

THE ADOPTION OF AI-DRIVEN CHATBOTS INTO A RECOMMENDATION FOR E-COMMERCE SYSTEMS TO TARGETED CUSTOMER IN THE SELECTION OF PRODUCT

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Abstract

The research looks into the Adoption of AI-Driven chatbots into a recommendation for E-Commerce systems to targeted customer in the selection of product, particularly their function in product selection and overall customer experience. The study is based on five assumptions: improved product selection accuracy, increased user happiness, influence on customer engagement and purchase decisions, enhanced user experience and retention rates, and effect on consumer trust. The findings show that AI-powered chatbots greatly improve product selection accuracy, with a regression weight of 0.693 and a beta coefficient of 0.480, representing a 48% improvement per unit of implementation. User satisfaction has also significantly improved, as evidenced by a regression weight of 0.897 and a beta coefficient of 0.840, both with high statistical significance. Chatbots have a favourable impact on consumer engagement and purchasing decisions, as indicated by substantial regression weights and beta coefficients for each variable. AI chatbots improve user experience and retention, as evidenced by high regression weights and R² values. Finally, chatbots improve customer trust, with a regression weight of 0.447 and a beta coefficient of 0.200. Overall, the study shows that AI-powered chatbots significantly increase several aspects of e-commerce, including product selection accuracy, user pleasure, engagement, retention, and trust.

Keywords: Artificial Intelligence; Chatbot; E-Commerce; Product Selection; Purchase Decision; Customer Satisfaction and Engagement; Customer Trust and Retention.

1. INTRODUCTION

Artificial intelligence (AI) has affected how a person goes about their daily lives by developing and testing advanced software and gadgets known as intelligent agents, which can perform a variety of tasks. A chatbot is an AI program and a Human-computer Interaction (HCI) paradigm (Bansal & Khan, 2018). Natural Language Processing (NLP) and sentiment analysis are used to communicate in human language via text or spoken communication with humans or other chatbots (Khanna et al., 2015). Chatbots can also be called artificial conversation beings, interactive agents, clever bots, or digital assistants. Rapid breakthroughs in artificial intelligence (AI) and machine learning (ML) technology have altered a wide range of industries, including e-commerce. Chatbots are now recognized as one of the most potential AI applications in the digital marketplace (Paliwal et al., 2020). E-commerce platforms have used AI-powered chatbots to create personalized, efficient, and scalable customer care experiences, allowing businesses to serve an ever-increasing client base with minimal human intervention. The usage of AI-driven chatbots in online shopping for product selection represents a particularly important innovation, as it enhances user experience, streamlines the process of making decisions, and improves overall operational efficiency for businesses (Ebaietaka, 2024; Savastano et al., 2024). The incorporation of AI into e-commerce platforms has not only boosted consumer satisfaction but also streamlined business operations by minimizing human engagement in customer support jobs (Abou Elmaaty and Ibrahim, 2023).

The introduction of AI-powered chatbots represents a fundamental shift in the way e-commerce enterprises interact with their customers. Conventional customer service models that mainly relied on human agents, frequently encountered issues such as scalability, reaction time, and accuracy in offering individualized suggestions (Rojas, 2024). With the development of chatbots, e-commerce platforms can now provide 24/7 customer service, handle several consumer requests concurrently, and deliver

consistent and individualized responses (Waghambare et. al., 2024; El-Ansari and Beni-Hssane, 2023). These AI systems can grasp user intent, interpret complex queries, and recommend products in a way that mimics interactions between people, resulting in an effortless shopping experience. One of the main benefits of chatbots powered by AI in e-commerce is the ability to improve product discovery (Prasad et. al., 2024). Customers frequently find it difficult to select products in an e-commerce environment due to the large number of possibilities offered. Chatbots can help clients narrow down their selections by using NLP and ML algorithms to learn what they like and filter products accordingly (Fida, 2019).

