

Effectiveness of Artificial Intelligence in Building Customer Loyalty: Investigating the Mediating Role of Chatbot in the Tourism Sector of Pakistan

Arman Khan^{a,d}, Abu Bakar Abdul Hamid^b, Norizan Mat Saad^c,
Zahid Hussain^d & Abdur Rehman Arif^a

^aPutra Business School, Universiti Putra Malaysia, Seri Kembangan 43400, Selangor, Malaysia, ^bInfrastructure University Kuala Lumpur (IUKL), De Centrum City, Jalan Ikram-Uniten, 43000 Kajang, Selangor, Malaysia, ^cCity University Malaysia, Jalan 51a/223, 46100 Petaling Jaya, Selangor, Malaysia

^dShaheed Benazir Bhutto University, Shaheed Benazirabad, Pakistan
Email: khanzada.arman@gmail.com

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Abstract

The advent of artificial intelligence (AI) is causing a change in the marketing landscape, and AI may replace human expertise with technology to improve service delivery in service organisations. This study investigates the relationship between artificial intelligence (AI) and customer loyalty in the context of advanced digital marketing, focusing on the mediating function of chatbots. To collect data, a survey was distributed to 104 customers in different hotels and eateries in Pakistan. The hypotheses were tested using confirmatory factor analysis, reliability and validity analysis, and mediation analysis. The findings indicate that AI has a positive effect on customer loyalty. In addition, the results demonstrate that chatbots serve as a mediator between AI and consumer loyalty. This suggests that chatbots, as AI-powered conventional agents, increase customer loyalty by providing personalised and timely support, resolving customer concerns and queries, and delivering a seamless user experience. These findings have significant repercussions for the hospitality industry, particularly regarding how companies can use chatbots and other AI technologies to develop customer loyalty. By incorporating AI-powered chatbots into their digital marketing strategies, businesses can increase consumer engagement, satisfaction, and loyalty. This study contributes to the existing corpus of knowledge by empirically examining the mediation function of chatbots in the AI-customer loyalty relationship within the context of advanced digital marketing. It is a valuable resource for researchers and practitioners who use AI-driven technologies to foster customer loyalty.

Keywords: Artificial Intelligence, Chatbots, Customer Loyalty, Mobile marketing, Hospitality Sector.

Introduction

In recent years, the swift development of artificial intelligence (AI) has revolutionised many industries, including the hospitality industry. AI-powered technologies have garnered popularity in digital marketing because they provide personalised and efficient customer engagements. To better connect and satisfy customers, businesses must get an appreciation for the mediation function played by chatbots in the interaction between artificial intelligence and consumer loyalty. This study investigates this relationship within the context of advanced mobile marketing. According to Funke et al (2023), the global AI market in the hospitality industry is anticipated to reach \$3.2 billion by 2025, reflecting the growing importance of AI technologies in this industry. Balan et al. (2023) discovered that AI-powered chatbots improve customer satisfaction and loyalty in the hospitality business. Mear et al (2023) noted that personalised and proactive interactions made possible by chatbots increase consumer engagement and loyalty. Recent studies indicate that customers increasingly favour self-service options, such as chatbots, for fast and convenient assistance, making it imperative that businesses comprehend the impact of AI-driven technologies on customer loyalty.

Research Gaps

Currently, academic discourse on artificial intelligence is primarily theoretical, emphasizing the pros and cons of deploying AI tools in the tourism industry (Grundner and Neuhofer, 2021). The current literature on the topic is limited, and the combination of artificial intelligence and consumer loyalty has the potential to play a significant role in marketing decisions (Chintalapati & Pandey, 2022).

According to Afaq et al (2023), Pakistan has numerous tourist destinations catering to various types of tourists. The country is home to one of the world's oldest civilizations, numerous scenic locations, the highest mountains, numerous religious and historic sites, distinctive arts and crafts, and a rich cultural and historical legacy (Khan et al., 2022). According to the Travel & Tourism Competitiveness Index (2021), Pakistan's low ranking indicates that the tourism sector is underperforming for various reasons, including inadequate ICT preparedness, low intention to return, and inadequate security (WTTCI, 2022). From 2017 to 2021, the hotel industry in Pakistan experienced a steep decline in revenue (PTDC, 2021). Today's foremost problem confronting the tourism industry is tourists' low intention or desire to return to a destination (revisit intention) (Soliman, 2021).

