

AN ANALYTICAL STUDY OF CUSTOMER ENGAGEMENT THROUGH CHATBOT MARKETING IN THE DIGITAL ENVIRONMENT

S. Lakshmi¹, M. Palaniappan², B. Rathimeena³

¹PG & Research Department of Commerce (SF), Kamaraj College (Autonomous), Affiliated to Manonmaniam Sundaranar University (Tirunelveli), Thoothukudi – 628003.

Email: lakshmisornam217@gmail.com

²PG & Research Department of Commerce (SF), Kamaraj College (Autonomous), Affiliated to Manonmaniam Sundaranar University (Tirunelveli), Thoothukudi – 628003.

Email: pazhaniappan@gmail.com

³PG & Research Department of Commerce (SF), Kamaraj College (Autonomous), Affiliated to Manonmaniam Sundaranar University (Tirunelveli), Thoothukudi – 628003.

Email: b.rathimeena@kamarajcollege.ac.in

Abstract: The rapid advancement of artificial intelligence (AI) and digital technologies has significantly transformed the way businesses interact with customers, making chatbot marketing an essential component of modern digital marketing strategies. Chatbots facilitate real-time communication, personalized recommendations, instant customer support, and enhanced customer engagement across websites, mobile applications, and social media platforms. The present study, "An Analytical Study of Customer Engagement Through Chatbot Marketing in the Digital Environment," aims to examine customers' awareness of chatbot marketing, their usage behaviour, purchase intention, and privacy and security concerns. The study adopted a descriptive research design based on both primary and secondary data. Primary data were collected from 180 respondents using a structured questionnaire through the convenience sampling technique. The collected data were analysed using Percentage Analysis, One-Way ANOVA, Independent Samples t-test, Kruskal–Wallis H Test, and Mann–Whitney U Test with the support of SPSS software. The findings reveal that respondents possess a satisfactory level of awareness regarding chatbot marketing. Age significantly influences awareness of AI-powered chatbots and knowledge gained through social media, while other awareness dimensions do not vary significantly across age groups. Gender has only a limited influence on chatbot usage behaviour, with a significant difference observed only in respondents' ability to communicate with chatbots without technical knowledge. The study also reveals that occupation does not significantly influence customers' purchase intention towards chatbot-assisted shopping experiences. Further, the area of residence significantly influences respondents' concerns regarding the misuse of personal information and the need for transparency in customer data usage, whereas other privacy and security dimensions remain similar across residential groups. Overall, the study concludes that chatbot marketing positively contributes to customer engagement by improving communication, convenience, and digital customer experiences. However, issues relating to privacy, data security, transparency, and digital awareness continue to influence customer acceptance and trust. The study recommends that businesses strengthen AI-driven chatbot capabilities, enhance cybersecurity measures, improve transparency in data handling, and provide user-friendly chatbot services to build customer confidence and foster long-term customer engagement in the digital environment.

Keywords: Chatbot Marketing, Customer Engagement, Artificial Intelligence, Digital Marketing, Customer Behaviour, Purchase Intention, Digital Environment.



1. INTRODUCTION OF THE STUDY

In the rapidly evolving digital environment, businesses are continuously adopting innovative technologies to enhance customer interaction, improve service efficiency, and build long-term relationships with consumers. Among these technological advancements, chatbot marketing has emerged as an effective digital communication tool that enables businesses to engage with customers through automated, real-time conversations. Chatbots powered by artificial intelligence (AI) and machine learning technologies provide personalized responses, assist customers in decision-making, resolve queries, and improve overall customer experience. Customer engagement has become a significant factor in determining business success in the digital era. It represents the emotional, cognitive, and behavioural connection between customers and brands through various digital platforms. With increasing dependence on online channels such as websites, mobile applications, and social media platforms, customers expect faster responses, personalized recommendations, and continuous support. Chatbot marketing helps organizations meet these expectations by offering 24/7 availability, instant communication, and customized interactions. The integration of chatbots into marketing strategies has transformed traditional customer relationship management practices. Businesses across various sectors are utilizing chatbots for product promotion, customer support, lead generation, feedback collection, and personalized marketing campaigns. By analysing customer preferences and interaction patterns, chatbots enable companies to deliver targeted messages and improve customer satisfaction and loyalty. However, the effectiveness of chatbot marketing depends on several factors, including perceived usefulness, ease of use, response accuracy, personalization, trust, and privacy concerns. While some customers appreciate the convenience and speed offered by chatbots, others may experience limitations due to lack of human interaction, misunderstanding of queries, or security concerns. Therefore, understanding customer perceptions and engagement levels towards chatbot marketing is essential for organizations seeking to optimize their digital marketing strategies. This study aims to analyse customer engagement through chatbot marketing in the digital environment by examining the factors influencing customer acceptance, interaction, satisfaction, and behavioural intentions. The findings of the study may provide valuable insights for businesses to improve chatbot-based marketing approaches and enhance customer relationships in an increasingly digital marketplace.