Furthermore, AI-powered chatbots are excellent at making real-time recommendations based on user behavior as well as preferences. E-commerce systems collect enormous quantities of data from client interactions, such as browsing history, past purchases, and search searches. Chatbots can examine this data in real-time, using machine learning algorithms to find patterns and trends that guide product recommendations (Lee, 2020). For example, if a consumer frequently browses sportswear, the chatbot can proactively recommend similar products like footwear or exercise equipment, increasing cross-selling and up-selling prospects (Krishnan et al., 2022). This dynamic interaction results in a more engaging and individualized purchasing experience, which increases customer loyalty and repeat purchases. The deployment of AI-driven chatbots in e-commerce delivers various operational benefits to enterprises (Cheng et. al., 2023). Chatbots lessen the stress on human agents by automating common customer service tasks, freeing them up to focus on more complicated or high-value conversations. Furthermore, chatbots may work on a large scale, managing thousands of client requests at once, which is especially useful during peak shopping seasons like Black Friday or holiday sales. This scalability not only increases customer support efficiency but also saves operational expenses, making chatbots an affordable choice for e-commerce enterprises.

The purpose of the research stems from the increasing integration of AI-powered chatbots in e-commerce, as well as the changing desires of online consumers for more efficient, personalized, and seamless purchasing experiences. The study demonstrates how chatbots greatly increase the accuracy of product selection and customer pleasure during the selection process. It also seeks to investigate the extent to which AI technologies can refine e-commerce interactions. Furthermore, the rapid reaction time of chatbots is thought to positively influence consumer engagement and purchase decisions, therefore it's vital to investigate how speed and accuracy might increase conversions. Furthermore, the adoption of AI-powered chatbots is thought to improve overall user experience and retention rates, highlighting the broader business usefulness of these tools in promoting long-term client loyalty. Finally, because the accuracy of chatbot recommendations is thought to have a direct impact on customer trust, the study will look into the effects of AI precision on building and retaining consumer confidence in e-commerce platforms. Together, the report emphasizes the growing importance of AI-powered chatbots in reshaping e-commerce landscapes and provides useful insights into maximizing customer interactions and company results.

2. LITERATURE REVIEW

The following section of the research is based on a review and evaluation of the pertinent literature on the subject at hand. It is based on the preceding brief introduction, the study's location, and the significance of the question. This section offers an overview of the published publications on the topic "AI-Driven Chatbot for E-Commerce for Product Selection."

Ebaitaka (2024), explored how artificial intelligence may be used to improve customer experience solutions in Lithuania's e-commerce industry. The purpose of this article is to discuss how artificial intelligence (AI) might improve consumer experience in the e-commerce business. The purpose of this paper is to advocate the use of Artificial Intelligence (AI) in improving consumer experience in the Lithuanian e-commerce sector. However, AI tools were surveyed in the e-commerce sector of Lithuania via an online questionnaire, demonstrating the potential of AI in data collection from various e-stores in Lithuania; additionally, the effect of AI on client involvement was investigated, and the impact of AI technology on customer experience, personalized recommendations, and customer-brand relationship was assessed. This study illustrates the impact of AI technology on the operation of e-commerce. Those that continue to perceive AI's future prospects are likely to be the best prepared to ensure that the digital environment can still meet consumer demands while also improving the firm's competitive edge. As a result, author have four models. These include AI-powered customer experience for sales, AI-powered customer interaction, AI-personalized recommendation functions, and brand perception services.

Tran (2024) assessed the impact of AI-powered CX efforts using a systematic and comprehensive approach. The study also examined academic articles, industry reports, and case studies to identify theoretical frameworks, empirical findings, and practical insights. The findings highlight a dramatic transition driven by AI integration into Customer Relationship Management (CRM). AI offers tailored interactions, strengthens customer engagement with interactive agents, provides data-driven insights, and supports informed decision-making across the customer journey. Four main themes emerge: individualized service, increased engagement, data-driven strategy, and informed decision-making. However, concerns about data privacy, ethical constraints, and potential bad experiences with poorly deployed AI remain. This paper adds significantly to the conversation around AI in CRM by summarizing the present state, exploring major themes, and proposing research directions. It promotes responsible AI implementation, highlighting ethical considerations and assisting enterprises through opportunities and problems.

Timothy et. al., (2024), investigated the prevalence, influence, and effectiveness of AI Chatbots in shaping purchasing decisions and overall consumer behavior among Nigerian youth in the dynamic sector of e-commerce, with a focus on Southwest Nigeria.

