Role of Generative Artificial Intelligence (AI) in Social Media Engagement and Brand Loyalty: An Empirical Study

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Abstract

The present research work aims to study how generative artificial intelligence (ai) increases social media engagement and brand loyalty by producing highly personalised content and ads, towards offering instant customer support, and studying data to predict trends and understand customer opinions. Using generative ai helps build lasting growth and a stronger connection with customers, from creating personalised suggestions to developing interesting loyalty programs. This powerful technology is not just a passing trend but a major shift that helps brands build stronger and more meaningful connections with their audiences. From the creation of personalised suggestions to developing interesting loyalty programs, the use of generative ai helps build lasting growth and stronger connections with customers. Genai tools track social media activity in real time to spot new trends, helping brands respond quickly and produce timely content that grabs users' attention. The present study will help us understand how brands create deeper emotional bonds through personalised experiences, building trust and encouraging customers to return. Generative artificial intelligence, or genai, studies user data to deliver highly customised ads, content, and product suggestions that match each person's interests. The investigator conducted the study survey on a sample of 233 people from the marketing sector to explore the factors that determines different role of generative artificial intelligence (ai) in social media engagement and brand loyalty and found that personalised content creation, real-time interaction, optimised posting and customer support are the factors that shows role of generative artificial intelligence (ai) in social media engagement and brand loyalty.

Key words: Generative artificial intelligence, social media engagement, personalised content, powerful technology, stronger connections.

Introduction

Generative ai, or genai, can be considered a type of artificial intelligence skilled at producing completely new content that imitates human creativity. Through studying large amounts of data, they are able to create high-quality text, images, and videos customised to fit specific needs and brand styles. Generative artificial intelligence also refers to systems that can produce new content like text, images, videos, or music by learning patterns from data. Unlike traditional artificial intelligence, which only studies and reacts to existing information, generative ai can create completely new content, opening up many opportunities in digital marketing. According to basri. (2020), "artificial intelligence (ai) in social media is changing the way businesses communicate, analyse and plan." The addition of gen-ai to social media platforms has increased personalisation, improved content sharing, and made automation smoother. Ai-powered tools are transforming how people view, interact with, and share content, giving businesses smarter and more effective solutions. "Artificial intelligence (ai)

has great potential in marketing." Thereby, helping spread information, manage data more effectively, and develop complex and advanced algorithms for better performance. In the long run, artificial intelligence (ai) will continue to become an essential part of each and every business around the world. The latest trends in ai-based automation show major changes in the ai field. Using data, artificial intelligence has the ability to develop smart systems that can think, react, and perform tasks similar to humans. Sahut & laroche. (2025), mentioned marketers of different organisations are able to use ai to understand their consumers more deeply and learn how to guide them towards the next stage of their journey, providing customers with a better overall experience. They can improve their roi without wasting money on ineffective efforts by carefully studying customer data and understanding their real needs. The present study also led to an understanding of how marketers can use genai tools to spot current trends and predict future ones. Using such information, they can plan how to use their budgets and choose the right audience to target. This allows brands to spend less on digital ads and focus more on valuable tasks. Ai is used in marketing campaigns across many fields such as finance, government, healthcare, entertainment, and retail. Each application plays an impactful role and brings different benefits, like better campaigning results, improved customer experience, and more efficient marketing operations. Businesses using ai in social media marketing can lead to better study audience data, manage ad spending, and create strategies that connect with their target audience. Anastasios & maria. (2024), mentioned that artificial intelligence provides useful insights which make decision-making easier and help businesses grow effectively across social media platforms, according to manoharan. (2024), genai allows brands to keep a steady and meaningful presence on social media; such tools help marketers save time by automating the content selection process. Ai makes ad campaigns easier through automating bidding, targeting, and tracking. However, this paper will also allow us to discuss how ai tools study user data to show ads to the most suitable audience. Improves engagement, lowers costs, and delivers better results through constant optimisation and data-based predictions. Ai tools use natural language processing to study comments, reviews, and reactions to understand how audiences feel. This helps brands measure people's emotions towards their content, campaigns, or products. Companies can improve their strategies by studying user feedback and opinions, fixing problems, and better meeting audience expectations. Such a trend helps businesses keep a steady social media presence with little effort.

