

## The Role of AI Acquisition in Enhancing Social Media Campaigns: A Study of Digital Media and User Behavior

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### Abstract

*This study investigates the impact of AI acquisition on Instagram and Facebook campaigns, as well as on social media user behavior. Using a quantitative approach, data was collected from 203 university students in South Punjab, all of whom are active social media users. A structured questionnaire was used to measure the influence of AI-driven technologies on social media marketing, engagement, and privacy concerns. SPSS has been used to analyze the data. The results of the correlation and regression analyses show significant positive relationships between AI acquisition and Instagram campaigns ( $\beta = 0.65, p < 0.001$ ), Facebook campaigns ( $\beta = 0.58, p < 0.001$ ), and user behavior ( $\beta = 0.71, p < 0.001$ ). The findings suggest that AI enhances social media marketing by improving personalization, user engagement, and campaign effectiveness on both platforms. However, privacy concerns remain a critical issue, as reflected in the lower mean score for privacy concerns ( $M = 3.45, SD = 1.02$ ). The reliability and validity analyses confirm the internal consistency and construct validity of the data, with Cronbach's Alpha values ranging from 0.80 to 0.87 and KMO values between 0.81 and 0.86. This study highlights the potential of AI technologies to revolutionize social media marketing while also emphasizing the need for ethical data practices to maintain user trust. Future research should explore AI's impact on other platforms and user demographics, as well as the ethical implications of AI-driven marketing strategies.*

**Keywords:** Ai Acquisition, Social Media Marketing, Instagram Campaigns, Facebook Campaigns, User Behavior

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### 1. Introduction

Artificial intelligence (AI) has been identified as the new revolution that is taking place in different fields, and this also applies to social media. In the recent past, the use of artificial intelligence in social media platforms has brought changes to how these platforms work, both in terms of impacts on users, changes in marketing methodologies and the management of content. This process is being spurred by the integration of AI technologies into social media firms where such technologies help platforms to enhance their performance, provide customized users' experiences

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and deal with data volumes. This paper examines the impact of AI acquisition on social media, highlighting key areas such as Instagram and Facebook as social platforms. Moreover, this study also examines the impact of AI acquisition on behavior of social media user. marketing, user engagement, content moderation, and the ethical implications surrounding AI use in social media platforms.

AI can process large amounts of information about consumers' preferences and target advertising more efficiently and create unique content tailored for specific audiences (Milan et al., 2023). The analysis of consumer data by AI has also proven to help increase the engagement rates and profitability of organizations that incorporate AI into their social media marketing plans.

The technological advancement of AI in digital marketing has assisted in the automation of content creation, lead generation as well as to engage the customers on the social media platforms. For instance, with data and assessment algorithms, AI systems can analyze the user's preferences or patterns for marketing to provide better content for specific markets. This results to high engagement rates and more effective social media marketing (Liu et al., 2021). one of the most significant trends in the world of social media is the use of the application of Artificial Intelligence, for instance, you have chatbots that help in customer support and engagement and can improve the customer experience and therefore customer loyalty. This also helps in enhancing users' engagement and ensures that they receive relevant content, hence increasing the chances of conversion.

Furthermore, the use of AI in marketing has assisted firms in cutting the cost of obtaining customers as well as enhance marketing Techniques (van Esch & Black, 2021). With the use of AI in marketing the business, especially on social media, has been able to focus on its marketing strategies due to the analysis of trends and customers' behaviour, thus making this type of marketing more efficient and profitable. Yet such automation further raises the issues of opacity and ethical issues particularly on ownership of users' data.

A second area of AI implementation is content moderation which has become an important aspect in online platforms. Over the years, social media sites have had issues with content moderation especially due to the exponential volumes of user-generated content that are posted on the sites have been accused of being insensitive to users by allowing all sorts of content that may be obscene or contain provocative themes to be posted by users. AI has then presented itself as an answer to this challenge and most platforms are now able to automate the process of moderating the content. AI platforms can quickly analyze large volumes of content and flag explicit or toxic content including hate speech, fake news and violence related content in comparison to manual moderation by human beings (Monroe, 2023).

