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A Study of Impact Caused by the Use of AI on Social Media Marketing and Consumer Buying Behaviour

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Abstract: *This research delves into the transformative impact of Artificial Intelligence (AI) on social media marketing strategies and consumer behavior. Through a quantitative study involving 221 social media users, the research investigates the significant influence of AI on both social media marketing and consumer buying behavior. Likert-scale-based questionnaires unveiled the perceptible impact of AI integration in personalizing social media experiences and shaping consumer purchase considerations. The findings indicate a substantial correlation between AI-driven features on social media platforms and users' perceptions, preferences, and purchasing inclinations. Moreover, statistical analyses confirm a significant impact of AI on both social media marketing strategies and consumer behavior, paving the way for more nuanced and targeted marketing approaches in the digital landscape..*

Keywords: Artificial Intelligence, Social Media Marketing, Consumer Behavior, AI Integration, Personalization, Marketing Strategies

I. INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative force across diverse domains, revolutionizing industries through its disruptive capabilities. In recent years, the integration of AI in social media marketing has garnered substantial attention due to its profound implications for understanding consumer behavior and enhancing marketing strategies. This study embarks upon a comprehensive exploration of the multifaceted impact of AI deployment within social media platforms, particularly focusing on its influence on consumer buying behavior. The landscape of social media platforms has witnessed an unprecedented evolution, with platforms like Facebook, Instagram, Twitter, and LinkedIn serving as integral components of modern communication and consumer engagement. Simultaneously, the exponential growth of AI technologies has facilitated marketers in leveraging data-driven insights and automation tools to tailor their marketing strategies to the preferences and behaviors of their target audience. This synergy between AI and social media marketing has unlocked new dimensions for understanding consumer behavior and reshaping marketing dynamics.

One of the primary areas where AI has revolutionized social media marketing is through the personalization of content and user experiences. AI-powered algorithms meticulously analyze vast volumes of user-generated data, enabling marketers to craft highly targeted and personalized content that resonates with the individual preferences and interests of consumers. By deciphering patterns from user interactions, AI algorithms adeptly predict consumer behavior, facilitating the delivery of tailored marketing messages at the right time and through the most effective channels.

Moreover, the utilization of AI-driven chatbots and virtual assistants has redefined customer interactions on social media platforms. These intelligent systems provide instantaneous and personalized responses to consumer queries,

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thereby enhancing user engagement and fostering brand loyalty. The seamless integration of AI technologies in communication channels has not only streamlined customer service but also offered valuable insights into consumer sentiment and preferences through sentiment analysis tools. The impact of AI extends beyond content personalization and user engagement to significantly influencing consumer decision-making processes. By analyzing historical data and real-time interactions, AI algorithms can predict consumer preferences, purchasing patterns, and even potential buying decisions. Consequently, marketers can optimize their strategies, ranging from product recommendations to targeted advertisements, to align with the anticipated behavior of consumers, thereby increasing the likelihood of conversion.

However, while the integration of AI in social media marketing demonstrates tremendous potential, ethical considerations and privacy concerns loom large. The collection and analysis of vast amounts of user data raise pertinent questions about data privacy, consent, and the potential manipulation of consumer behavior through hyper-personalized marketing tactics. By scrutinizing the interplay between AI, social media marketing strategies, and consumer behavior, this study aims to provide invaluable insights into this burgeoning intersection, shedding light on its implications for businesses, consumers, and the broader societal landscape. In conclusion, the fusion of AI and social media marketing heralds a new era of personalized and data-driven marketing strategies, shaping consumer behavior and redefining the dynamics of digital commerce. This study seeks to navigate this evolving landscape, unraveling the complexities and implications of this symbiotic relationship between AI, social media, and consumer behavior.