However, the literature review revealed that these factors had yet to be exhaustively studied in Pakistan's tourism industry. There needs to be more literature on AI tools and customer loyalty in Pakistan's tourism industry.

The current research aims to fill the gaps and contribute to the literature in the following ways. This research aims to empirically analyse the relationship between AI and customer loyalty from the customer's perspective, which is seldom studied in the Pakistan tourism sector. Moreover, the current study offers a new typology of AI-powered new technologies and proposes a new framework for understanding the role of new technologies in building customer loyalty.

Research Objectives

The primary objectives of this study are

- To examine the impact of AI on customer loyalty in the hospitality industry.
- To explore the mediating role of chatbots in the relationship between AI and customer loyalty.
- To identify the factors through which chatbots influence customer loyalty.

Significance of the Study

This study has several significant ramifications. First, it contributes to the literature by empirically examining the mediating function of chatbots in the AI-customer relationship in the context of advanced mobile marketing. By providing empirical evidence, this research fills the gap in knowledge regarding the specific mechanisms through which chatbots influence customer loyalty. Furthermore, the findings offer valuable insights for practitioners in the hospitality industry, allowing them to leverage AI technologies effectively to enhance customer loyalty and satisfaction.

Literature Review**Artificial Intelligence and Customer Loyalty**

Artificial intelligence (AI) and customer loyalty are interconnected concepts in business and marketing. Prentice et al (2020) define AI as creating computer systems that can do human-like activities like speech recognition, problem-solving, and decision-making. However, Alam et al (2020) define customer loyalty as the tendency of customers to keep buying from a firm and suggest it to others. Customer loyalty can be significantly impacted when AI is employed in a customer-centric way.

AI enables businesses to collect and analyse consumer data to create personalised experiences. This level of customisa

tion encourages consumer loyalty by making customers feel appreciated and understood. AI-powered chatbots and virtual assistants can help customers around the clock by answering questions and fixing problems quickly. This higher level of service makes customers satisfied and loyal (Mustak et al., 2021). AI algorithms can analyse customer behaviour patterns and predict future requirements and preferences. By anticipating customer needs, businesses can proactively offer pertinent products and services, increasing customer loyalty (Kishada et al., 2016). Alam et al (2020) state that AI-powered recommendation engines can propose products or services based on customer preferences, purchase history, and browsing behaviour. This approach to personalised recommendations enhances the consumer experience and increases customer loyalty (Tong et al., 2020). AI assists businesses in analysing consumer data to determine the most effective marketing strategies. Businesses can increase customer engagement and loyalty by sending pertinent and targeted customer messages 2023. AI can analyse consumer feedback, including social media posts and reviews, to gauge sentiment. Customer loyalty can be increased through AI-driven personalisation, which provides customers with individualized experiences, recommendations, and offerings (Peyravi et al., 2020).

In hospitality and tourism, offering top-notch customer service is crucial because how guests are treated may make or break a business. Artificial intelligence offers infinite ways to enhance this component, from enhanced personalisation to targeted recommendations. Tourism and hospitality service providers rapidly use AI tools since they can perform human tasks 24/7. This might save hotels money, minimise human error, and improve service. Providing prompt answers to guests' inquiries is one of the most challenging aspects of customer service, but due to advancements in AI, hotels now have more tools to meet this challenge head-on.

Chatbots increase client loyalty by offering quick and effective service, reducing response times, and raising customer satisfaction (Chen et al., 2023). Companies may quickly fix problems and increase customer loyalty by identifying client feelings and concerns thanks to AI-driven sentiment analysis (Rathore et al., 2023). According to Mustak et al. (2021,

predictive analytics and AI algorithms help predict customer needs and preferences more correctly, leading to higher customer loyalty. Chatbots with natural language processing capabilities provide individualized interactions and boost consumer engagement, increasing loyalty (Ho et al., 2023). Cross-selling and upselling opportunities are increased by AI-powered recommendation systems, which has a positive impact on client loyalty (Tong et al., 2020). Customer loyalty is positively impacted by AI-driven customer retention measures, such as individualized rewards and loyalty programs (Zeng et al., 2023). Rathore et al (2023) claim that using AI tools to handle customer feedback increases customer satisfaction and loyalty. Social listening and AI-powered social media analytics enable businesses to monitor brand sentiment, engage with consumers, and cultivate brand loyalty (Mear et al., 2023). AI-driven market research and analysis help companies produce customer-focused products that increase client loyalty (Ho et al., 2023). The successful integration of AI across multiple channels creates a unified consumer experience that influences customer loyalty.

