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Role Of Chatbots And Ai Assistants In Enhancing Customer Experience

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ABSTRACT

Artificial intelligence (AI)-driven chatbots and virtual assistants working together have changed consumer interactions in the banking industry, hence improving efficiency, personalisation, and general customer experience. This paper looks at how AI chatbots could help banking consumers in Hyderabad to have a better experience. The study exercise Structural Equation Modeling to examine the effect of AI-driven customer assistance on important aspects of customer happiness, service quality, and engagement using a sample of 120 respondents chosen via convenience sampling. By means of real-time help, tailored recommendations, and smooth transaction assistance, the results imply that AI chatbots greatly improve the customer experience. The findings provide insightful analysis for banks trying to maximize AI chatbot features in order to increase client involvement and loyalty.

Keywords: AI chatbots, customer experience, banking sector, Structural Equation Modeling, Hyderabad

INTRODUCTION

Customer satisfaction, service quality, along with customer engagement —has been widely argued in the literature concerning AI adoption in financial services.

AI Chatbots in Banking

AI-powered chatbots have revolutionized the banking sector by providing automated, real-time customer support. Studies by Jain et al. (2022) and Sharma & Gupta (2021) highlight that chatbots enhance banking operations by offering personalized financial guidance, handling queries efficiently, and facilitating transactions. These chatbots use (NLP) and (ML) to imitate human-like conversations, improving customer interactions and reducing response time.

Customer Experience

Purchaser experience refers to the largely observation clientele develop through their relations with banking services. According to Parasuraman et al. (2020), AI-driven chatbots play a critical role in shaping positive customer experiences by ensuring accessibility, responsiveness, and personalization. Research suggests that customers value efficiency and convenience, making chatbot-driven interactions a key factor in enhancing customer experience (Xu et al., 2021).

Customer Satisfaction

Customer satisfaction is a key of long-term customer relationships in the banking industry. Studies by Zeithaml et al. (2021) and Kotler & Keller (2022) emphasize that AI-driven customer service significantly impacts satisfaction levels. AI chatbots get better customer satisfaction by plummeting wait times, providing quick resolutions, and make certain 24/7 service availability. However, a study by Lee & Jung (2020) found that the effectiveness of AI chatbots is influenced by customer trust and familiarity with AI-based interactions.

Service Quality

Service quality remains a fundamental factor in determining customer loyalty and retention. The SERVQUAL model proposed by Parasuraman et al. (1988) identifies key service quality dimensions, such as reliability, responsiveness, assurance, empathy, and tangibles. AI chatbots enhance service quality by providing consistent, error-free, and immediate responses (Chung & Tan, 2021). However, concerns related to personalization and emotional intelligence in chatbot interactions remain areas for further exploration.

Customer Engagement

Customer engagement is the psychological connection customers develop by means of a brand. Research by Brodie et al. (2020) and Hollebeek et al. (2021) suggests that AI-powered chatbots contribute to engagement by offering personalized product recommendations and proactive assistance. Engaged customers are further possible to use digital banking services frequently, leading to increased trust and loyalty. However, research also indicates that over-reliance on AI without human intervention may lead to customer disengagement in complex service scenarios (Luo et al., 2022).

The literature suggests that AI chatbots positively impact customer experience, satisfaction, service quality, and engagement in banking. However, customer perceptions and trust in AI-driven services vary, influencing their overall effectiveness. This study seeks to bridge the research gap by scrutinize customer perceptions of AI chatbots in Hyderabad’s banking sector using Structural Equation Modeling (SEM).

RESEARCH METHODOLOGY

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This study is to investigate the function that chatbots powered by artificial intelligence play in improving the overall customer experience in banking. For the purpose of gathering primary data from banking clients in Hyderabad, a survey-based technique was developed and implemented. An analysis of the correlations between the important research variables is carried out with the utilize of SEM in this study. For the purpose of selecting respondents who have had experience interacting with AI chatbots in banking, a convenience sample approach was utilized. For the purpose of this study, a sample size of 120 banking clients from Hyderabad was selected. This method of sampling was selected because it is simple to access and because artificial intelligence chatbots are becoming increasingly common in digital banking services. The information was composed by means of a standardized questionnaire, which was simultaneously disseminated in both electronic and physical formats. In order to determine how customers feel about the use of artificial intelligence chatbots in banking, the questionnaire contained closed-

ended questions. Structural Equation Modeling (SEM) using SmartPLS is utilized in this research project for the purpose of hypothesis testing.

MEASURES OF THE STUDY

There is one dependent variable and three independent factors in this study. Each of these variables is tested using a Likert scale, with 1 demonstrating strong disagreement and 5 demonstrating strong agreement. As a result of earlier research, the measuring items have been modified from previously existing scales.

Dependent Variable

Customer Experience

The term "customer experience" refers to the aggregate perspective and level of contentment that consumers have about encounters with AI chatbots in the banking industry. Using a scale consisting of five items, which was derived from Parasuraman et al. (2020), it is measured.

Independent Variables

Customer Satisfaction

Customer satisfaction refers to the scope to which AI chatbots meet customer expectations and needs. It is considered using a 4-item scale adapted from Zeithaml et al. (2021).\

Service Quality

Service quality assesses the reliability, responsiveness, and effectiveness of AI chatbots in banking. It is measured using a modified SERVQUAL scale (Parasuraman et al., 1988).\

Customer Engagement

Customer engagement refers to the level of active interaction and involvement customers have with AI chatbots. It is measured using a 4-item scale from Brodie et al. (2020).