Review of Literature

Khatri (2021) delves into the transformative role of artificial intelligence (AI) in digital marketing and its profound impact on consumer behavior. The study underscores the fusion of AI with digital marketing strategies, emphasizing its capacity to comprehend evolving trends and consumer preferences, thereby enabling firms to efficiently target the right audience at the right time. Highlighting the versatility of AI applications, particularly in the realms of Big Data analysis, machine learning, and sector-specific customer insights, the report elucidates how AI amalgamation in digital marketing revolutionizes the understanding of customer needs, subsequently bolstering sales and revenue generation. With statistics showcasing India's substantial user base on social media platforms like Facebook and Instagram, coupled with the burgeoning smartphone industry adding to the middle-income consumer segment, the report underscores the evolving landscape wherein marketers adapt their strategies and business portfolios to align with the dynamic market offerings. Despite outlining the benefits, the report also sheds light on the challenges posed by AI in digital marketing, along with identifying relevant tools and technologies imperative for effective AI implementation. This literature review bridges the understanding of AI's impact on consumer behavior within the context of social media marketing, setting the stage for an in-depth exploration of AI's influence on consumer purchasing behavior and marketing strategies in the digital sphere.

Arasu, Seelan, and Thamaraiselvan (2020) underscore the significance of social media (SM) as a pivotal channel for marketers, businesses, and consumers alike. Recognizing the importance of understanding consumer behavior and purchase preferences for sustained revenue growth and customer engagement, the paper emphasizes the necessity of extracting data related to purchase intentions and desires through data mining techniques. The study aims to explore social media data analytics through machine learning tools, specifically employing the Waikato Environment for Knowledge Analysis (WEKA). In this pursuit, WEKA is evaluated against other algorithms, demonstrating superior performance in crucial parameters like precision, recall, and F-measure, signifying its efficacy in predicting buying decisions when compared to its counterparts. This research contributes to the discourse on leveraging machine learning for social media marketing strategy development, highlighting WEKA's prowess in analyzing SM data to comprehend consumer behavior and tailor marketing strategies effectively. This empirical study serves as a relevant foundation for investigating the impact of machine learning-based social media analytics on consumer behavior within the framework of AI's influence on social media marketing strategies and consumer purchasing behavior.

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Kian, Boon, Lian Fong, and Jian Ai (2017) explore the evolving landscape of social media platforms, delineating their rapid growth and emergence as conduits for communication and commerce, giving rise to the concept of social commerce. Focusing on understanding the factors influencing consumer purchase intentions within these social media websites, the study aims to fill a gap in literature predominantly centered on E-commerce. The research model posits that perceived ease of use, perceived usefulness, social influences, trust, and perceived enjoyment significantly impact consumer purchase intentions in social media websites, with potential variations based on demographic characteristics. Employing online questionnaires and various data analyses including reliability tests, descriptive tests, t-tests, One-Way ANOVA, and Multiple Linear Regression, the study empirically validates the influence of perceived ease of use, perceived usefulness, social influences, trust, and perceived enjoyment on consumer purchase intentions in social media websites. Additionally, it corroborates the existence of differences in consumer purchase intentions across Malaysian consumers with varying demographic profiles. This empirical study contributes valuable insights into the nuanced determinants shaping consumer purchase intentions within the realm of social media websites, establishing a foundation for understanding consumer behavior in the context of AI's impact on social media marketing strategies and consumer buying behavior.

Satpathy and Patnaik (2019) delve into the realm of social media as a platform for sharing opinions and engaging in discussions, emphasizing its integration with consumer marketing and brand management, thereby influencing consumer purchasing behavior and attitudes. Highlighting the significant attention garnered by platforms like Facebook and YouTube in the past decade, the paper underscores the pivotal role of social media in shaping prospective customers' purchasing behavior, prompting companies to establish their own social media presence for seamless customer information dissemination. The primary focus lies in elucidating the potential advantages linked to the application of machine learning techniques, particularly employing a Neuro-Fuzzy system capable of processing information amidst uncertainty to facilitate better decision-making in virtual retail system parameters. Furthermore, the paper explores the broad-ranging impact of social media on various sectors such as business, education, society, and the youth, highlighting its multifaceted influence on society at large. This analysis contributes to understanding the intricate interplay between social media marketing, consumer purchasing behavior, and the application of machine learning techniques, setting the stage for exploring the implications of AI on social media marketing strategies and consumer behavior in greater depth.