2. REVIEW OF LITERATURE

Patel and Shah (2023) examined the adoption of artificial intelligence-based chatbot services among Indian online consumers. The study found that perceived usefulness, quick response time, convenience, and service efficiency significantly influence customers' willingness to interact with chatbot platforms. The research highlighted that Indian consumers increasingly prefer chatbot-enabled services due to their 24/7 availability and ability to provide instant solutions. However, concerns regarding data privacy and lack of human support were identified as barriers to chatbot acceptance.

Kumar and Rani (2024) analysed the role of chatbot marketing in enhancing customer engagement in the Indian digital marketplace. The study revealed that personalization, accuracy of responses, and interactive communication positively influence customer satisfaction and brand engagement. The findings suggested that businesses using chatbot-based marketing strategies can improve customer relationships by offering customized recommendations and faster communication.

Sharma and Verma (2024) investigated consumer perceptions towards AI-powered chatbots in Indian e-commerce platforms. The study reported that trust, perceived ease of use, and chatbot reliability are important factors affecting customer purchase intentions. The research also highlighted that while young digital consumers show higher acceptance of chatbot services, issues related to privacy, security, and emotional connection with brands remain significant challenges.

RESEARCH GAP

The existing literature indicates that chatbot technology plays a significant role in improving customer service and digital marketing effectiveness. However, limited studies have focused specifically on customer engagement through chatbot marketing in the digital environment, particularly from the perspective of customer perceptions, trust, satisfaction, and behavioural intentions. Further research is required to analyse how chatbot marketing influences customer engagement and contributes to stronger digital relationships between businesses and consumers. This study attempts to address this gap by examining the factors affecting customer engagement with chatbot marketing platforms.

STATEMENT OF THE PROBLEM

The rapid growth of digital technologies has transformed the marketing landscape, compelling businesses to adopt innovative communication tools to engage customers effectively. Among these innovations, chatbot marketing has emerged as a prominent strategy that enables organizations to provide instant responses, personalized recommendations, and continuous customer support through websites, mobile applications, and social media platforms. By automating customer interactions, chatbots have the potential to enhance customer engagement, improve service efficiency, and strengthen brand relationships. Despite these advantages, the effectiveness of chatbot marketing in creating meaningful customer engagement remains a matter of concern. Many customers continue to experience issues such as inaccurate responses, limited understanding of complex queries, lack of emotional intelligence, privacy and security concerns, and reduced human interaction. These challenges may negatively influence customer satisfaction, trust, and willingness to continue interacting with chatbot-based services. Furthermore, customer expectations regarding personalization, responsiveness, and service quality continue to increase in the digital environment, making it essential for businesses to evaluate the performance of chatbot marketing strategies. Although chatbot adoption has increased across various industries, empirical research examining the factors influencing customer engagement through chatbot marketing remains limited, particularly in the Indian context and at the regional level. There is a need to understand how customers perceive chatbot interactions, what factors determine their engagement, and how chatbot marketing influences their overall digital experience and purchase behaviour. Therefore, the present study, "An Analytical Study of Customer Engagement Through Chatbot Marketing in the Digital Environment," seeks to examine the effectiveness of chatbot marketing in fostering customer engagement. The study aims to identify the key factors influencing customer acceptance, satisfaction, trust, and behavioural intention towards chatbot interactions, thereby providing valuable insights for businesses to improve their digital marketing strategies and enhance customer relationships in an increasingly competitive digital marketplace.