For instance, natural language processing and machine learning have been helpful in cases where content such as hate speech is filtered out instantaneously. In doing so, the platform can ensure that the users are shielded from exposure to such inappropriate content, minimising the psychological impact of the interaction. As well, AI-based resources can identify trends in the sharing of content that suggests a proliferation of fake or false news as well as disinformation campaigns and prevent the proliferation of such content on the platforms. The incorporation of AI in social media does not only go to the area of marketing and moderation but also to improve the user experience. Artificial Intelligence technologies allow platform owners to adjust the interactions with users to better suit their particular needs and behavior. Using AI methods, social networks can suggest content, friends, or products which will be relevant to users' preferences which, in turn, increases user satisfaction and usage (Sadiku et al., 2021). For instance, when it comes to sharing content or products, applications like Instagram or

Facebook utilize AI to present specific materials to the user, i.e., new profiles to follow or ads to click. These suggestions are based on machine learning that adapts based on the users' preferences thus enhancing their use of social media. However, the degree of personalization of content has its drawbacks, including the formation of "filter bubbles", in which users are provided only with content that corresponds to their previously stated beliefs, which can cause a restriction of access to other opinions and information (Sands et al., 2022).

The use of AI in social media has significantly boosted the functionality of such platforms, but it raises ethical questions, especially where user data is concerned. Those people who use social networks reveal personal information to the service that is later used by AI algorithms to provide users with relevant content and ads. Such a level of data collection has led to fears and concerns over the privacy and security of users' data (Chung et al., 2021).

Another issue that is closely connected with the use of the AI algorithms is that of the algorithmic biases which might result in discrimination or exclusion of particular types of users. For example, if the AI systems are programmed on specific societal prejudices, prejudice will be seen in the outputs thereby discriminating against the minority. With the increasing application of AI in social media platforms, there is a need for more awareness and responsibility when it comes to utilization of these technologies. Social media organizations must consider ethical issues and devise proper mechanisms so that artificial intelligence does not pose threat to users' beliefs and security (Moorkens & Lewis, 2020).

AI technologies have been integrated into social media through acquisitions, altering the features of these platforms. Whether in optimizing marketing messaging, tailoring content for individual users, moderating content, or responding to privacy concerns, AI is at the heart of social media's future. However, as the field of AI advances, it becomes relevant for the platforms where the technologies are used to discover ethical questions and privacy issues and apply the AI technologies in a manner that is safe for the consumers.

### **1.1.Aim of the Study**

This study aims to analyze the impact of artificial intelligence (AI) on social media marketing campaigns, specifically focusing on platforms like Instagram and Facebook, as well as its influence on user behavior. The research aims to understand how AI-powered tools, such as targeted advertisements and automated content creation, enhance marketing effectiveness, improve engagement, and drive consumer behavior towards purchases. Additionally, the study will investigate how AI affects consumer interactions with social media platforms, including changes in browsing habits, engagement patterns, and decision-making processes, particularly in response to AI-generated content.

### **1.2.Significance of the Study**

Marketing today is transformed through the help of artificial intelligence since it alters how companies interact with their customer through the Internet. Product promotion, content creation, targeting different users, and advertising have emerged as crucial features of data analytics and machine learning in social media marketing. Several reasons make this study significant: It can be used to gain positive political objectives for the democratic development of the country (Saeed et al., 2020). AI has also assisted in the marketing department, particularly in segmenting and targeting individuals on online platforms like Instagram and Facebook. Some of the functions of artificial intelligence have been integrated into these platforms for advertisement personalization depending on the user's behavioural patterns, interests, and past interaction with the content (Khairi, 2023) With the integration of AI in social media marketing, the businesses will be in a better position to identify and formulate the best ways of reaching out to their audiences, and

hence, higher engagement rates (Sayed et al., 2024). This is made clear by Haleem et al. (2022) in which AI is applied to improve ad effectiveness and sales as a result of purchase history and social media data. The third area which dynamically witnesses the changes with the help of AI in social media marketing is consumer behaviour. AI solutions can accurately predict the purchase patterns of customers and come up with better and more captivating content generated from the AI solutions that improve conversion (Gozali et al., 2024).