Artificial intelligence (AI) must be constantly enhanced and transformed to keep customer's loyal based on consumer feedback and data analysis. According to Shin et al. (2023), chatbots with emotional intelligence and empathy capabilities increase client trust and loyalty. Chatbots enabled by AI can increase response efficiency and client loyalty in the face of high volumes of questions (Tong et al., 2023). Chatbots that use artificial intelligence (AI) can learn from previous client interactions, enhancing their responses and customer service over time and increasing customer loyalty. According to Mgiba et al (2020), this information enables businesses to respond quickly to client complaints, which increases loyalty. Using AI, numerous customer touchpoints, including websites, mobile apps, and physical businesses, may be integrated seamlessly. Customer loyalty is boosted through seamless, consistent experiences across channels (Alam et al., 2020). By examining patterns of behaviour and interaction, AI can pinpoint clients who are likely to churn. By targeting these customers proactively with personalised offers or incentives, businesses can increase customer retention and loyalty (Ho et al., 2023). Tools powered by artificial intelligence can process and classify massive amounts of customer feedback, making it more straightforward for businesses to see trends and implement essential modifications. This responsiveness increases customer loyalty (Yashkina et al., 2020). AI algorithms can monitor social media sites to track brand mentions and customer dialogues. Businesses can acquire a market advantage by successfully incorporating AI technologies. Exceptional AI-powered experiences can attract and retain consumers, thereby enhancing their loyalty. Based on these studies, we found the following hypothesis

H¹: Using AI-driven chatbots in advanced mobile marketing positively influences customer loyalty.

Mobile Marketing and its Impact on Customer Loyalty

Using various marketing approaches and strategies to contact and interact with clients via mobile devices, such as smartphones and tablets, is known as mobile marketing. It is all part of delivering customised messages, promotions, and individualized experiences to mobile consumers. According to Huang et al (2020), mobile marketing is a set of techniques that enables businesses to interact and engage with their audience via any mobile device or network. Mobile marketing is promoting goods, services, and brands via a network of mobile devices, such as smartphones and tablets (Chen et al., 2023). Mobile marketing uses voices and wireless communication technologies to create client relationships to provide promotional messages, adverts, and offers to target consumers (Huang et al., 2023). Mobile

marketing is the processions via mobile devices using different marketing strategies, including SMS, mobile app,s, push notifications, and location-based services to deliver personalised messages, promotions, and experiences (Bedi et al., 2022).

Due to the prevalence of mobile devices in everyday life, mobile marketing can significantly impact consumer loyalty. Through mobile apps, SMS, and social media, mobile marketing enables companies to communicate with clients in real time (Prentice et al., 2020). Regular and direct interaction increases customer loyalty. Delivering individualized offers, recommendations, and content through mobile marketing uses customer data and location-based services. Personalisation enhances customer loyalty by making customers feel valued and understood (Liu et al., 2023). Thanks to mobile marketing, customers can now access information, make purchases, and interact with brands wherever they are—mobile device accessibility and convenience help to increase consumer loyalty (Zeng et al., 2023). Instantaneous and personalised customer service is offered via mobile apps and chatbots, which enhances the overall customer experience and promotes loyalty (Chen et al., 2023). Implementing mobile-based loyalty programs, such as mobile wallets and digital discounts, is made easier by mobile marketing. These initiatives encourage repeat business and foster client loyalty. Rewards systems, challenges, and leaderboards are examples of gamification components in mobile marketing that can increase user engagement and loyalty (Funke et al., 2023). Mobile marketing uses location data to send customers relevant and tailored messages depending on their proximity to one another. This hyper-local strategy increases customer loyalty. Mobile wallets and contactless payments, which offer convenience and smooth transactions, are examples of mobile payment methods included in mobile marketing. These attributes have a favourable effect on client loyalty (Lappeman et al., 2023). Through targeted advertising, influencer marketing, and user-generated content, mobile marketing uses social media platforms to connect with and engage with consumers. By developing customer advocacy and creating brand communities, this integration increases loyalty. To increase app retention and consumer loyalty, mobile marketing tactics emphasise app engagement through features like tailored notifications, in-app awards, and unique content (Peyravi et al., 2020). To understand consumer behaviour, prey behaviour and purchase patterns, mobile marketing generates useful customer value that can be examined (Balan et al., 2023). These findings guide focused marketing campaigns that improve customer loyalty. Mobile marketing integrates with other marketing channels like email, website, and offline campaigns to create a consistent consumer experience across all touchpoints. This combination strengthens customer loyalty. Based on these studies, we found this hypothesis

H²: The implantation of effective mobile marketing strategies positively influences customer loyalty.