The specific goals were to determine the prevalence and usage patterns of AI Chatbots in Nigerian e-commerce platforms among youth consumers; assess the influence of AI Chatbots on Nigerian youth purchasing decisions and shopping experiences; and identify factors contributing to the effectiveness of AI Chatbots in shaping consumer behavior among Nigerian youth. The report advised that educational institutions incorporate digital literacy initiatives into their curricula to empower young people. To build customer trust and encourage wider adoption of AI chatbots, efforts should be taken to eliminate perceived financial and product risks connected with online purchases. To encourage youth adoption, user interface design should promote simplicity and convenience.

Necula and Păvăloaia (2023), aimed to look into how artificial intelligence is used in electronic commerce recommender systems, as well as present and future trends in the sector. This was accomplished through a thorough literature review of scientific articles published within the last decade, with data collected using Vos Viewer and analysed using the Bibliometric R tool. The findings reveal that artificial intelligence works in conjunction with other technologies, such as blockchain, virtual reality, and augmented reality, to improve the consumer experience across the e-commerce process.

Butt and Ahmad (2023) investigated the complex behavioural dynamics that customers exhibit while interacting with AI chatbots. A comprehensive online study was done, with 554 respondents willingly engaging with AI chatbots. The poll focused on established frameworks such as the information systems success (ISS) model, the technology acceptance model (TAM), engagement, and the elicitation of positive sentiments. The study's findings highlight the critical role AI chatbots play in increasing user happiness and, consequently, forecasting favourable outcomes. These data are extremely valuable to brand managers, providing a deep picture of Indian internet customers' behaviour. Furthermore, the study emphasizes the enormous influence of e-WOM generated by AI chatbots in the online buying area, reinforcing their status as critical components of digital services in the modern environment. As digital services continue to shape and define modern corporate operations, AI chatbots have emerged as important facilitators in increasing the pleasure of digital users, making them indispensable for firms trying to prosper in the digital sphere.

Landim et. al., (2022), provided an interdisciplinary overview through a complete categorization of recent studies on the issue that will enrich future research in the field. To do this, a theme-based literature review was conducted through the examination of specialized research. The collected work was classified into computational and non-computational perspectives. The findings show that Deep Learning, recommendation systems, speech recognition, and integration of chatbots with other fashion applications are some of the design potentials to be exploited in both study and practice.

Ngai et. al., (2021), suggested an intelligent knowledge-based conversational agent system architecture to support customer care in e-commerce sales and marketing. A leading manufacturer of women's intimate apparel reports a preliminary use of a chatbot for customer care. The suggested system makes use of a variety of developing technologies, including web crawling, natural language processing, knowledge bases, and artificial intelligence. In this study, a prototype system is created in a real-world environment. The system prototype evaluation findings are satisfactory, supporting the claim that the system is effective. The study also examines the problems and lessons acquired during system installation, as well as the theoretical and managerial implications of the study.

Chong et. al., (2021), proposed a three-level classification of AI-chatbot design (anthropomorphic role, appearance, and interactivity) and investigated how the combination of these three components of chatbot design influences the complementarities of agency. Recognizing the existing implementation obstacles, authors propose that the complementarities of agency at each level are the lynchpin mechanism that converts AI-chatbot design into service-relevant outcomes. Authors offer a research agenda focused on the emotion interface, resolution of the proxy agency conundrum, and creation of collective agency to assist the introduction of AI-chatbots as frontline service agents.

Chung et. al., (2020), investigated whether luxury fashion retail brands can maintain their core essence of providing personalized care through e-services rather than traditional face-to-face interactions, specifically through Chatbot, an emerging digital tool that provides convenient, personal, and unique customer assistance. The authors employ consumer data to test a five-dimensional model that assesses customer views of Chatbot engagement, amusement, trendiness, personalization, and problem-solving. According to the survey, Chatbot e-service offers interactive and engaging brand/customer service encounters. Marketers and managers in the luxury setting can use the instrument to determine whether e-service agents give desired outcomes and whether they should use Chatbot virtual support.