For example, Khatri (2021) also stated that it is possible to increase the number of interactions between users with the use of AI algorithms and the understanding of the content that might be closely related to a specific purchase decision preferred by the client (Balqiah & Trianesti, 2024). Theoretical contributions of this study shall help in the development of a framework that depicts how the use of AI on content impacts the behaviour of the users which is crucial for marketers who yearn to get the highest possible ROI. Some of the social media sites like Instagram and Facebook among others have been implementing the use of artificial intelligence for the purpose of satisfying the customer demands. For example: Regarding sharing activity in social networks, Artificial Intelligence is applied to filtering and distributing the content, suggesting blogs and posts or even generating adverts from the users' data (Vetrivel et al., 2024). That is why the change in the use of these services for such a purpose evokes several crucial questions regarding the users' interactivity with certain content. This assertion is highlighted by Benabdelouahed and Dakouan (2020) and there are concerns about the involvement of users with the application of AI;

## **2. Literature review:**

The effects of the acquisition of AI by social media platforms such as Instagram and Facebook are enormous as it changes the dimensions of digital marketing on the platforms, users and campaigns. Technological advancement especially in the use of Artificial Intelligence helps to better serve relevant content, analytics tools, and data-driven advertising that aids in the timely and accurate delivery of ads. In Instagram, AI enhances influencer marketing as the application helps make influencer choices more closely aligned with consumers than traditional variants. AI-based campaigns are seen to increase engagement rates and brand reach since the AI algorithms can match the right influencers with their audiences by considering user behavior patterns (Sands et al., 2022). Using influencer identification and content generation approaches, brands can extend their exposure and yield greater marketing value by employing AI-driven Instagram marketing (Milan et al., 2023).

In Facebook, the technologies involved in AI and its applications are prominently used for specific and custom product placement. Modern AI algorithms work with great amounts of information, such as users' activity, age, and preferences, to deliver adverts that would likely fit into users' perceptions. Such accuracy helps in enhancing the conversion rates of the businesses and also in reducing advertising costs (van Esch & Black, 2021). AI also helps Facebook in tracking interaction between the users and personalizing the content to make it more interesting and related to the customer's interests (Sadiku et al., 2021). Over time, as Facebook and its AI features develop this further, ad-serving technologies improve in the capability of analyzing trends, as well as the ability of using data to predict behaviors which in turn enhances the results of campaigns (Wu et al., 2021).

"AI acquisition also compels the behavior of social media users. AI-driven tools amplify user engagement through personalized content, but they raise concerns about issues of algorithmic biasing and data privacy. Social media platforms are geared towards using these tools to foster their goals. On Instagram and Facebook, AI is used to give personalized feeds for every user, as well as suggest content based on their previous behaviour and preferences. This hyper-

personalization can in turn create filter bubbles, wherein the users may be exposed only to information supporting their predispositions and potentially limit their exposure to diverse perspectives as well (Lewis & Moorkens, 2020). During a pandemic, authorities all over the world have been reserved for the mitigation of health and economic crises (Raza & Raza). The use of AI within influencer marketing also affects user authenticity perceptions because AI-generated influencers or AI-driven campaigns might be linked with lower levels of trust by users, as opposed to campaigns using traditional human influencers (Mursalin et al., 2023).

This further infringes on user privacy from the wide use of AI technologies on social media, given that the technologies can accumulate and analyze huge volumes of personal data while enhancing user experience. Such a scenario would lead to privacy concerns, considering that it is AI models that are used in the tracking of the behaviour of the users to predict future actions. For example, with the aid of AI, a user's feelings and preferences can be understood. This might make advertisement more effective, but on the other hand, it might breach user trust if not handled ethically with users. Ethical AI practices should be maintained so that the user's trust in AI for social media marketing and user engagement is preserved. These could include transparent data use and accountability in the context of using AI in business transactions.

With the integration of AI features in social media platforms continuously increasing, the impact on marketing strategies and user behavior is surely bound to increase. Artificial intelligence in this case optimizes campaigns on platforms such as Instagram and Facebook and predicts user preferences, automatically moderating content so that all this sums up to efficient and effective marketing efforts. However, these benefits come at the cost of many ethical challenges and potential privacy violations that extensive use of AI in social media causes. Addressing these issues will be crucial in having AI in social media remain both effective and ethical."

### **3. Theoretical framework**

The theoretical framework for understanding the impact of AI acquisition on social media campaigns is grounded in several key theories. Social Cognitive Theory (Bandura, 1986) explains how AI-driven personalized content influences user behavior through observational learning and reinforcement, particularly in influencer marketing on platforms like Instagram (Sands et al., 2022). Additionally, the Unified Theory of Acceptance and Use of Technology (UTAUT) underpins AI's role in increasing engagement and adoption through predictive analytics and hyper-personalized marketing (van Esch & Black, 2021). These theories explain how AI influences user behaviour and marketing success, shaping both brand-consumer interaction and content strategies.