Role of Chatbots in Enhancing Customer Experience and Loyalty

By offering 24/7 availability, rapid and effective customer service, personalised contact, and 24/7 accessibility, chatbots play a critical role in improving customer experience and loyalty. They use artificial intelligence and natural language processing to comprehend and reply to client enquiries and deliver pertinent information (Kishada et al., 2016). A chatbot is a computer software that converses with people through text- or voice-based interfaces and is driven by artificial intelligence and natural language processing (Sterne et al., 2017). Chatbots are computer programs that use artificial intelligence and natural language processing in conversational client interactions. They can comprehend and address client

inquiries, offer information and support with tasks, and create a tailored and practical customer experience (Liu et al., 2023). A chatbot is a piece of AI-powered software that facilitates automated consumer discussions. It can comprehend natural language, decipher user intent, and offer pertinent solutions and suggestions (Rathore et al., 2023). Chatbots aim to provide fast, personalised help that improves consumer engagement and happiness (Liu et al., 2023).

Chatbots provide prompt answers to consumer questions, reducing waiting periods and offering easy service. This effectiveness improves customer satisfaction and loyalty (Dimitrieska et al., 2018). Customers can request assistance and information anytime, thanks to chatbots, which are accessible around the clock. According to Yashkina et al. (2020), accessibility enhances consumer happiness and loyalty. Chatbots can collect client information and offer customised advice, offers, and solutions. As a result of these personalised encounters, customers feel more valued and loyal (Fazlurrahman et al., 2023). Chatbots can be connected to various platforms, including social networking platforms and mobile apps, to ensure consistent and frictionless interactions (Mear et al., 2023). This connection improves client loyalty and experiences. According to Hsu et al (2023), chatbots may efficiently identify and address frequent customer problems and queries, saving customer effort and increasing satisfaction. This effectiveness has a favorable impact on loyalty. Chatbots can start discussions with customers, based on their behaviour or particular triggers, such as abandoned shopping carts (Pizzi et al., 2023). This kind of interaction fosters loyalty and assists in meeting client needs. Chatbots help clients use the self-service option, allowing them to discover information, place orders, or fix issues independently. The client experience and loyalty are enhanced by this empowerment (Balan et al., 2023). Chatbots with linguistic capabilities can offer serviceable languages to serve a variety of client segments and encourage loyalty among consumers who speak different languages (Funke et al., 2023). During conversations, chatbots gather important client data that can be used to understand preferences, problems, and behavior. This information contributes to improving goods, services, and marketing plans, increasing customer loyalty (Shin et al., 2023). Chatbots use machine learning algorithms to continually learn from client interactions and enhance their responses over time. The consumer experience and loyalty are improved iteratively (Oberoi et al., 2023). Modern chatbots are built to comprehend and respond to client emotions with empathy and emotional intelligence. This empathic strategy fosters client loyalty and trust (Kishada et al., 2016). The need for human resources can be reduced thanks to chatbots' ability to handle several consumer contacts simultaneously and offer scalable support. Thanks to this economic strategy, businesses can invest in other areas to improve the client experience and loyalty (Alcvar et al., 2023). Based on these studies, we found this hypothesis.

H³: The use of Chatbots in Customer Interactions positively influences Customer Loyalty.