3. RESEARCH GAP

Despite the increasing use of AI-powered chatbots in e-commerce, present research is insufficient to fully address their impact on crucial criteria such as product selection accuracy, user pleasure, engagement, customer retention, and trust. While studies have looked into the general benefits of AI in customer service, the specific impact of chatbots on improving the accuracy of product recommendations, increasing satisfaction during the selection process, and encouraging engagement through quick response times remains unexplored. Furthermore, little research has been conducted to determine how chatbots affect overall user experience and customer retention in a competitive e-commerce landscape. Finally, the relationship between the accuracy of chatbot recommendations and the development of client trust has not been properly studied. This study attempts to address these

gaps by experimentally analyzing the effectiveness of AI-driven chatbots in improving various parts of the e-commerce buying experience, adding to a more nuanced understanding of their role in impacting consumer behavior and business outcomes.

4. RESEARCH QUESTION

Based on the aforementioned purpose of the study, the following research questions are developed:

- Q1. How does the integration of AI-driven chatbots influence the accuracy of product selection in e-commerce platforms?
- Q2. How does the use of AI-driven chatbots affect user satisfaction during the product selection process in e-commerce?
- Q3. How does the response time of AI-driven chatbots influence customer engagement on e-commerce platforms?
- Q4. What role does chatbot response time play in shaping customer purchase decisions in e-commerce environments?
- Q5. How does the implementation of AI-driven chatbots improve the overall user experience on e-commerce platforms?
- Q6. What is the relationship between AI-driven chatbot implementation and customer retention rates in e-commerce?
- Q7. How does the accuracy of AI-driven chatbot recommendations affect customer trust in e-commerce platforms?

5. RESEARCH METHODOLOGY

A researcher's technique outlines how he or she develops and carries out a study or inquiry to address a certain topic or problem. A well-defined research approach is the foundation for the entire research process. It explains how to collect relevant data, test hypotheses, and draw conclusions. It also tackles sample concerns, data collection methods, data analysis methodology, and ethical issues to consider during the research process.

5.1 Objectives of the study:

Following are the objectives of the study based on the research questions framed:

1. To evaluate the impact of integrating AI-driven chatbots on the accuracy of product selection in e-commerce platforms.
2. To assess the effect of AI-driven chatbots on user satisfaction during the product selection process in e-commerce platforms.
3. To analyze how the response time of AI-driven chatbots influences customer engagement and purchase decisions in e-commerce.
4. To examine the impact of AI-driven chatbots on overall user experience and customer retention rates in e-commerce platforms.
5. To investigate how the accuracy of AI-driven chatbot recommendations affects customer trust in e-commerce.

5.2 Hypothesis Formulation:

Based on the research questions and objective framed following hypothesis (assumptions) are made:

- H1:** The integration of AI-driven chatbots in e-commerce significantly improves the accuracy of product selection.
- H2:** AI-driven chatbots enhance user satisfaction during the product selection process in e-commerce platforms.
- H3:** The response time of AI-driven chatbots positively influences customer engagement and purchase decisions in e-commerce.
- H4:** The implementation of AI-driven chatbots in e-commerce enhances overall user experience and customer retention rates.
- H5:** The accuracy of AI-driven chatbot recommendations significantly impacts customer trust.

5.3 Research Design:

The study employs a quantitative research design, with primary data gathering and analysis as the focus. The process entails creating an online poll for users of e-commerce platforms that deploy AI-powered chatbots. The survey will ask questions about product selection accuracy, user satisfaction, chatbot response time, overall user experience, and customer trust. The survey data will be gathered from a representative sample of e-commerce customers and analysed using statistical approaches such as regression analysis and structural equation modeling to evaluate the hypotheses. This method will provide insights into the usefulness of AI-powered chatbots in increasing e-commerce functionalities.