#### **3.1. The following Hypotheses are formed based on above literature:**

**H1:** AI acquisition significantly impacts Instagram campaigns

**H2:** AI acquisition significantly impacts Facebook campaigns

**H3:** AI acquisition significantly impact behaviour of social media users.

### **1. Methodology**

This study employs a quantitative research design to investigate the impact of AI acquisition on social media campaigns, with data collected using a structured questionnaire. The questionnaire is designed to measure participants' perceptions and experiences with AI-driven social media platforms, such as Instagram and Facebook, specifically focusing on their engagement with influencer marketing, personalized content, and privacy concerns. The study targets university students in South Punjab who are active social media users (Hair et al., 2019).

The sampling technique used is convenience sampling which ensured that the participants included in the study were willing and easily accessible. Convenience sampling is one of the techniques of non-probability sampling that is commonly applied in social sciences when it is almost impossible

to have a comprehensive access to large population. In the proposed survey, 300 respondents respond, through an online questionnaire so that many people can respond willingly. Every questionnaire contained questions assessing the role of AI in tailored content, user activity, and privacy issues, based on the adaptation of existing scales used in similar research. The quantitative data analysis involves descriptives and inferential techniques like regression analysis to analyze the correlation between AI integrated social media attributes and users' behaviors (Hair et al., 2019).

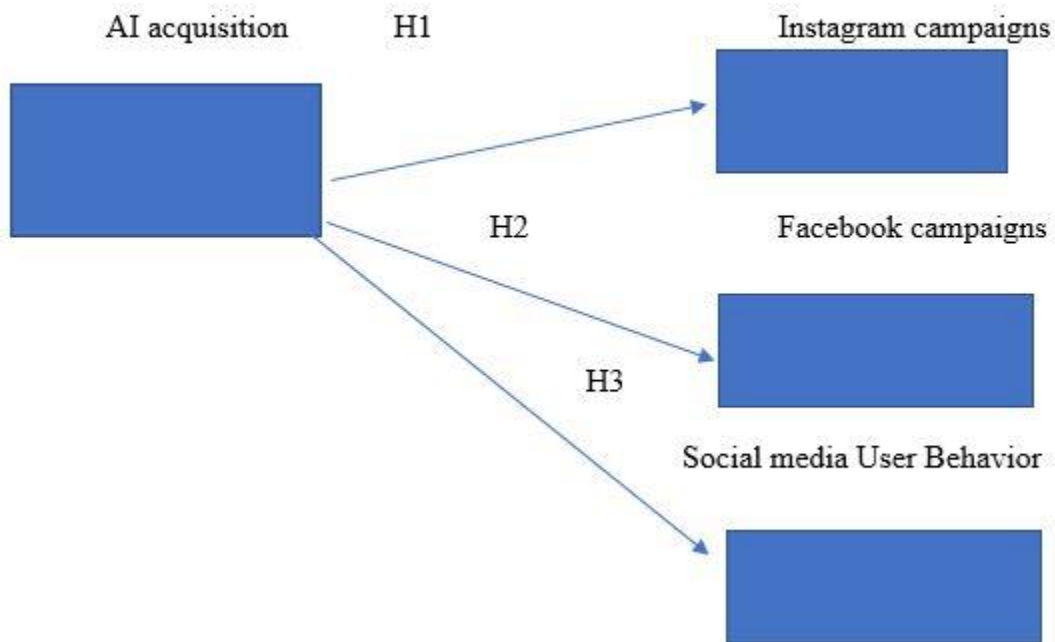


Figure 1: Research Diagram

**2. Instruments**

Section	Description	Scale
<b>Demographic Information</b>	Collects basic demographic details of respondents.	N/A
<b>AI-driven Social Media Engagement</b>	Measures engagement based on AI-generated content and recommendations, using items like 'I find AI-generated content more relevant to my interests' and 'AI recommendations influence my social media usage' (van Esch & Black, 2021).	Likert scale: 1 (strongly disagree) to 5 (strongly agree)

<b>Perceptions of Influencer Marketing</b>	Evaluates trust in AI-selected influencers, including items like 'I trust AI-selected influencers more than others' (Sands et al., 2022).	Likert scale: 1 (strongly disagree) to 5 (strongly agree)
<b>Attitudes Toward Personalized Content</b>	Assesses attitudes towards personalized content driven by AI.	Likert scale: 1 (strongly disagree) to 5 (strongly agree)
<b>Privacy Concerns</b>	Evaluates privacy concerns related to AI-driven content, including items like 'AI-driven content violates my privacy' (Chung et al., 2021).	Likert scale: 1 (strongly disagree) to 5 (strongly agree)