Bag et al. (2022) delve into understanding the impact of digital artificial intelligence (AI) technologies on user engagement and conversion, particularly within the context of increased online activities and sales in India's current landscape. The research aims to uncover the role played by these technologies amidst societal changes triggered by the COVID-19 pandemic, such as social distancing and lockdowns, which have significantly altered communication paradigms at individual and organizational levels. The study also investigates whether a gratifying online shopping experience translates into repurchase intentions. Conducting primary data collection from consumers in a developing economy like India, the researchers test a theoretical model to contribute to the ongoing theoretical discourse in consumer research. Empirical findings indicate a positive association between the deployment of AI technologies and user engagement, leading to increased conversion rates. Furthermore, the study establishes a link between conversion and a satisfying user experience, highlighting the significant relationship between a fulfilling user experience and repurchase intentions. This empirical exploration sheds light on the critical role of AI technologies in shaping user engagement, conversion, and subsequent consumer behavior within the digital landscape, offering insights pertinent to the impact of AI on social media marketing strategies and consumer buying behavior.

Dwivedi et al. (2021) encapsulate the transformative impact of the internet and social media on consumer behavior and organizational practices. They highlight the substantial opportunities afforded to organizations through social and digital marketing, including cost reduction, heightened brand visibility, and increased sales. However, the article also underscores prevalent challenges arising from negative electronic word-of-mouth and intrusive online brand presence, noting the potential drawbacks amid the myriad advantages. Drawing from insights of leading experts, the article presents a comprehensive narrative encompassing various facets of digital and social media marketing. These

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encompass key aspects such as artificial intelligence, augmented reality marketing, digital content management, mobile marketing and advertising, B2B marketing, electronic word of mouth, and ethical considerations. Notably, the research provides valuable insights for both researchers and practitioners by delineating limitations in current research, identifying research gaps, and formulating questions and propositions aimed at advancing knowledge within the domain of digital and social marketing. This study offers a timely and substantial contribution to understanding the multifaceted landscape of digital and social media marketing, shedding light on both challenges and opportunities within the field and paving the way for further scholarly exploration.

Gkikas and Theodoridis (2022) provide a comprehensive exploration of the transformative role of Artificial Intelligence (AI) in consumer behavior within the rapidly evolving landscape of e-commerce. Acknowledging the profound changes brought about by the internet revolution, the authors emphasize the challenges faced by marketers in processing vast volumes of data generated daily, leading to the emergence of big data analytics and the integration of AI with predictive analytics, machine learning, and data mining solutions. AI, recognized as a sophisticated tool for data analysis and decision-making, has significantly influenced the implementation of marketing strategies. The authors highlight AI's capability to process massive data and enhance prediction accuracy, serving as a valuable asset for business executives. Within the marketing context, AI has proven instrumental in predicting consumer behavior, aiding brands in their pursuit of customer satisfaction, market share definition, and the identification of customer needs. The chapter delineates the application of various AI branches, including machine learning, natural language processing, expert systems, voice, vision, planning, and robotics, to optimize marketing strategies and stay ahead of competition. The business objectives outlined encompass attracting new customers, predicting consumer behavior, personalization, and demand prediction through "smart" systems, ultimately enhancing sales, mitigating decision-making risks, and elevating customer satisfaction, loyalty, and sales predictions. This chapter serves as a valuable resource mapping the stages of AI's contribution to consumer behavior, offering insights into essential marketing milestones and shedding light on the evolving landscape of AI in shaping consumer interactions within the realm of e-commerce.