Literature review

Artificial intelligence is considered a branch of computer science that trains computers to understand and imitate human communication and behaviour. Using available data, "Artificial intelligence has developed as smart machines that can think, react, and perform tasks much like humans." Ai is, therefore, an existing technology that enhances a company's existing content strategy. These are broad concepts that include many technologies like natural language processing, machine learning, deep learning, computer vision, and many more. Therefore, the growth of the internet and digital technology has led to a massive increase in data, which is used to train ai models. This made it possible to model with billions of parameters, which are essential for generative ai functions. Chavan et.al. (2024) asserted generative artificial intelligence (genai) as a major technological breakthrough, which focuses on creating new and original content like text, images, audio, code or videos, going far beyond what earlier ai systems could do. Unlike traditional ai models that focus on identifying or predicting patterns in data, generative ai models study large amounts of data to understand patterns and connections. They then use this knowledge to create new and original content based on prompts or questions. Genai's ability to create new and original content from existing information has made it useful in marketing and advertising. Through quickly studying and finding patterns in customer behaviour, it can produce highly personalised content, and it can also offer real-time interaction with audiences. According to reddy et.al. (2023), generative ai increases social media engagement and brand loyalty through customising content, designing interactive marketing campaigns, and providing better customer insights. Thereby, they do this by creating personalised posts and ads, studying user

sentiment to guide strategies, and offering round-the-clock support, all helping to build stronger customer connections. Such advanced technologies are set to change how businesses interact with their audiences, encouraging stronger engagement and driving remarkable growth. Das et.al. (2024) mentioned that generative ai is changing the digital marketing space by turning old methods into data-based, automated, and personalised experiences. Marketers need to adopt these advanced technologies to remain competitive, as they continue to shape and play an impactful role in social media engagement and brand loyalty. One of the biggest advantages of generative ai towards marketing strategies is its power to automate and improve marketing strategies. Ai-based marketing helps businesses provide customers with highly personalised experiences by studying large amounts of data and spotting trends. Constant need for new and interesting content can be a big challenge for marketing teams. Generative artificial intelligence, or genai, helps by automatically creating large amounts of content. Ai tools can write blog posts and social media captions, saving time and resources, so marketers can focus on more important strategies. Generative ai is more than just automation; it also tends to inspire a new level of creativity. Numerous tools like dall-e and chatgpt help marketers explore fresh ideas and create unique visuals and text that stand out and capture people's attention. They use llms to construct e-mail promotional campaigns, social media content, and other promotional content with very little work involved on the part of human workers. Automation enhances message consistency and cuts operating expenses. Llms can also customise content for different customer groups, creating personalised messages that connect better with audiences. According to kumar et.al. (2024), generative artificial intelligence or genai improves social media engagement and brand loyalty by allowing highly personalised and large-scale content creation. They tend to study huge amounts of data, which makes customised content, such as personal messages and visuals, and offers quick, conversational customer support through chatbots. This builds stronger customer relationships and loyalty. Providing marketers more time for strategic work also helps remove creative blocks and automates routine tasks. Modern genai provides dynamic and interactive solutions that keep customers engaged and interested. Ai-powered chatbots can hold natural-sounding conversations with people; instantly perform actions on their behalf; and retrieve useful information. Such systems use sophisticated transformer models, such as gpt, that understand user intent, respond to individualised answers, and recall the context over time. Brands are able to build greater trust and loyalty with their customers through offering meaningful and relevant interactions. Pattanayak. (2022), inserted generative ai's power to analyse huge volumes of data helps uncover valuable insights about customer behaviour and trends. Marketers can use such information to improve audience targeting, make campaigns more effective for better returns, and make smart, data-based decisions that connect with their target audience. Genai is driving these transformations through offering new ways to connect with customers while also emphasising the need for ethical and responsible use of technology. Pathak et.al. (2025) mentioned gen-ai powered chatbots offer 24*7 customer support by responding to questions, solving queries, and providing customers with personalised assistance, which improves overall satisfaction. Greatly reducing response times and speeding up issue resolution, "genai can also automate tasks like finding information and writing replies." Creates highly relevant, quality content at scale, such as blogs, articles, and social media posts, which appeal to the customers and help build brand trust. Highly personalised product recommendations, offers, and experiences increase repeat purchases and the buying of related products. Businesses using genai for personalisation have seen big improvements in average order value, conversion rates and total revenue growth. According to lazaroiu & rogalska. (2024), generative artificial intelligence also uses predictive analysis to spot customers who might stop using a service and sends them special offers or support to keep them engaged, helping reduce churn and increase retention. Thereby, greatly reducing the need for manual effort, by automating large, repetitive tasks in customer service and office work, through lowering labour and operational costs. Şahin & karayel. (2024), asserted freeing of employees to focus on more strategic and creative work, genai automates various internal tasks like data entry, report writing, compliance reviews and