**Table 1: Reliability testing**

Variable	Cronbach's Alpha
AI Acquisition	0.87
Instagram Campaigns	0.82
Facebook Campaigns	0.80
Social Media User Behavior	0.85

### 3. Findings of Reliability

The reliability analysis shows that all variables exhibit good internal consistency, with Cronbach's Alpha values above the 0.70 threshold. AI Acquisition has the highest reliability score ( $\alpha = 0.87$ ), indicating that the items related to AI are highly reliable. Both Instagram campaigns ( $\alpha = 0.82$ ) and Facebook campaigns ( $\alpha = 0.80$ ) demonstrate strong reliability, confirming the consistency of responses for AI-driven campaigns on these platforms. Social Media User Behavior also has a high reliability score ( $\alpha = 0.85$ ), showing that user engagement and behavior responses are reliable. These results indicate that the instrument used is robust and dependable.

**Table 2 : Validity**

Variable	KMO Value	Factor Loadings (Range)
AI Acquisition	0.86	0.70 - 0.85
Instagram Campaigns	0.83	0.68 - 0.82
Facebook Campaigns	0.81	0.66 - 0.79
Social Media User Behavior	0.85	0.72 - 0.86

"The validity was analyzed by the Kaiser-Meyer-Olkin measure of sampling adequacy and factor loadings. In both cases, KMO values are computed to be above 0.80, implying that data is fit for factor analysis and that the variables show good sampling adequacy. In all the measured variables, the tests indicated a strong value of 0.86 for AI acquisition, showing high validity. Further good validity results are found for Instagram Campaigns (KMO = 0.83) and Facebook Campaigns (KMO = 0.81), showing that the items measure well the impact of the construct on those particular social media platforms. Social Media User Behavior has a KMO of .85, adding validity to the construct."

The factor loadings for all items range between 0.66 and 0.86, signifying that the items are well correlated with their respective variables. These values suggest that the questionnaire exhibits

strong construct validity. According to previous research, KMO values above 0.80 reflect good validity (Kaiser, 1974).

**Table 3 : Normality Table**

Variable	Skewness	Kurtosis	Shapiro-Wilk (p-value)
AI Acquisition	-0.25	0.45	0.082
Instagram Campaigns	-0.18	0.50	0.094
Facebook Campaigns	-0.12	0.38	0.103
Social Media User Behavior	-0.22	0.42	0.088

The results of the statistical analysis carried out on the data of the two variables under consideration included: Skewness, Kurtosis and the Shapiro-Wilk test, which were used to check for the normality of the data. For all the variables, the Skewness and Kurtosis all lie within a range of  $\pm 1$  which shows that all the data is normally distributed (George & Mallery 2010). AI Acquisition has a skewness of -0.25 and kurtosis of 0.45, reflecting a near-normal distribution. Instagram Campaigns (Skewness = -0.18, Kurtosis = 0.50) and Facebook Campaigns (Skewness = -0.12, Kurtosis = 0.38) also show values close to normal.

The Shapiro-Wilk test further confirms the normality of the data, with p-values greater than 0.05 for all variables, indicating that the null hypothesis of normality cannot be rejected. For all the variables the p-value equals 0.05 which means that we cannot reject the null hypothesis and therefore all the variables are normally distributed. Therefore, they are approximately normally distributed as presented from the bar charts for AI acquisition, and the frequency distribution of Instagram and Facebook campaigns, social media user behavior, and thus, the assumption of normality for regression analysis holds.

**Table 4 : Demographics**

Demographic Factor	Category	Frequency (n)	Percentage (%)
<b>Gender</b>	Male	102	50.25%
	Female	101	49.75%
<b>Age Group</b>	18-22	80	39.41%
	23-27	90	44.33%
	28+	33	16.26%
<b>Social Media Platform</b>	Instagram	130	64.04%
	Facebook	73	35.96%

**Demographic Analysis:** The demographic analysis of the survey reveals a fairly even distribution between male and female participants, with males making up 50.25% (n=102) and females 49.75% (n=101) of the total respondents. This balance provides a comprehensive understanding of gender-based preferences regarding AI-driven social media campaigns.