The case study by Biswas and Patra (2021) delves into the transformative impact of Artificial Intelligence (AI) on marketers' capabilities in analyzing and understanding consumer behavior. Emphasizing the significance of studying online consumer behavior for enhancing marketing effectiveness, the study highlights AI as a potential solution amidst the overwhelming volume of available data and concerns regarding data breaches. AI technologies such as image recognition and chatbots are cited as powerful tools that can analyze vast amounts of data to detect patterns and improve interactions with consumers. Leveraging AI talent is deemed crucial for businesses to stay competitive, enabling them to illuminate every stage of the customer journey and gain deeper insights into consumer behavior. When effectively utilized, AI holds the potential to enhance outcomes, including increased client lifetime value and stronger client relationships. Marketing teams can harness AI's capabilities to decipher extensive data, identify target markets, craft user-centered sales funnels, and optimize marketing strategies accordingly, ultimately driving higher traffic and improving conversion rates. The study underscores AI's transformative role in reshaping our perceptions and understanding of marketing, showcasing its pivotal role in revolutionizing marketing strategies and consumer insights.

Haleem, Javaid, Qadri, Singh, and Suman (2022) present a literature-based study highlighting the expansive potential of Artificial Intelligence (AI) in marketing. They underscore AI's role in enhancing data management capabilities, leveraging diverse information sources, and developing sophisticated algorithms, consequently revolutionizing brand-user interactions. The application of AI is emphasized as contingent upon website nature and business type, enabling marketers to pivot towards real-time customer-centric approaches. AI facilitates swift identification of content targeting and channel utilization through algorithm-generated data, enhancing user comfort and inclination towards purchases through personalized experiences. Additionally, AI tools aid in competitor campaign analysis and reveal customer expectations. The paper specifically delves into Machine Learning (ML) as a subset of AI, enabling computers to interpret data without explicit programming, thereby enhancing problem-solving efficiency and continuously improving accuracy with increased data input. The study's methodology involves identifying relevant articles on AI in marketing from various platforms like Scopus, Google Scholar, and ResearchGate, followed by theme development

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based on the collected literature. The paper aims to comprehensively review AI's role in marketing, scrutinize its specific applications across various marketing segments, and assess its transformative impact on the marketing landscape. Finally, the study identifies and analyzes critical AI applications within the marketing domain, offering valuable insights into the evolving role of AI in reshaping marketing strategies and sectors.

Gochhait et al. (2020) highlight the evolution of consumer behavior influenced by technological advancements, particularly in the era of Industry 4.0. They note the shift from traditional buying mediums to contemporary practices, wherein consumers engage in extensive research before making purchasing decisions. This includes visiting product websites, comparing specifications, participating in chat forums, seeking expert opinions, and attending related webinars. The authors emphasize the complexity faced by retailers due to this pre-buying research, highlighting the necessity for retailers to adapt beyond human intelligence and salesmanship to thrive in a competitive environment. They stress that customer satisfaction remains a crucial factor for retailers, and the integration of AI emerges as a solution to comprehend and predict consumer behavior patterns and trends in e-commerce effectively. The research aims to elucidate the role of AI in understanding e-commerce customer behavior, particularly in enhancing sales through personalized marketing across multiple devices. The authors advocate for AI's potential to streamline processes, eliminate redundancies, automate tasks, and facilitate conversational trade, thereby augmenting the overall customer experience and driving sales for e-commerce companies. This study showcases the pivotal role of AI in transforming e-commerce dynamics by leveraging analytics to decipher complex behavioral patterns and enable more personalized, efficient, and effective marketing strategies.

The comprehensive review of literature provides a nuanced understanding of the transformative impact of Artificial Intelligence (AI) within the realm of digital marketing, social media, and consumer behavior. The amalgamation of AI with digital marketing strategies stands out as a pivotal force, revolutionizing consumer behavior analysis, and reshaping marketing approaches across various sectors. The studies underscore AI's multifaceted applications, particularly in Big Data analysis, machine learning, and predictive analytics, showcasing its capacity to comprehend evolving consumer preferences and market trends. India's burgeoning social media user base and the smartphone industry's rapid growth serve as significant indicators of the evolving landscape, prompting marketers to adapt strategies to cater to these dynamic markets.

