendations recorded the comparatively lower mean score of 3.54, indicating that although consumers generally have a favourable perception of AI promotions, some may still have reservations regarding the reliability and credibility of AI-generated recommendations. Overall, the findings suggest that relevance, personalization, convenience, and engagement contribute positively to consumers' perceptions of AI-based online promotional activities, which may subsequently influence their purchase behaviour.

Table No 2 Influence Of Ai-Based Online Promotional Tools On Consumer Purchase Behaviour

AI-Based Promotional Tools	Beta (β)	t-value	Sig.
Personalized Advertisements	0.286	5.842	0.000
AI-Based Product Recommendations	0.241	4.936	0.000
AI-Powered Social Media Promotions	0.198	4.105	0.000
AI Chatbots	0.154	3.216	0.001
AI-Generated Promotional Content	0.127	2.684	0.008
R²	0.612		0.000
Adjusted R²	0.607		
F-value	140.326		

The table no 2 shows that AI-based online promotional tools have a significant positive influence on consumer purchase behaviour. The model explains 61.2% ($R^2 = 0.612$) of the variation in consumer purchase behaviour, indicating that the selected AI-based promotional tools collectively have a substantial influence. The overall regression model is statistically significant ($F = 140.326$, $p < 0.001$). Among the individual promotional tools, personalized advertisements have the strongest influence ($\beta = 0.286$, $p < 0.001$), followed by AI-based product recommendations ($\beta = 0.241$, $p < 0.001$) and AI-powered social media promotions ($\beta = 0.198$, $p < 0.001$). AI chatbots ($\beta = 0.154$, $p = 0.001$) and AI-generated promotional content ($\beta = 0.127$, $p = 0.008$) also show significant positive influences. Therefore, the findings indicate that AI-based online promotional tools significantly influence consumer purchase behaviour, with personalized advertisements emerging as the most influential tool among the variables considered.

Suggestions

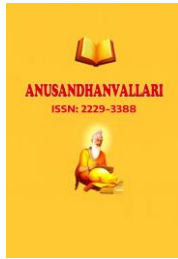
- Businesses should make greater use of AI-powered personalization to provide consumers with product recommendations, advertisements, and promotional content based on their interests, browsing behaviour, and previous purchases. This can improve consumer engagement and increase the effectiveness of online promotions.
- Marketers should clearly communicate when AI is being used in advertisements, recommendations, or chatbots and ensure responsible handling of consumer data. Strong privacy protection, transparency, and reliable information can help reduce consumers' concerns and increase their trust in AI-based promotional activities.
- Businesses should regularly evaluate the accuracy, usefulness, and quality of AI-generated promotional content. AI chatbots, recommendations, and advertisements should provide clear, updated, and relevant information so that consumers can make informed purchase decisions and develop positive attitudes towards AI-based promotions.

Conclusion

Artificial Intelligence (AI)-based online promotional tools are becoming an important component of modern digital marketing and have a considerable influence on consumer purchase behaviour. Consumers in Madurai City generally have a positive perception towards AI-driven promotional activities, particularly personalized advertisements, AI-based product recommendations, social media promotions, chatbots, and AI-generated promotional content. The findings indicate that consumers value the relevance, convenience, personalization, and usefulness provided by AI-based promotions. The regression analysis further reveals that AI-based online promotional tools have a significant positive influence on consumer purchase behaviour, with personalized advertisements emerging as the most influential promotional tool. However, comparatively lower trust in AI-based recommendations indicates the need for greater transparency, accuracy, and data privacy. Overall, effective use of AI technologies can help businesses provide personalized and engaging promotional experiences, strengthen consumer relationships, and encourage purchase decisions. Therefore, businesses should adopt AI-based promotional strategies responsibly while maintaining consumer trust, privacy, and transparency to achieve sustainable effectiveness in the digital marketplace.

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