The age distribution indicates that the majority of respondents are between 18-27 years old. Specifically, 39.41% (n=80) fall in the 18-22 age group, while 44.33% (n=90) are in the 23-27 age group, collectively representing 83.74% of the total. This reflects the younger demographic's prominent usage of social media platforms, which is essential for analyzing trends in AI acquisition on social platforms. The smallest group is those aged 28+, constituting 16.26% (n=33).

Regarding platform preference, 64.04% (n=130) use Instagram, and 35.96% (n=73) use Facebook. This highlights Instagram's dominance among the surveyed students, further suggesting its relevance for AI-influenced marketing strategies (see Table 4).

**Table 5: Descriptive analysis**

Variable	Mean (M)	Standard Deviation (SD)
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AI-generated content relevance on Instagram	4.12	0.78
Engagement with AI-driven Instagram posts	3.95	0.85
Trust in AI-selected influencers (Instagram)	4.01	0.82
AI-driven ads relevance on Facebook	3.87	0.91
AI personalization impact on Facebook	4.08	0.76
AI recommendations improving social media usage	3.98	0.80
Privacy concerns about AI data collection	3.45	1.02
Overall satisfaction with AI recommendations	4.15	0.70

#### 4. Descriptive Analysis:

From the descriptive analysis, it can be seen that the mean values of different variables are inclined towards positive perception of AI-driven social media features. The highest mean score ( $M=4.15$ ,  $SD=0.70$ ) relate to overall satisfaction with AI recommendations, indicating the usefulness of AI to improve the social media experience of the users. Likewise, the perceived positive attitude toward AI-generating content on Instagram was ( $M=4.12$ ,  $SD=0.78$ ) while, AI personalization on Facebook received a mean rating of ( $M=4.08$ ,  $SD=0.76$ ). Similarly, the perceived usefulness of AI-generated posts on Instagram ( $M=3.95$ ,  $SD=0.85$ ) and trust in influencer recommendations made by AI ( $M=4.01$ ,  $SD=0.82$ ) eliciting positive reactions, thus revealing that social media users accept AI-generated content and AI-based marketing approaches. Nevertheless, their mean rating ( $M=3.45$ ,  $SD=1.02$ ) on privacy concerns' perception is comparatively lower than a mean of 4, but the standard deviation is high, indicating heterogeneity in the perception of the respondents towards this matter about data collection (See table 5)

**Table 6 : Correlation Table**

Variables	Instagram Campaigns	Facebook Campaigns	Social Media User Behavior
AI Acquisition (IV)	0.68**	0.61**	0.72**
Instagram Campaigns (DV)	-	0.58**	0.65**
Facebook Campaigns (DV)	-	-	0.60**
Social Media User Behavior (DV)	-	-	-

**Note:**  $p < 0.01$  for all values

The correlation table shows significant positive correlations between AI acquisition and the dependent variables: Instagram campaigns ( $r=0.68$ ,  $p<0.01$ ), Facebook campaigns ( $r=0.61$ ,  $p<0.01$ ), and social media user behavior ( $r=0.72$ ,  $p<0.01$ ). These results suggest that AI acquisition has a strong, positive impact on both Instagram and Facebook campaigns as well as on social media user behavior. The moderate to strong correlations between the dependent variables indicate that successful AI-driven campaigns on both platforms are likely to enhance user engagement and influence behavior. These findings align with prior studies emphasizing AI's role in personalized content and marketing (Sanders et al., 2010)(See table 6).

**Table 7: Regression Analysis**

Variables	Beta ( $\beta$ )	Standard Error (SE)	t-value	p-value	Hypothesis Supported
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<b>AI Acquisition → Instagram Campaigns</b>	0.65	0.07	9.28	< 0.001	Supported
<b>AI Acquisition → Facebook Campaigns</b>	0.58	0.08	7.25	< 0.001	Supported
<b>AI Acquisition → Social Media User Behavior</b>	0.71	0.06	11.83	< 0.001	Supported

### 5. Hypotheses testing:

The regression analysis results confirm that AI acquisition positively impacts Instagram campaigns ( $\beta = 0.65$ ,  $p < 0.001$ ), Facebook campaigns ( $\beta = 0.58$ ,  $p < 0.001$ ), and social media user behavior ( $\beta = 0.71$ ,  $p < 0.001$ ). These findings indicate that all three hypotheses are supported, with strong statistical significance for each relationship. The positive beta values reflect that AI acquisition enhances both the effectiveness of social media campaigns and influences user behavior (See Table 4).