Furthermore, the empirical studies delve into the empirical validation of AI's impact, showcasing its effectiveness in predicting consumer behavior, influencing purchase intentions within social media websites, and enhancing user engagement and conversion rates. However, amidst the evident benefits, challenges in AI implementation in digital marketing emerge as a recurring theme, indicating a need for further exploration and refinement.

The synthesis of these studies delineates a critical research gap that necessitates a deeper investigation into the nuanced interplay between AI, social media marketing strategies, and consumer behavior, specifically within the context of e-commerce and the digital sphere. While existing research sheds light on the efficacy and transformative potential of AI, there remains a need for comprehensive studies exploring the intricacies of AI's implementation, its impact on diverse consumer segments, and the evolving nature of consumer decision-making within the digital landscape. Additionally, examining the ethical implications and potential biases associated with AI-driven marketing strategies presents an avenue for further exploration.

In essence, the review illuminates the transformative role of AI in reshaping consumer behavior and marketing paradigms, yet it also emphasizes the need for more in-depth investigations to bridge the existing research gap and pave the way for more refined, ethical, and effective AI-driven marketing strategies tailored to the evolving needs of the digital consumer.

Objectives

- To study the impact of the use of AI in social media marketing.
- To study the impact of the use of AI on consumer buying behaviour.

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Hypotheses

- H1: There is a significant impact of the use of AI on social media marketing.
- H2: There is a significant impact of the use of AI on consumer buying behaviour.

Research Methodology

The research employed a quantitative methodology to investigate the impact of AI utilization on both social media marketing and consumer buying behaviour. Data collection involved structured surveys distributed among a diverse sample of 221 participants, encompassing social media users and consumers across various demographics. The survey questionnaire was designed to gauge perceptions, behaviours, and experiences concerning AI-integrated social media marketing strategies and their influence on purchasing decisions. Statistical analyses were conducted to analyze the collected data retrospectively. These analyses aimed to ascertain the extent and significance of the impact of AI utilization on both social media marketing effectiveness (H1) and subsequent consumer buying behaviour (H2). The study meticulously utilized historical data and statistical tools to infer and establish the observed impacts of AI integration in social media marketing and its subsequent influence on consumer behaviour.

Data Analysis

Table 1. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30 years	22	10.0	10.0	10.0
	30-40 years	125	56.6	56.6	66.5
	40-50 years	39	17.6	17.6	84.2
	50-60 years	24	10.9	10.9	95.0
	Above 60 years	11	5.0	5.0	100.0
	Total	221	100.0	100.0	

Table 1 showcases the age distribution of the respondents participating in the study. The majority of respondents fall within the age range of 30-40 years, comprising 56.6% of the sample, followed by individuals aged 40-50 years, accounting for 17.6%. Those aged 18-30 years represent 10%, while respondents aged 50-60 years constitute 10.9% of the sample. A smaller percentage, 5%, belongs to the above 60 years category. The table reveals a notable concentration of participants in the 30-40 and 40-50 age brackets, comprising a combined total of 74.2% of the surveyed population. The distribution reflects a relatively balanced spread across various age groups, with the highest representation from middle-aged individuals between 30 to 50 years old.

Table 2. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	129	58.4	58.4	58.4
	Female	92	41.6	41.6	100.0
	Total	221	100.0	100.0	

Table 2 outlines the gender distribution among the respondents engaged in the study. The data reveals a higher representation of males, constituting 58.4% of the surveyed population, compared to females, who account for 41.6%. This distribution showcases a slight prevalence of male participants within the research sample, with a notable difference of approximately 17 percentage points between male and female representation.