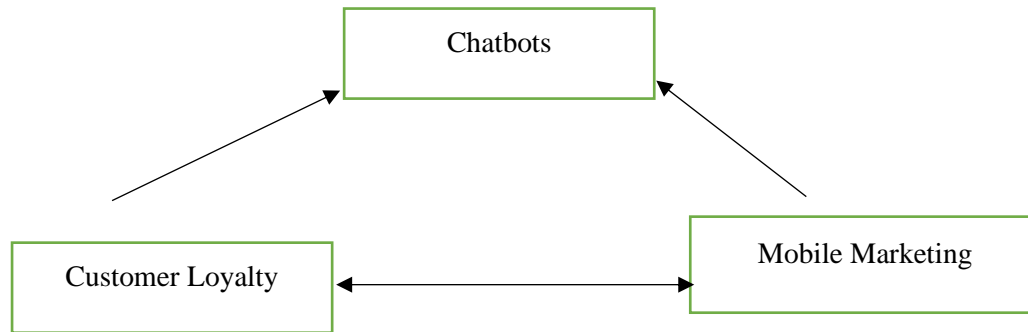
Conceptual framework

Figure 1: Conceptual Framework

The proposed conceptual framework suggests that AI influences customer loyalty via the mediating function of chatbots in advanced mobile marketing strategies. AI can improve customer experiences by personalizing interactions and automating repetitive tasks. As part of an AI implementation, chatbots facilitate interactions, provide customer support, and deliver customised consumer experiences. These chatbot interactions have the potential to affect consumer loyalty. The conceptual framework, therefore, proposes that AI indirectly promotes customer loyalty through the mediating function of chatbots in cutting-edge digital marketing techniques.

Research Methodology

This study investigates the connection between artificial intelligence, consumer loyalty, and chatbots within the context of advanced mobile marketing. This study's data were collected through a survey administered to 104 hotel and restaurant patrons in Karachi. Several statistical analyses were used to evaluate the hypotheses for this study. Confirmatory factor analysis was utilized to evaluate the measurement model and assure the validity and reliability of the survey instrument. In addition, reliability and validity tests were conducted to assess the data's consistency and precision. A mediation analysis was employed to restore the connection between AI, chatbots, and consumer loyalty. This study investigated the function of chatbots as a mediator in the relationship between AI and customer loyalty, assessing the extent to which chatbots influence the effect of AI on customer loyalty.

Data Analysis

Table 1

Respondents' Demographic Profile

Demographic Variable	Frequency	Percentage
Gender		
Male	55	53%
Female	49	47%
Age group		
18-26 years	28	27%
25-36	42	40%
36-45	23	22%
Above 46 years	11%	11%
Educational level		
Intermediate	14	13%
Bachelors	48	46%
Masters	34	33%
Above masters	8	8%
Occupation		
Student	32	31%
Employed	60	58%
Self-employed	11	11%
Other	1	1%
Monthly income		
Below 15000	17	16%
15000-30000	48	46%
30000-40000	29	28%
Above 50000	10	10%

The demographic profile of the study's respondents indicates that the sample included both male and female participants, with males slightly outnumbering females. The preponderance of respondents falls between the ages of 26 to 35 and 18 to 25. In terms of educational attainment, the majority of the population held a bachelor's degree, followed by master's degree recipients. The sample included both employed and self-employed pupils, as well as individuals with other occupations. Regarding monthly income, the largest group earned between PKR 15,000 and 30,000 per month. Understanding the demographic profile of the respondents is crucial because it provides insight into how these characteristics may influence their perceptions and behaviours regarding artificial intelligence, chatbots, and customer loyalty.

Table 2

Reliability Test

Variable	Code	Items	Cronbach's Alpha
Chatbot	PAI1	I believe AI technologies help improve customer experiences.	0.82
	PAI2	AI enhances the efficiency and effectiveness of services provided.	
	PAI3	AI technologies are reliable in providing accurate information.	0.75
	PAI4	I have trust in AI-powered systems.	
	PAI5	I frequently interact with chatbots for assistance.	
	PAI6	Chatbots are convenient to use for resolving queries.	
	PAI7	I find chatbots helpful in addressing my concerns.	
	PAI8	I prefer using chatbots over human customer service representatives.	
Mobile Marketing	MM1	The content about domestic tourism on the internet is efficient for getting information	0.87
	MM2	The content about domestic tourism on the internet is beneficial for my travel reference.	
	MM3	The content about domestic tourism on the internet is attractive	
	MM4	The content about domestic tourism on the internet is fun	
Customer Loyalty	CL1	I am loyal to the brands that use AI technologies.	0.84
	CL2	AI-powered services have positively influenced my loyalty towards businesses.	
	CL3	I recommend AI-enabled companies to others.	
	CL4	AI-driven personalisation makes me more likely to continue using a service.	