RESEARCH QUESTIONS

RQ1: What is the level of awareness and usage of chatbot marketing among customers in the digital environment?

RQ2: What are the major factors influencing customer engagement with chatbot marketing platforms?

RQ3: How do chatbot interactions influence customers' purchase intentions and brand loyalty?

RQ4: What are the major challenges and concerns faced by customers while using chatbot-based marketing services, particularly regarding privacy, security, and service quality?

RESEARCH OBJECTIVES

To identify the influence of chatbot interactions on customers' purchase intentions and brand loyalty. To assess the challenges and concerns faced by customers while using chatbot-based marketing services, including privacy, security, and service quality issues. To study the awareness and usage level of chatbot marketing among customers in the digital environment. To analyse the factors influencing customer engagement with chatbot marketing platforms.

NULL HYPOTHESIS

H01: There is no significant relationship between age of the respondents and Awareness of Chatbot Marketing

H02: There is no significant relationship between gender of the respondents and Usage Behaviour

H03: There is no significant relationship between Occupation of the respondents and Purchase Intention

H04: There is no significant relationship between Area of residence of the respondents and Privacy and Security

3. METHODOLOGY

The present study, "An Analytical Study of Customer Engagement Through Chatbot Marketing in the Digital Environment," adopted a descriptive research design to examine customers' awareness, usage behaviour, purchase intention, and privacy and security perceptions towards chatbot marketing. The study was conducted using both primary and secondary data. Primary data were collected through a structured questionnaire administered to 180 respondents who had experience using chatbot services on digital platforms. The respondents were selected using the convenience sampling technique. Secondary data were gathered from books, journals, research articles, conference proceedings, websites, and other relevant published sources related to chatbot marketing, artificial intelligence, customer engagement, and digital marketing. The collected data were classified, coded, and analysed using Statistical Package for the Social Sciences (SPSS). Appropriate statistical tools such as Percentage Analysis were used to analyse

the demographic profile of the respondents, One-Way Analysis of Variance (ANOVA) was employed to examine the relationship between age and awareness of chatbot marketing, Independent Samples t-test was used to analyse the relationship between gender and usage behaviour, Kruskal–Wallis H Test was applied to examine the relationship between occupation and purchase intention, and Mann–Whitney U Test was used to analyse the relationship between area of residence and privacy and security perceptions. These statistical techniques helped identify significant differences among the selected demographic variables and provided meaningful insights into customer engagement through chatbot marketing in the digital environment.

ANALYSIS AND INTERPRETATION

H01: There is no significant relationship between age of the respondents and Awareness of Chatbot Marketing

ANOVA						
Factors		Sum of Squares	df	Mean Square	F	Sig.
I know that chatbots are powered by artificial intelligence.	Between Groups	7.297	4	1.824	2.737	.030
	Within Groups	116.615	175	.666		
	Total	123.911	179			
I have seen chatbot marketing on e-commerce websites.	Between Groups	3.381	4	.845	1.130	.344
	Within Groups	130.864	175	.748		
	Total	134.244	179			
I am aware that chatbots are used for customer support and product promotion.	Between Groups	2.019	4	.505	.534	.711
	Within Groups	165.292	175	.945		
	Total	167.311	179			
I understand the benefits of chatbot marketing.	Between Groups	5.317	4	1.329	1.214	.307
	Within Groups	191.677	175	1.095		
	Total	196.994	179			
I can easily recognize chatbot icons on digital platforms.	Between Groups	4.407	4	1.102	1.125	.346
	Within Groups	171.343	175	.979		
	Total	175.750	179			
I have learned about chatbot services through social media.	Between Groups	6.428	4	1.607	2.609	.037
	Within Groups	107.772	175	.616		
	Total	114.200	179			

Source: Primary Data

Interpretation

A One-Way Analysis of Variance (ANOVA) was conducted to examine whether there is a significant relationship between the age of the respondents and their awareness of chatbot marketing. The null hypothesis (H_{01}) states that there is no significant relationship between respondents' age and awareness of chatbot marketing. The test was conducted at the 5% level of significance ($p < 0.05$). The null hypothesis (H_{01}) is partially rejected. It can be concluded that respondents' age significantly influences awareness regarding the AI foundation of chatbots and learning about chatbot services through social media, whereas it does not significantly influence awareness of chatbot marketing on e-commerce websites, customer support and promotional applications, benefits of chatbot marketing, or recognition of chatbot icons on digital platforms.