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Table 3. Impact on social media marketing

	Firmly Disagree		Disagree		Neutral		Agree		Firmly Agree	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
I feel that my social media experience is more personalized due to certain features available.	15	6.8%	15	6.8%	12	5.4%	50	22.6%	129	58.4%
There are aspects of social media that seem tailored to my preferences.	26	11.8%	22	10.0%	6	2.7%	50	22.6%	117	52.9%
I notice that certain content on social media platforms seems relevant to my interests.	22	10.0%	18	8.1%	8	3.6%	43	19.5%	130	58.8%
Social media features sometimes seem to predict what I might like or need.	21	9.5%	14	6.3%	10	4.5%	53	24.0%	123	55.7%
I find that some content or ads on social media platforms resonate with my tastes or needs.	16	7.2%	18	8.1%	11	5.0%	38	17.2%	138	62.4%

The data in Table 3 reflects the respondents' perceptions regarding the impact of social media on their individual experiences. A substantial majority, comprising 58.4%, firmly agreed that their social media encounters felt more personalized due to specific features available, indicating a prevailing sense of tailored experiences. Additionally, over half of the participants (52.9%) indicated agreement or strong agreement with the notion that certain aspects of social media seemed tailored to their preferences, suggesting a perceived customization in their online interactions. Moreover, a significant percentage (58.8%) observed that certain content on social media platforms appeared relevant to their interests, hinting at the platforms' effectiveness in aligning with users' preferences. Additionally, a considerable proportion (55.7%) acknowledged social media features seemingly predicting their preferences or needs, showcasing the platforms' attempts at predictive personalization. Finally, an overwhelming majority (62.4%) affirmed that some content or ads on these platforms resonated with their tastes or requirements, indicating a significant level of perceived relevance and personal connection within the social media landscape.

Table 4. Impact on consumer buying behaviour

	Firmly Disagree		Disagree		Neutral		Agree		Firmly Agree	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
I sometimes discover products or services through social media recommendations that catch my interest.	26	11.8%	16	7.2%	14	6.3%	66	29.9%	99	44.8%
I find myself considering items suggested to me while browsing social media platforms.	25	11.3%	17	7.7%	9	4.1%	41	18.6%	129	58.4%
There are instances where social media influences my thoughts about certain products or services.	14	6.3%	30	13.6%	17	7.7%	69	31.2%	91	41.2%
I often find AI-assisted information about products or services influencing my buying inclinations.	23	10.4%	16	7.2%	15	6.8%	57	25.8%	110	49.8%
I notice that AI-based marketing strategies sometimes affect my purchase considerations.	17	7.7%	20	9.0%	14	6.3%	34	15.4%	136	61.5%

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Table 4 presents insights into how social media and AI impact consumer buying behavior as perceived by the respondents. A significant proportion (44.8%) firmly agreed that they occasionally discover products or services through social media recommendations that catch their interest, indicating the role of these platforms as discovery channels for potential purchases. Moreover, a substantial majority (58.4%) affirmed finding themselves considering items suggested while browsing social media platforms, underscoring the influence of these platforms on their contemplation of products. Additionally, a notable 41.2% mentioned instances where social media influenced their thoughts about certain products or services, emphasizing the persuasive impact of these platforms on consumer perceptions. Furthermore, almost half of the participants (49.8%) acknowledged AI-assisted information influencing their buying inclinations, demonstrating the relevance of AI-driven content in shaping consumer choices. Finally, a significant majority (61.5%) noticed AI-based marketing strategies affecting their purchase considerations, suggesting the significance of AI in impacting consumer behavior within the digital sphere.

H1: There is a significant impact of the use of AI on social media marketing.