documentation. Speeds up the content creation, design improvements, and testing, helping organisations launch new products or campaigns much faster. Through studying large amounts of organised and unorganised data, genai offers valuable, real-time insights into market trends, customer actions, and potential risks. This helps decision-makers consider smart choices and align their strategies with business objectives. Rane. (2023) mentioned that generative ai and chatgpt have stronger potential to strengthen customer loyalty, but issues like data privacy, transparency, and the ethical use of artificial intelligence in customer interaction need attention. Businesses should safeguard personal data used for ai-based personalisation to keep customers' trust. The financial and practical advantages of using a unified genai-based approach are significant. By cutting down on inefficiencies and enhancing customer satisfaction, companies can observe a higher conversion rate, fewer product returns, and greater customer loyalty. It becomes crucial to focus towards the ethics, transparency, and prevention of bias, to create a fair and unbiased ai system that benefits all customers. Following ethical and legal rules helps stop the misuse of customer data or the manipulation of their choices. Building lasting trust and brand loyalty amongst consumers requires balancing generative ai use with strong data protection policies. Brands that offer rich and relevant content are more likely to keep their customers in today's competitive market. "chatgpt and generative ai are continuously changing customer loyalty towards brands by improving communication, personalisation, and overall satisfaction." Kiang. (2024), also mentioned regular and personalised interactions also show customers that the brand understands their needs, which helps build long-term loyalty. Therefore, as vr/ar and genai become more common, new considerate ways to create customer loyalty are beginning to appear. While generative ai can suggest products based on a customer's past purchases and style choices, vr can allow loyalty program members to virtually test new collections before they are released in the market. Vr and ar experiences allow customers to connect with brands in new and existing ways, while new consumers appreciate special, one-of-a-kind experiences that make them feel included in something modern and innovative. Ai models like "chatgpt help businesses meet customer needs through large-scale, data-based personalisation." Ai-driven chatbots help online shoppers by making personalised recommendations based on their browsing, purchasing, and preference data. Customers are more likely to purchase from and remain loyal to the brand that they feel valued and acknowledged by, thanks to this degree of personalisation. According to nadeem. (2024), "generative ai amplifies customer engagement and makes product recommendations more accurate and relevant." The relationships between consumers and brands will be more authentic and long-term, as technology continues to evolve. Through this paper, it lets us understand that generative ai's ability towards the creation of large amounts of personalised, high-quality content is transforming how brands build customer loyalty.

Objective
1.   To explore the factors that determine different roles of generative artificial intelligence (ai) in social media engagement and brand loyalty.

Methodology
A structured questionnaire, particularly designed for the present study, is used to conduct the study survey on a sample of 233 people from the marketing sector. The study aims to explore the factors that determine different roles of generative artificial intelligence in social media engagement and brand loyalty. Data collection is done through "convenient sampling method" And data is analysed with the help of "exploratory factor analysis (efa)".

Findings
In the total population of the study survey, males contribute to 58.4% and the remaining 41.6% are females. 31.3% of the respondents are below 30 years of age, 39.5% are between 30 and 35 years,

and the remaining 29.2% are above 35 years of age. 43.8% are working for less than 2 years, and the remaining 56.2% are working for more than 2 years.

"table 1 general details of respondents"

"variables"	"respondents"	"percentage"
Gender		
Male	136	58.4
Female	97	41.6
Total	**233**	**100**
Age (years)		
Below 30 years	73	31.3
30-35 years	92	39.5
Above 35 years	68	29.2
Total	**233**	**100**
Work experience (yrs)		
Less than 2	102	43.8
More than 2	131	56.2
Total	**233**	**100**

"exploratory factor analysis"

"table 2 kmo and bartlett's test"

"kaiser-meyer-olkin measure of sampling adequacy"		.837
"bartlett's test of sphericity"	"approx. Chi-square"	3210.914
	Df	91
	Significance	.000

Kmo measure of "sampling adequacy" Is found to be .837, and the value in the significant column is below 0.05 (table 2).