H02: There is no significant relationship between gender of the respondents and Usage Behaviour

Factors		F	Sig.	t	df	Sig. (2-tailed)
I use chatbots before making online purchases.	Equal variances assumed	.914	.340	.586	178	.558
	Equal variances not assumed			.582	168.751	.561
I use chatbots to track my orders.	Equal variances assumed	.983	.323	-1.548	178	.123

	Equal variances not assumed			-1.538	168.787	.126
I use chatbots to receive promotional offers.	Equal variances assumed	.005	.945	.051	178	.959
	Equal variances not assumed			.051	174.884	.959
I interact with chatbots on social media platforms.	Equal variances assumed	.421	.517	-.642	178	.522
	Equal variances not assumed			-.641	174.916	.523
I use chatbot services whenever they are available.	Equal variances assumed	.231	.631	1.366	178	.174
	Equal variances not assumed			1.376	177.973	.171
I depend on chatbots for quick customer support.	Equal variances assumed	.046	.830	.678	178	.499
	Equal variances not assumed			.678	176.105	.499
Chatbots are simple to navigate.	Equal variances assumed	.184	.668	-.865	178	.388
	Equal variances not assumed			-.863	174.017	.389
The chatbot provides clear instructions.	Equal variances assumed	.011	.917	.835	178	.405
	Equal variances not assumed			.833	173.746	.406
I can communicate with chatbots without technical knowledge.	Equal variances assumed	.905	.343	2.776	178	.006
	Equal variances not assumed			2.794	177.994	.006
Chatbots make online shopping more convenient.	Equal variances assumed	3.269	.072	-.257	178	.797
	Equal variances not assumed			-.260	177.066	.795
Learning to use chatbots is easy for me.	Equal variances assumed	.542	.463	-.293	178	.770
	Equal variances not assumed			-.293	175.639	.770
Chatbots simplify the purchasing process.	Equal variances assumed	1.894	.171	-.127	178	.899
	Equal variances not assumed			-.127	177.990	.899

Source: Primary Data

Interpretation

An Independent Samples t-test was conducted to examine whether there is a significant relationship between the gender of the respondents and their usage behaviour of chatbot marketing. The null hypothesis (H_{02}) states that there is no significant relationship between gender and usage behaviour. Before interpreting the t-test results, Levene's Test for Equality of Variances was examined. Since the significance values of Levene's Test are greater than 0.05 for all variables, the assumption of equal variances is satisfied, and the "Equal variances assumed" results are considered for interpretation. The null hypothesis (H_{02}) is partially rejected. It can be concluded that gender does not significantly influence most aspects of chatbot usage behaviour. However, gender has a significant influence on respondents' ability to communicate with chatbots without technical knowledge, while the remaining dimensions of chatbot usage behaviour are similar across male and female respondents.

H03: There is no significant relationship between Occupation of the respondents and Purchase Intention

Factors	Kruskal-Wallis H	df	Asymp. Sig.
Chatbot assistance increases my likelihood of making a purchase.	2.747	4	0.601
Chatbots help me compare products before buying.	6.659	4	0.155
Chatbots reduce my hesitation when purchasing online.	9.124	4	0.058
I trust chatbot recommendations during shopping.	3.854	4	0.426
Chatbot interactions positively influence my buying decisions.	1.753	4	0.781
I am willing to purchase from brands that provide chatbot support.	4.584	4	0.333

I continue purchasing from brands with effective chatbot services.	3.454	4	0.485
Chatbot services improve my trust in a brand.	4.816	4	0.307
Good chatbot experiences strengthen my relationship with a brand.	5.357	4	0.253