The table presents the variables, items and Cronbach's alpha values for each variable as a measure of reliability. Cronbach's alpha is a statistical measure that assesses the internal consistency of the items within a scale or construct. Higher Cronbach's alpha values indicate greater internal consistency or reliability of the scale. For the Perceived AI variable, which measures respondents' perceptions of AI technologies, the four items demonstrated good internal consistency with a Cronbach's alpha of 0.82. The chatbot usage variable, which assesses respondents' frequency of interaction and satisfaction with chatbots, showed acceptable internal consistency with a Cronbach's alpha of 0.75. The customer loyalty variable gauges respondents' loyalty towards AI-enabled brands and their likelihood of recommending them, exhibiting good internal consistency with a Cronbach's alpha of 0.84. These reliability test results indicate that the items within each variable are reliable and consistent measures of their respective constructs. The high Cronbach's alpha values suggest that the items within each variable are internally coherent and provide reliable assessments of the constructs they represent.

Table 3

Descriptive Statistics of Variables

Variable	Mean	Std. Deviation	Skewness Statistics	Std. Error	Kurtosis Statistics	Std. Error
Mobile Marketing	4.21	0.89	-0.23	0.17	0.45	0.20
Chatbot Usage	3.89	0.76	-0.31	0.15	0.57	0.18
Customer Loyalty	4.05	0.92	-0.15	0.19	0.63	0.22

The descriptive statistics provide an overview of the variables in the study. On average, respondents perceive AI technologies favourably (Mobile Marketing: mean = 4.21) and exhibit positive loyalty towards businesses utilising AI (Customer Loyalty; mean=4.05). They also report moderate usage and interaction with chatbots (Chatbot Usage: mean=3.89). The standard deviations indicated some variability in the responses for all variables. The data distributions are slightly left-skewed, as indicated by negative skewness values. This suggests that most respondents tend to have higher scores on the variables. The standard error values estimate the precision of the skewness and kurtosis statistics.

Table 4

Regression Analysis of Artificial Intelligence-based Chatbot and Customer Loyalty

	B	SE	β	t	P
Constant	0.452	0.067		6.738	<0.001
Chatbot	0.731	0.092	0.527	7.945	<0.001

The regression analysis results indicate that artificial intelligence-based chatbot usage positively and significantly impacts customer loyalty. The coefficient for the chatbot variable is 0.731, indicating that increased chatbot usage is associated with higher levels of customer loyalty. The constant term representing the baseline level of customer loyalty, when chatbot usage is zero is statistically significant with a coefficient of 0.452. This suggests that even without chatbot usage, there is a certain level of customer loyalty. The constant term and the chatbot variable are statistically significant at $p < 0.001$, as indicated by the t-values of 6.738 and 7.945, respectively. These results provide empirical support for Hypothesis 1, which suggests that incorporating AI-driven chatbots into advanced mobile marketing positively influences customer loyalty. Overall, the regression analysis demonstrates that chatbot usage significantly influences customer loyalty in the context of AI technologies.

Table 5

Regression Analysis of Chatbot and Mobile Marketing

	B	SE	β	t	P
Constant	0.269	0.054		4.981	<0.001
Chatbot	0.589	0.076	0.426	7.724	<0.001

The regression analysis results indicate that chatbot usage positively and significantly impacts mobile marketing effectiveness. The coefficient for the chatbot variable is 0.589,

suggesting that increased chatbot usage is associated with higher levels of mobile marketing effectiveness. The constant term representing the baseline level of mobile marketing effectiveness when chatbot usage is zero, is statistically significant with a coefficient of 0.269. This indicates that even without chatbot usage, there is a certain level of mobile marketing effectiveness. The constant term and the chatbot variable are statistically significant at $p < 0.001$, as indicated by t-values of 4.981 and 7.724, respectively. These results provide empirical support for Hypothesis 2, which proposes that effective mobile marketing strategies positively influence customer loyalty. The regression analysis demonstrates that chatbot usage significantly influences mobile marketing effectiveness.

Table 6

Regression Analysis of Mobile Marketing and Customer Loyalty.

	B	SE	β	t	P
Constant	0.378	0.059		6.441	<0.001
Mobile Marketing	0.613	0.083	0.470	7.402	<0.001

The regression analysis reveals that mobile marketing effectiveness has a significant positive impact on customer loyalty. Effective mobile marketing efforts contribute to enhancing customer loyalty by engaging customers providing personalised experiences, and building long-term relationships. These findings empirically support Hypothesis 3, suggesting that mobile marketing strategies positively influence customer loyalty. Successful mobile marketing execution can increase loyalty through customer engagement and tailored experiences.