"table 3 total variance explained"

"component"	"initial eigenvalues"			"rotation sums of squared loadings"		
	"total"	"% of variance"	"cumulative %"	"total"	"% of variance"	"cumulative %"
1.	6.132	43.803	43.803	3.668	26.199	26.199
2.	2.491	17.794	61.597	3.377	24.123	50.322
3.	2.348	16.771	78.368	2.709	19.352	69.674
4.	1.017	7.262	85.629	2.234	15.956	85.629
5.	.508	3.625	89.255			
6.	.338	2.415	91.670			
7.	.260	1.859	93.528			
8.	.174	1.243	94.771			
9.	.171	1.219	95.991			
10.	.163	1.165	97.156			
11.	.124	.889	98.045			
12.	.119	.853	98.897			
13.	.080	.572	99.470			
14.	.074	.530	100.000			

All four factors are making a contribution in explaining a total of 85.629% of the variance. The variance explained by personalised content creation is 26.199%, real-time interaction is 24.123%, optimised posting is 19.352%, and customer support is 15.956%.
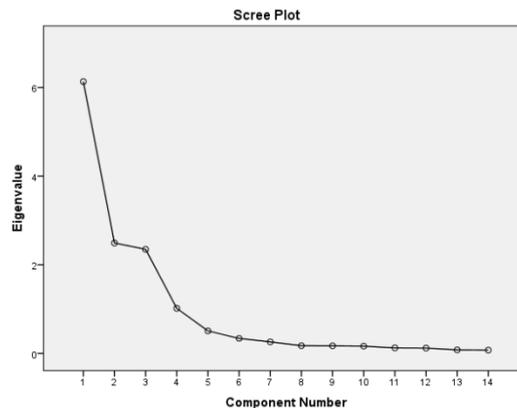
The graphical representation of the eigenvalue obtained from "Total variance explained" Is shown in the figure above. A scree plot with an elbow at four components indicates that a total of 4 factors have been retrieved.

"table 4 rotated component matrix"

"s. No."	"statements"	"factor loading"	"factor reliability"
	Personalised content creation		**.963**
1	Ai allows highly personalised and large-scale content creation	.930	
2	It creates unique visuals and text that stand out and capture people's attention	.917	
3	Ai tools write customised blog posts, social media captions	.914	
4	Ai customise content for different customer groups and creates personalised messages	.889	
	Real-time interaction		**.933**
5	Ai-powered chatbots hold natural-sounding conversations with people	.911	
6	Real-time interaction through instant actions	.890	
7	Generative ai increases social media engagement	.882	
8	Respond to individualised answers, and recall the context over time	.875	
	Optimised posting		**.932**
9	Ai delivers better results through constant optimisation	.934	
10	Data-based predictions before publishing	.931	
11	Recommends adjustments in timing and format of the content	.890	
	Customer support		**.853**
12	Ai offers instant customer support	.821	
13	Chatbots offer 24*7 customer support by responding to questions	.784	
14	Conversational customer support through chatbots	.780	

Factors identified

Factor "personalised content creation" Includes the variables like ai allows highly personalised and large-scale content creation, it creates unique visuals and text which stand out and capture people's attention, ai tools write customised blog posts, social media captions, and ai customise content for different customer groups and create personalised messages. Factor "real-time interaction" Consist of variables like ai-powered chatbots that hold natural-sounding conversations with people, real-time interaction through instant actions, generative ai increases social media engagement, and responds to individualised answers, and recalls the context over time. Factor "optimised posting" Includes the variables like ai delivers better results through constant optimisation, data-based predictions before publishing, and recommends adjustments in timing and format of the content. "customer support" Includes the variables like ai offers instant customer support, chatbots offer 24*7 customer support by responding to questions, and conversational customer support through chatbots.

Table 5 "reliability statistics"

"cronbach's alpha"	"number of items"
.895	14

The total reliability of 14 items that include variables related to different roles of generative artificial intelligence (ai) in social media engagement and brand loyalty is 0.895.

Conclusion

The present research work concludes that with the fast growth of artificial intelligence, generative ai will have a bigger impact on customer loyalty and create new ways for stronger social media engagement and brand loyalty. Generative ai tools like chatgpt help organisations and businesses create better customer relationships by making interactions more natural, responsive, and personalised. "artificial intelligence systems will get better at recognising specific preferences and habits through each interaction, helping companies build more personal, smart, and genuine customer strategies." Thereby, as ai continues to influence customer loyalty, privacy, transparency, and data security remain important ethical issues. Businesses must focus on using generative ai responsibly to maintain trust and loyalty, ensuring clear data practices and careful use of customer information. Companies must follow ethical ai methods to protect customer data and privacy while maintaining their trust. With such rapid digital transformations taking place across industries, customers now expect faster, more accurate, and value-focused interactions. The present study also concludes that as ai technology continues to improve, genai tools like chatgpt's features and customer loyalty methods will create new, more engaging experiences that will build stronger and long-lasting customer relationships in ways that were not possible before.

The study aims to explore the factors that determine different roles of generative ai in social media engagement and brand loyalty, and found that personalised content creation, real-time interaction, optimised posting and customer support are the factors that show the role of generative ai in social media engagement and brand loyalty.

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