5.4 Data Collection:

The study's primary data collection method will be a structured survey distributed to e-commerce users. The survey will include quantitative questions designed to assess the following dimensions: (1) the perceived accuracy of chatbot product recommendations, (2) user satisfaction with chatbot interaction, (3) the impact of response time on engagement and purchase decisions, (4) overall user experience and retention rates associated with chatbot use, and (5) the effect of recommendation accuracy on customer trust. In addition, data on chatbot reaction times and accuracy metrics will be collected from the backend systems of e-commerce platforms to supplement survey findings. The poll will use Likert scale ratings to quantify user perceptions, and system data will give objective metrics of chatbot performance, allowing for a full investigation of how AI-driven chatbots impact the product selection process in e-commerce.

5.5 Sample Size:

A standardized questionnaire and stratified random selection will be utilized to survey e-commerce consumers from various parts of India. A total of 350 surveys were distributed via LinkedIn and other social media channels to e-commerce consumers from various Indian states and regions. 297 responses were obtained out of 350 questionnaires, accounting for 84.85% of the total. However, due to missing or incorrect information, 29 of the responses were invalid. By calculating and counting the valid response obtained the total sample of the study is 268. This sample size provides sufficient statistical power to detect significant effects and relationships associated with the integration of AI-driven chatbots in e-commerce, including improvements in product selection accuracy, user satisfaction, customer engagement, overall user experience, and customer trust.

5.6 Data Analysis:

Data will be analysed using Excel and SPSS 27.0, with descriptive statistics used to examine variable distributions and central patterns, and inferential statistics, such as regression, to validate hypotheses and provide a comprehensive understanding of the chatbot's impact on the e-commerce product selection process.

6. ANALYSIS AND RESULTS

6.1 Demographic Profile of the Respondents:

Table 1: Demographic Profile of the Respondents

S No.	Demographic Characteristics	Category	N	%
1	Gender	Female	118	44.0%
		Male	150	56.0%
2	Age	18-25 years	92	34.3%
		26-35 years	95	35.4%
		36-45 years	40	14.9%
		46-55 years	26	9.7%
		Above 55 years	15	5.6%
3	Employment Status	Full type Employees	144	53.7%
		Part time Employees	63	23.5%
		Others	61	22.8%
4	Income (Per Month)	Less than 25,000	72	26.9%
		25,001-50,000	100	37.3%
		50,001-75,000	72	26.9%
		75,001 - 1,00,000	17	6.3%
		More than 1,00,000	7	2.6%
5	Year of Experience	Less than a year	63	23.5%
		1-5 years	103	38.4%
		6-10 years	74	27.6%
		More than 10 years	28	10.4%
6	Educational Background	Senior Secondary Education	51	19.0%
		Graduation	139	51.9%
		Post-Graduation	67	25.0%
		Others	11	4.1%
7	Working Sector	Private Sector	168	62.7%
		Public Sector	100	37.3%
8	Marital Status	Single	118	44.0%

		Married	112	41.8%
		Others	38	14.2%
9	Geographic Location	Rural	116	43.3%
		Semi-Urban	35	13.1%
		Urban	117	43.7%
10	Frequency of Online Shopping	Daily	74	27.6%
		Weekly	103	38.4%
		Monthly	63	23.5%
		Less Frequently	28	10.4%
11	Device Used for Shopping	Smartphones	139	51.9%
		Tablet	51	19.0%
		Laptop	67	25.0%
		Others	11	4.1%
12	Experience with AI Chatbots	Yes	168	62.7%
		No	100	37.3%

Table 1 provides a full demographic profile of the study participants. It shows a small majority of men responders (56.0%) against females (44.0%). The largest age group is between 26 and 35 years old (35.4%), with lesser numbers in other age categories. Employment status suggests that most participants are full-time employees (53.7%), whereas income levels are mainly concentrated in the \$25,001-50,000 category (37.3%). The majority of responders (38.4%) have 1-5 years of experience and have completed their schooling (51.9%). The majority work in the private sector (62.7%) and are mostly single (44.0%). Geographically, respondents are about evenly distributed between rural (43.3%) and urban (43.7%) areas. Weekly online shopping is the most popular (38.4%), with smartphones being the preferred device (51.9%). Furthermore, a considerable majority of the participants (62.7%) have expertise with AI chatbots.

6.2 Hypothesis Testing:

H1: The integration of AI-driven chatbots in e-commerce significantly improves the accuracy of product selection.