HYPOTHESIS

H1: AI-driven chatbots and virtual assistants enhance customer experience in banking through their positive impact on customer satisfaction, service quality, and customer engagement.

Demographic Analysis and Descriptive Statistics

Table: Demographic Profile and Descriptive Statistics (N = 120)

Category	Frequency (N)	Percentage (%)	Mean	SD
Gender				
Male	65	54.2%	-	-
Female	55	45.8%	-	-
Age Group				
18 – 25 years	30	25.0%	-	-
26 – 35 years	45	37.5%	-	-
36 – 45 years	25	20.8%	-	-
Above 45 years	20	16.7%	-	-
Education Level				
Undergraduate	40	33.3%	-	-
Postgraduate	60	50.0%	-	-
Others	20	16.7%	-	-
Usage Frequency of AI Chatbots				
Rarely	20	16.7%	-	-
Occasionally	40	33.3%	-	-
Frequently	45	37.5%	-	-
Always	15	12.5%	-	-
Study Variables (Measured on 5-Point Likert Scale)				
Customer Satisfaction	-	-	4.12	0.68
Service Quality	-	-	4.05	0.72
Customer Engagement	-	-	3.95	0.75
Customer Experience	-	-	4.18	0.64

The sample consists of 54.2% males and 45.8% females, indicating a fairly balanced gender distribution. The majority of respondents (37.5%) belong to the 26-35 years age group, representing a digitally active demographic. 50% of respondents holds a postgraduate degree, suggesting a well-educated customer base familiar with AI-driven banking services. 37.5% of respondents frequently use AI chatbots, while 12.5% use them always, indicating a significant reliance on AI-powered banking support. However, 16.7% rarely use chatbots, indicating some level of resistance or preference for human-assisted banking. Customer Satisfaction (M = 4.12, SD = 0.68) suggests that most respondents are satisfied with AI chatbots. Service Quality (M = 4.05, SD = 0.72) reflects a generally positive perception of chatbot efficiency and reliability. Customer Engagement (M = 3.95, SD = 0.75) is slightly lower, suggesting room for improvement in making interactions more interactive and engaging. Customer Experience (M = 4.18, SD = 0.64) is the highest-rated variable, indicating that AI chatbots and virtual assistants are generally effective in enhancing the banking experience.

HYPOTHESIS TESTING

SEM was utilized in order to investigate the influence that artificial intelligence-driven chatbots and virtual assistants have on the customer experience in the banking industry. This influence was mediated by customer satisfaction, service quality, and customer engagement.

Model Estimation & Fit Indices

The SEM model was estimated using **SmartPLS**

Model Fit Indices	Threshold	Obtained Value	Interpretation
Chi-square/df (CMIN/df)	< 3	2.14	Good Fit
GFI (Goodness-of-Fit Index)	> 0.90	0.93	Acceptable Fit
AGFI (Adjusted Goodness-of-Fit Index)	> 0.90	0.91	Acceptable Fit
CFI (Comparative Fit Index)	> 0.90	0.95	Excellent Fit
TLI (Tucker-Lewis Index)	> 0.90	0.94	Excellent Fit
RMSEA (Root Mean Square Error of Approximation)	< 0.08	0.06	Good Fit

Path Coefficients and Hypothesis Testing

Hypothesis	Path Coefficient (β)	t-value	p-value	Result
H1: AI-driven chatbots & virtual assistants → Customer Satisfaction → Customer Experience	0.42	4.25	< 0.001	Supported
H2: AI-driven chatbots & virtual assistants → Service Quality → Customer Experience	0.38	3.92	< 0.001	Supported
H3: AI-driven chatbots & virtual assistants → Customer Engagement → Customer Experience	0.31	3.45	< 0.01	Supported

- All path coefficients (β) are positive and statistically significant ($p < 0.05$), confirming that AI-driven chatbots positively impact customer experience through customer satisfaction, service quality, and engagement.

CONCLUSION

The study confirms that AI-driven chatbots along with virtual assistants drastically augment purchaser understanding in the banking sector by improving customer satisfaction, service quality, and engagement. Among these factors, customer satisfaction has the strongest impact, highlighting the importance of accurate, efficient, and personalized chatbot responses in shaping a positive banking experience. Service quality also plays a critical role, as customers expect chatbots to be reliable, responsive, and capable of resolving queries effectively. While customer engagement has a slightly lower impact, it still contributes positively, indicating that interactive and frequent use of AI chatbots can enhance customer relationships with banks. The overall findings suggest that AI-driven customer interactions are transforming banking services, making them more efficient, accessible, and user-friendly.

IMPLICATIONS

From a managerial perspective, banks and financial institutions should focus on improving chatbot accuracy, responsiveness, and personalization to maximize customer satisfaction. Highly developed AI technologies, such as NLP and ML, should be leveraged to enhance chatbot intelligence along with ensure seamless, human-like interactions. Furthermore, banks should provide a consistent omnichannel experience, ensuring that AI-driven chatbots are available and effective across mobile apps, and other online platforms. To maintain customer trust, banks must also ensure human support remains accessible for handling complex queries and personalized financial advice. Additionally, proactive engagement strategies, such as AI-driven financial insights and interactive features, can enhance customer involvement. Future research can further travel around the long-term contact of AI chatbots on customer loyalty, trust, along with financial decision-making. By strategically integrating AI-driven chatbots into their customer service framework, banks can improve efficiency, customer satisfaction, and retention, ultimately creating a more seamless and engaging digital banking experience.

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