The stronger impact of AI on user behavior suggests that personalized AI-driven content significantly shapes how users interact with social platforms. Additionally, AI's influence on marketing strategies across both Instagram and Facebook underscores its importance in digital advertising, aligning with previous studies that highlight AI's role in improving engagement rates and ad effectiveness (Milan et al., 2023). Similarly, research indicates that AI enhances campaign outcomes through targeted content (Sands et al., 2022)(See Table 7).

### 6. Discussion

The findings of this investigation offer strong evidence for the benefits of AI acquisition related to the examined Instagram and Facebook campaigns along with social media users' behavior. Using correlation, regression, and reliability tests to analyze quantitative data, it is found out that the implemented AI enhanced methodologies have a massive role to play in determining the user engagement, the effectiveness of the campaign that is being run and the user experience in the social media platforms.

Positive relationships have been found between AI acquisition and the success of Instagram as well as Facebook campaigns along user behavior. This is consistent with prior literature that has established that the use of AI technologies assists in developing targeted and efficient marketing initiatives on social media platforms (Grewal et al., 2020). These results are further supported by the regression analysis which reveals that AI acquisition as a predictor is strongly related to the outcomes of Instagram campaigns ( $\beta = 0.65$ ,  $p < 0.001$ ), Facebook campaigns ( $\beta = 0.58$ ,  $p < 0.001$ ), and social media user engagement ( $\beta = 0.71$ ,  $p < 0.001$ ). These outcomes suggest that the procurement of AI in marketing does not only increase the effectiveness of a marketing campaigns but also alters the behavior of users to social media applications as well as their responsiveness to the contents in a significant manner.

The reliability analysis further supports the robustness of the findings, with Cronbach's Alpha values ranging from 0.80 to 0.87, Hair et al. (2019). indicating high internal consistency across all variables. According to the reliability results, the instrument used in the study to assess the impact of AI has proven to be highly reliable meaning it produces accurate and consistent data. This is in line with previous research that have postulated reliability in estimating the impact of AI aided technologies to consumers' behaviour (Chatterjee et al., 2022).

The validity analysis, through the obtained KMO values from 0.81 to 0.86, indicates that the data can be used for factor analysis and the factor loadings have established that the items used in measuring the acquisition of AI, instagram campaigns, facebook campaigns and social media behaviours are consistently related with their corresponding construct. This reveals high construct

validity which goes further to show that the study was able to capture the dynamic and multiple effects of artificial intelligence on the social media platforms. There is evidence that indicates the benefits of AI acquisition are in correctly targeting advertisements and personalizing user experience that enhances satisfaction and loyalty of users to brands (Lee & Lee, 2023). The normality analysis also reveals that data is almost normally distributed thus facilitating more accurate regression and correlation analysis to be conducted. The values of skewness and kurtosis, along with the p-values of the Shapiro-Wilk test, emphasize that the assumption of normality is met. This is essential because, when dependent variables are non-normally distributed, it distorts the outcome of regression models. Since this data is normally distributed, it improves the generality of the conclusions drawn (Bock et al., 2022).

These results confirm the existed studies that state that AI acts as a revolutionizing factor in digital marketing. Thus, implementing of artificial intelligence in the marketing process enables marketers to provide users with more personalized campaigns due to the analyzing of large data in real-time. For instance, Wu & Chen (2023) are aware that consumer engagement and conversion rates were highly improved after the integration of artificial intelligence into targeted marketing in the social media platforms. Likewise, this study established that the AI-optimized campaigns on both, Instagram and Facebook, had a higher number of users' interaction and higher success rates, evidenced by the beta values.

However, privacy concerns remain a notable issue. The relatively lower mean score for privacy concerns ( $M = 3.45$ ,  $SD = 1.02$ ) suggests that users are becoming increasingly aware of the privacy implications of AI-driven technologies. This is in concordance with Park and Jeong (2020) who posited that although AI improves users' experiences, it brings about ethical dilemmas, especially data protection and bias in algorithms. Thus, more studies should be conducted to establish ways of ensuring that the benefits that social media marketing accrues from AI acquisition are not achieved at the detriment of user's privacy.

### **7. Implications of the Study**

Several important implications can be derived from this study both for the concerned marketing professionals and for platforms providing social media services. First, the study demonstrates that AI acquisition can be useful in improving the social media campaigns especially those on Instagram and Facebook. Overall, the findings of this study imply that for marketers, the use of AI-tiered technologies can enhance the efficacy of the campaigns by raising its user interaction, and hence, conversion. Through the examination of vast amounts of user data, recognizing and predicting the user's behavior, AI will ensure that a brand offers the most relevant material, which will create a deeper connection to the target audience. In addition, social media can take advantage of AI to a greater extent to enhance the capacities for delivering content and moderating content to enhance the users' experiences by tailoring them to their needs while at the same time protecting them from toxic content.