Table 2: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypothesis Supported
H1	AI-driven chatbots -> accuracy of product selection	.693	.480	212.485	14.577	0.000	Supported

Table 2 looks at how AI-driven chatbots affect product selection accuracy. The regression weight of 0.693 implies that there is a strong positive link between using AI-driven chatbots and selecting products accurately. This association is further supported by the beta coefficient of 0.480, which indicates that for every unit increase in AI-driven chatbot implementation, product selection accuracy improves by 48%. AI-driven chatbots account for roughly 21.2% of the variance in product selection accuracy ($R^2 = 0.212$). With a t-value of 14.577 and a p-value of 0.000, the result is statistically significant, implying that the hypothesis is supported.

H2: AI-driven chatbots enhance user satisfaction during the product selection process in e-commerce platforms.

Table 3: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypotheses Supported
H2	AI-driven chatbots -> user satisfaction	.897	.840	942.273	30.696	0.000	Supported

Table 3 shows that the data supports the hypothesis H2, which states that AI-driven chatbots improve user happiness. The

regression weight of 0.897 indicates a significant positive link between the utilization of AI-powered chatbots and user happiness. AI-driven chatbots have a considerable positive impact on customer happiness, as evidenced by a beta coefficient of 0.840 and a high R² value of 942.273. The t-value of 30.696 and the p-value of 0.000 demonstrate that this link is statistically significant, providing strong proof that AI-driven chatbots do actually boost customer satisfaction.

H3: The response time of AI-driven chatbots positively influences customer engagement and purchase decisions in e-commerce.

Table 4: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypotheses Supported
H3	AI-driven chatbots -> customer engagement	.353	.124	32.699	5.718	0.000	Supported
	AI-driven chatbots -> purchase decisions	.507	.257	79.752	8.930	0.000	

Table 4 shows the findings for Hypothesis H3, which investigates the relationship between AI-powered chatbots, customer engagement, and purchase decisions. AI-powered chatbots positively affect consumer engagement ($\beta = 0.124$, t-value = 5.718, p-value = 0.000) and purchase decisions ($\beta = 0.257$, t-value = 8.930, p-value = 0.000). The R² values of 32.699 and 79.752 indicate that AI-driven chatbots account for a significant percentage of the variance in customer engagement and purchase decisions. Both associations are statistically significant, with p-values less than 0.05, which supports the notion that AI-driven chatbots favourably influence consumer engagement and purchase decisions.

H4: The implementation of AI-driven chatbots in e-commerce enhances overall user experience and customer retention rates.

Table 5: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypotheses Supported
H4	AI-driven chatbots -> user experience	.419	.176	48.973	6.998	0.000	Supported
	AI-driven chatbots -> customer retention rates	.427	.182	51.311	7.163	0.000	

Table 5 shows the findings for Hypothesis H4, which investigates the effect of AI-powered chatbots on user experience and customer retention rates. The regression weights show that AI-powered chatbots have a beneficial impact on both user experience (.419) and customer retention (.427). The beta coefficients (.176 for user experience and .182 for customer retention) indicate the strength of the correlations, while the R² values (48.973 and 51.311) demonstrate the amount of variation explained by the model for each dependent variable. Both t-values (6.998 for user experience and 7.163 for customer retention) are substantially high, with p-values of 0.000 indicating strong statistical significance. Thus, the results confirm the notion that AI-driven chatbots improve the user experience and client retention rates.

H5: The accuracy of AI-driven chatbot recommendations significantly impacts customer trust.

Table 6: Regression Analysis

Hypothesis	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Hypotheses Supported
H5	AI-driven chatbots -> customer trust	.447	.200	57.413	7.577	0.000	Supported

Table 6 shows the findings for Hypothesis H5, which investigates the effect of AI-powered chatbots on consumer trust. The regression weight of 0.447 suggests a positive association between AI-powered chatbots and client trust. The model explains a considerable percentage of the variation in customer trust, as indicated by the R² value of 57.413 and the Beta coefficient of 0.200. The t-value of 7.577, along with a p-value of 0.000, indicates that the association is statistically significant. These data confirm the idea that AI-driven chatbots have a favourable impact on client trust.