Table 5. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
I feel that my social media experience is more personalized due to certain features available.	14.488	220	.000	1.19005	1.0282	1.3519
There are aspects of social media that seem tailored to my preferences.	9.939	220	.000	.95023	.7618	1.1387
I notice that certain content on social media platforms seems relevant to my interests.	11.931	220	.000	1.09050	.9104	1.2706
Social media features sometimes seem to predict what I might like or need.	12.507	220	.000	1.09955	.9263	1.2728
I find that some content or ads on social media platforms resonate with my tastes or needs.	13.948	220	.000	1.19457	1.0258	1.3634

The analysis conducted using a one-sample test aimed to evaluate the impact of AI on social media marketing concerning various statements related to users' experiences and perceptions. The hypothesis (H1) posits a significant impact of AI on social media marketing. The results consistently indicate substantial deviations from the test value of 3 across all statements, demonstrating statistical significance ($p < 0.001$) and supporting the hypothesis.

Participants expressed strong agreement that their social media experiences are more personalized due to specific available features. The mean difference of approximately 1.19 significantly exceeds the test value, indicating a profound sense of tailored experiences, implying AI's role in customization. Additionally, respondents noted that aspects of social media appear tailored to their preferences, showing a mean difference of around 0.95, significantly higher than the set value, suggesting AI-driven customization aligned with users' tastes.

Moreover, users observed that certain content on social media aligns with their interests, with a mean difference of approximately 1.09, significantly surpassing the test value. This finding supports the notion that AI plays a crucial role in predicting and delivering relevant content to users based on their interests. Furthermore, participants perceived social media features as predictive of their likes or needs, with a mean difference of about 1.10, significantly deviating from the test value, signifying the effectiveness of AI-powered predictive algorithms.

Lastly, users indicated that content or ads on social media resonated with their tastes or needs, with a mean difference of roughly 1.19, significantly higher than the set value. This finding reinforces the idea that AI-driven content or advertisements are tailored to users' preferences, strengthening engagement and resonance within the social media

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landscape. Overall, these significant differences in user perceptions across all statements affirm the substantial impact of AI on enhancing personalization, relevance, and predictive capabilities within social media marketing strategies, supporting the hypothesis (H1).

H2: There is a significant impact of the use of AI on consumer buying behaviour.

Table 6. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
I sometimes discover products or services through social media recommendations that catch my interest.	9.679	220	.000	.88688	.7063	1.0675
I find myself considering items suggested to me while browsing social media platforms.	11.157	220	.000	1.04977	.8643	1.2352
There are instances where social media influences my thoughts about certain products or services.	10.286	220	.000	.87330	.7060	1.0406
I often find AI-assisted information about products or services influencing my buying inclinations.	10.782	220	.000	.97285	.7950	1.1507
I notice that AI-based marketing strategies sometimes affect my purchase considerations.	12.921	220	.000	1.14027	.9663	1.3142

The analysis conducted through a one-sample test aimed to investigate the influence of AI on consumer buying behavior concerning various statements related to users' experiences and inclinations. The hypothesis (H2) suggests a significant impact of AI on consumer buying behavior. Across all statements, the results consistently indicate substantial deviations from the test value of 3, demonstrating statistical significance ($p < 0.001$) and affirming the hypothesis.

Participants expressed agreement that they occasionally discover products or services through social media recommendations that pique their interest. The mean difference of approximately 0.89 significantly surpasses the test value, implying that AI-driven recommendations on social media significantly impact users' product discovery and interest.

Moreover, respondents indicated that they consider items suggested while browsing social media platforms, with a mean difference of about 1.05, significantly exceeding the set value. This finding suggests that AI-based suggestions influence users' considerations, potentially affecting their purchasing decisions.

Additionally, users acknowledged instances where social media influences their thoughts about certain products or services, with a mean difference of approximately 0.87, significantly higher than the test value. This result indicates that AI-driven content or strategies on social media play a role in shaping users' perceptions and thoughts regarding products or services.

Furthermore, participants noted that AI-assisted information about products or services often influences their buying inclinations, with a mean difference of around 0.97, significantly deviating from the test value. This finding implies that AI-based information significantly impacts users' tendencies and decisions related to purchasing.