Source: Primary Data

Interpretation

A Kruskal–Wallis H test was conducted to examine whether there is a significant relationship between the occupation of the respondents and their purchase intention towards chatbot marketing. The null hypothesis (H_{03}) states that there is no significant relationship between respondents' occupation and purchase intention. The Kruskal–Wallis H test was employed because the data did not satisfy the assumptions required for parametric testing. The test was conducted at the 5% level of significance ($p < 0.05$). the null hypothesis (H_{03}) is accepted. It can be concluded that the occupation of the respondents does not have a significant influence on their purchase intention towards chatbot marketing. Respondents from different occupational groups exhibit similar levels of purchase intention, trust, and brand relationship with respect to chatbot-assisted shopping experiences.

H04: There is no significant relationship between Area of residence of the respondents and Privacy and Security

Factors	I worry that chatbots may misuse my personal information.	I feel secure while sharing information with chatbots.	Chatbots should clearly explain how customer data is used.	Privacy policies increase my confidence in chatbot services.	I prefer chatbots that ensure secure transactions.	Security concerns discourage me from using some chatbot services.
Mann-Whitney U	2832.500	3435.000	2926.500	3669.500	3373.000	3607.500
Wilcoxon W	9618.500	10221.000	9712.500	10455.500	5453.000	10393.500
Z	-2.793	-.882	-2.504	-.137	-1.076	-.331
Asymp. Sig. (2-tailed)	.005	.378	.012	.891	.282	.740
a. Grouping Variable : Area of residence						

Source: Primary Data

Interpretation

A Mann–Whitney U test was conducted to examine whether there is a significant relationship between the area of residence of the respondents and their privacy and security perceptions towards chatbot marketing. The null hypothesis (H_{04}) states that there is no significant relationship between respondents' area of residence and privacy and security concerns associated with chatbot services. Since the grouping variable consists of two independent groups and the data did not satisfy the assumptions of parametric testing, the Mann–Whitney U test was employed. The test was conducted at the 5% level of significance ($p < 0.05$). the null hypothesis (H_{04}) is partially rejected. It can be concluded that the area of residence significantly influences respondents' concerns regarding the misuse of personal information and the importance of clear explanations about customer data usage. However, it does not significantly influence respondents' perceptions of security while sharing information, confidence in privacy policies, preference for secure chatbot transactions, or the extent to which security concerns discourage the use of chatbot services.

4. CONCLUSION

The present study, "An Analytical Study of Customer Engagement Through Chatbot Marketing in the Digital Environment," examined customers' awareness, usage behaviour, purchase intention, and privacy and security perceptions towards chatbot marketing. The findings reveal that respondents possess a satisfactory level of awareness regarding chatbot marketing, particularly in understanding that chatbots are powered by artificial intelligence and learning about chatbot services through social media. The study indicates that age significantly influences selected dimensions of awareness, while other aspects remain consistent across different age groups. The analysis further shows that gender has only a limited influence on chatbot usage behaviour, with male and female respondents exhibiting similar patterns in using chatbots for online purchases, order tracking, customer support, and promotional interactions. A significant gender difference is observed only in respondents' ability to communicate with chatbots without technical knowledge. In addition, the study reveals that occupation does not significantly influence customers' purchase intention, suggesting that individuals from different occupational groups have similar levels of trust, willingness to purchase, and brand engagement through chatbot-assisted services. Overall, the study concludes that chatbot marketing has a positive influence on customer engagement by enhancing communication, improving customer convenience, and supporting informed purchase decisions in the digital environment. However, privacy and security concerns continue to play an important role, as respondents' area of residence significantly influences their concerns regarding the misuse of personal information and the need for transparency in data usage. Therefore, businesses should focus on developing secure, user-friendly, and AI-driven chatbot systems that provide accurate responses, personalised interactions, and clear privacy policies. Strengthening customer awareness, improving digital literacy, ensuring robust cybersecurity measures, and maintaining transparency in data handling will help build customer trust, encourage wider adoption of chatbot marketing, and strengthen long-term customer relationships in the digital marketplace.

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