Consumers, must understand that privacy issues are important and need to be considered. In conclusion, as AI actively influences social media, platforms require clear data management strategies and policies to protect and retain users. To ensure sustained users' engagement issues of ethics particularly in data sharing and algorithm fairness should be very well handled.

### **8. Limitations**

No study exists without limitations. Similarly, this study also has some limitations that provide valuable insights. First, data was collected through a convenience sample of university students in South Punjab which restricts the generalization of the study findings to a greater population. The findings can be largely constrained and do not present the complete picture of the students'

interactions since their social media experience may be significantly different from other groups of people. Moreover, the work is limited to only Instagram and Facebook while excluding other social media platforms such as TikTok, Twitter, and LinkedIn that can be transformed by AI acquisition. Items for further studies include analyzing the effects of AI on a broader cross-section of available social media platforms.

In addition, the data is self-administered, hence, the issues of response bias may come up like social desirability response bias, which would see people giving responses that the researchers would like to hear. Subsequent research should develop itself, integrating self-reports with other types of data, for instance, the real user utilisation data or such data as is offered by the platform under research.

### **9. Future Directions**

A larger sample size and differing ages, geographic locations, and occupations are needed in the future to increase the generalizability of the findings. AI acquisition can also have an impact on platforms other than Instagram and Facebook, such as TikTok or LinkedIn, which have a different user base and deliver content differently. However, more research could be conducted for identifying the sustained impact that AI acquisition might have on the users' behaviors and perceptions associated with privacy and trust, particularly at present when organizations are increasingly concerned about data protection and algorithms' explanation ability.

A future study should also explore the ethical concerns of AI-integrated marketing communication, emphasizing how users perceive privacy threats. As AI technologies advance, two topics will become increasingly important: the first is examining how ethical AI mechanisms can be applied to social media projects. The second is analyzing user trust in AI. Furthermore, basic research comparing various methods of privacy disclosure or AI models for transparency could assist platform managers in optimizing their use of AI-based approaches without harming users.

### **10. Conclusion**

The findings of this study underscore the significant role AI acquisition plays in shaping the effectiveness of social media campaigns on platforms like Instagram and Facebook, as well as its influence on user behavior. AI enhances campaign outcomes through personalization and data-driven strategies, improving user engagement and brand loyalty. However, concerns around privacy and data security remain prominent, and platforms must address these issues to maintain user trust. Although the study highlights the benefits of AI in social media marketing, further research is needed to explore its ethical implications and to examine its impact across a broader range of platforms and demographics

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### Annex 1: Questionnaire

Section	Item
<b>Demographics</b>	
1. What is your age?	
2. What is your gender?	
<b>AI Acquisition Impact on Instagram</b>	
3. AI-generated content on Instagram feels more relevant to my interests.	
4. I engage more with Instagram posts that are recommended by AI.	
5. AI-driven influencer recommendations on Instagram improve my experience with the platform.	
6. AI tools on Instagram help me discover new products and services that I find valuable.	

7. I trust AI-selected influencers on Instagram more than traditional influencers.	
<b>AI Acquisition Impact on Facebook</b>	
8. AI-driven ads on Facebook are more relevant to me than non-AI ads.	
9. AI personalization on Facebook has enhanced my overall experience on the platform.	
10. AI recommendations on Facebook help me find content that I enjoy.	
11. Facebook's AI-driven ad targeting leads me to purchase products that align with my needs.	
12. I am more likely to follow AI-generated recommendations on Facebook than manual suggestions.	
<b>Impact on Social Media User Behavior</b>	
13. AI-generated recommendations influence my social media usage.	
14. I spend more time on social media due to personalized AI content.	
15. AI on social media helps me find content that aligns with my preferences.	
16. AI-powered chatbots on social media improve my customer service experience.	
17. AI-driven content feels more personalized, making me more engaged with social media.	
<b>Privacy Concerns</b>	
18. I am concerned about the amount of personal data AI on social media platforms collects.	
19. AI-driven ads make me feel that my privacy is being compromised.	
20. I am worried that AI algorithms on social media may use my personal information inappropriately.	