Lastly, users indicated that AI-based marketing strategies sometimes affect their purchase considerations, with a mean difference of roughly 1.14, significantly higher than the set value. This result suggests that AI-driven marketing strategies wield a considerable influence on users' considerations and decisions when making purchases.

Overall, these significant differences in user perceptions across all statements affirm the substantial impact of AI on influencing consumer buying behavior within the social media environment, supporting the hypothesis (H2).

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Findings

The findings from the one-sample test reveal substantial and statistically significant impacts of AI on both social media marketing and consumer buying behavior. Regarding social media marketing (H1), users strongly indicated that their experiences on social media platforms were significantly enhanced by AI-driven features. Statements revolving around personalized experiences, tailored content, and predictive features garnered overwhelming agreement, with mean differences ranging from approximately 1.09 to 1.19, significantly exceeding the test value of 3. These findings underscore the pivotal role of AI in shaping users' experiences on social media, highlighting its ability to personalize content and predict user preferences effectively. The results signify that AI integration has notably improved the tailored nature of social media content, catering to individual preferences and significantly impacting the overall user experience.

In terms of consumer buying behavior (H2), the findings exhibit a profound influence of AI on users' purchasing inclinations within the social media landscape. Users acknowledged being influenced by AI-powered recommendations, with mean differences ranging from around 0.89 to 1.14, significantly surpassing the test value. These results emphasize the substantial impact of AI-driven suggestions and marketing strategies on users' product discovery, considerations, and purchase inclinations while browsing social media platforms. The findings affirm that AI-driven content, suggestions, and marketing techniques wield significant influence over users' thoughts, considerations, and eventual purchasing decisions, reflecting the substantial role of AI in steering consumer behaviors within the realm of social media.

Together, these findings suggest that AI plays a pivotal role in not only enhancing the user experience on social media but also in significantly shaping and influencing consumer buying behavior within the digital landscape. The robust agreement among users regarding the impact of AI on social media marketing strategies and subsequent consumer behaviors underlines the transformative potential and efficacy of AI-driven approaches in effectively engaging and influencing users' preferences and purchasing decisions in the digital sphere.

II. CONCLUSION

The conclusive findings underscore the undeniable impact of AI integration in reshaping both social media marketing strategies and consumer behavior. These results hold profound implications for businesses navigating the digital landscape. For marketers, understanding the significant influence of AI on social media platforms implies a strategic imperative to leverage AI-driven tools and algorithms to curate personalized content, predict user preferences, and enhance user experiences. Crafting tailored marketing campaigns that resonate with individual preferences and leveraging AI for precise targeting could yield higher engagement and conversion rates, fostering more meaningful connections between brands and consumers.

Furthermore, the observed influence of AI on consumer buying behavior within social media platforms unveils opportunities for businesses to optimize their marketing strategies. Embracing AI-powered recommendations and personalized approaches could enhance user trust, drive purchase considerations, and potentially lead to increased sales. This necessitates a paradigm shift in how businesses strategize and implement marketing efforts, focusing on creating seamless, AI-driven interactions that align with users' preferences and behaviors. The implications extend beyond mere marketing; they delve into the realms of user trust, satisfaction, and ultimately, long-term customer relationships.

Future research avenues beckon toward exploring the intricate dynamics of AI integration deeper into social media marketing and consumer behavior. Investigating the nuances of AI algorithms, their efficacy in different social media contexts, and their influence on varied consumer demographics could yield insights into tailored marketing strategies. Additionally, delving into the ethical implications of AI-driven personalization and the potential risks associated with over-reliance on algorithmic suggestions merits scholarly attention. Understanding the interplay between AI, user privacy concerns, and the ethical boundaries of personalized marketing in the digital sphere stands as a pivotal area for future exploration, shaping responsible and effective AI-driven marketing practices.

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