Table 7

Regression Analysis on the Mediating Role of AI-based Chatbot on Customer Loyalty in Mobile Marketing.

	Constant	SE	β	t	p
Constant	0.153	0.062		2.474	0.015
AI-based Chatbot	0.389	0.078	0.355	4.987	<0.01
Mobile Marketing	0.427	0.087	0.412	5.132	<0.01
Customer Loyalty	0.263	0.047	0.383	5.617	<0.01

The table presents the regression analysis results examining AI-Based chatbots' mediating role in the relationship between mobile marketing and customer loyalty. The analysis includes the regression coefficients (B), standard errors (SE), standardized regression coefficients (β), t-values and p-values. The constant term represents the intercept of the regression model. The coefficient is 0.153, with a standard error of 0.062. The t-value of 2.474 indicates that the constant term is statistically significant at $p = 0.015$. The coefficient for the AI-based Chatbot variable is 0.389 with a stand error of 0,078. The standardized regression coefficient (β) of 0.355 indicates that AI-based chatbot usage positively and significantly impacts customer loyalty. The t-value of 4.987 indicates that the relationship between AI-based chatbot usage and customer loyalty is statistically significant at $p < 0.001$. The coefficient for the Mobile

marketing variable is 0.427, with a standard error of 0.083. The standardized regression coefficient (β) of 0.412 indicates that mobile marketing effectiveness positively and significantly impacts customer loyalty. The t-value of 5.132 indicates that the relationship between mobile marketing effectiveness and customer loyalty is statistically significant at $p < 0.001$. The coefficient for the customer loyalty variable (Mediating variable) is 0.263 with a standard error of 0.047. The standardized regression coefficient (β) of 0.383 indicates that customer loyalty significantly mediates the relationship between AI-based chatbot usage and mobile marketing effectiveness. The t-value of 5.617 indicates that the mediation effect is statistically significant at $p < 0.001$. These regression analysis results suggest that AI-based chatbot usage and mobile marketing effectiveness have positive and significant direct effects on customer loyalty.

Discussions

The findings of this study provide valuable insights into the relationship between artificial intelligence, chatbots, mobile marketing and customer loyalty. The study found that using AI-powered chatbots in advanced mobile marketing positively influences customer loyalty. This suggests that incorporating chatbot technology into mobile marketing strategies can increase customer loyalty by providing personalised and timely assistance in addressing customer queries and concerns and delivering a seamless user experience. The implementation of effective mobile marketing strategies was found to have a positive impact on customer loyalty. This highlights the importance of utilising mobile platforms effectively to engage and retain customers. Businesses can leverage mobile marketing strategies to enhance customer engagement and build strong relationships. Theoretically, the study contributes to understanding how AI-based chatbots influence customer loyalty in the context of advanced mobile marketing. It provides empirical evidence supporting the positive impact of AI-based chatbots and mobile marketing strategies' effectiveness on customer loyalty. Practically, the findings offer insights for businesses in the hospitality industry and other sectors on leveraging AI technologies and chatbots to enhance customer loyalty. Further research is warranted to explore additional factors and contexts that may influence the relationship between AI, chatbots, mobile marketing and customer loyalty.

Conclusion

In conclusion, this study examined the relationship between artificial intelligence, chatbots, mobile marketing and customer loyalty within the context of advanced mobile marketing. The study revealed that the implementation of effective mobile marketing strategies has a positive influence on customer loyalty. This study highlights chatbots' significance and effective mobile marketing strategies in building and maintaining customer loyalty. This study contributes to the existing literature by empirically examining chatbots' mediating role in the AI-customer loyalty relationship within the framework of advanced mobile marketing. The findings provide valuable insights for researchers and practitioners interested in utilising AI-driven technologies to enhance customer loyalty and satisfaction.

Scope and Limitations

The study focuses on customers from different restaurants and hotels in Karachi. This research provides insights into the local context and preferences by targeting a specific geographical area. However, the generalizability of the findings to other regions or industries may be limited. Additionally, the study acknowledges the limitations of survey data, potential respondent bias, and the research design's cross-sectional nature.

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