7. DISCUSSION

The study of “The Adoption of AI-driven chatbots into a recommendation for E-Commerce systems to Targeted Customer in the selection of product”. has provided significant insights into their impact on different areas of the user experience. The H1 results show a strong beneficial link between AI-driven chatbots and product selection accuracy, which is corroborated by authors such as Sidlauskiene et al., (2023) and Shafi et al., (2020). The regression weight of 0.693 and beta coefficient of 0.480 indicate that adding AI-driven chatbots improves product selection accuracy by 48% for every unit of chatbot use. Further research confirms Hypothesis H2, which holds that AI-powered chatbots improve user happiness. The regression weight of 0.897 and a high beta coefficient of 0.840 suggest a significant positive impact on user satisfaction, which is corroborated by Ekechi et al. (2024), Hsu et al. (2023), and Mäkinen (2024).

H3 results show that AI-driven chatbots have a favourable impact on consumer engagement and purchasing decisions, which is backed by Krishnan et al. (2022), Fickers (2023), and Jiang et al. (2022). AI-powered chatbots have a significant impact on customer engagement ($\beta = 0.124$, t-value = 5.718, p-value = 0.000) and purchase decisions ($\beta = 0.257$, t-value = 8.930, p-value = 0.000), according to regression weights. These findings demonstrate that AI-powered chatbots improve consumer engagement and purchasing decisions, lending significant support to the premise. H4 explores the effects of AI-powered chatbots on user experience and client retention. The results show that there is a beneficial influence on user experience (regression weight = 0.419) and customer retention rates (regression weight = 0.427), which is supported by Cheng and Jiang (2022), Deepa and Abirami (2024), Kushwaha et al., (2021), and NWOKEDE and NWAFOR (2024). AI-driven chatbots explain 48.973 and 51.311 percent of the variance in user experience and customer retention, respectively, as indicated by beta coefficients of 0.176 and 0.182.

H5 investigates the effects of AI-powered chatbots on client trust. The regression weight of 0.447 and the beta value of 0.200 both show a favourable effect on customer trust. The model's R^2 value of 57.413 explains a considerable percentage of the variance in customer trust. The statistically significant t-value of 7.577 and p-value of 0.000 further support this finding. Consequently, the results indicate that AI-driven chatbots greatly improve customer trust, backed by Shahzad et al., (2024) and Yu (2021).

Finally, the study presents solid evidence that AI-powered chatbots improve numerous aspects of e-commerce, such as product selection accuracy, user pleasure, customer engagement, purchase decisions, user experience, customer retention, and trustworthiness. These findings emphasize the need of integrating AI-driven chatbots into e-commerce platforms to improve overall performance and consumer experience.

8. CONCLUSION AND SUGGESTIONS

AI-powered chatbots are a disruptive tool in the e-commerce industry, providing an intelligent and easy solution for product selection. These chatbots, which leverage AI technologies such as NLP, NLU, and ML, can provide personalized shopping experiences, lower operational costs, and increase sales by enhancing consumer satisfaction and engagement. The usage of AI-powered chatbots in e-commerce has transformed how customers engage with online retail platforms, notably during the product selection process. Chatbots have become a vital tool for e-commerce enterprises due to their ability to improve suggestion accuracy, user pleasure, and consumer engagement. The analysis of the impact of AI-driven chatbots on product selection in e-commerce produced interesting results. The data validates all five hypotheses, indicating a strong positive correlation between AI-powered chatbots and many aspects of e-commerce performance. Specifically, implementing AI-powered chatbots improves product selection accuracy, increases user pleasure, increases customer engagement, favourably influences purchase decisions, and strengthens consumer trust. Furthermore, AI-powered chatbots have been demonstrated to improve user experience and lead to improved customer retention rates. These findings are statistically significant, with high t-values and low p-values, highlighting the efficiency of AI-driven chatbots in optimizing the e-commerce experience.

According to the findings, e-commerce platforms should consider using AI-powered chatbots to maximize their potential for improving product selection accuracy and overall consumer pleasure. Investing in advanced chatbot technologies can result in increased consumer interaction and informed purchasing decisions. To reap these benefits, e-commerce companies should prioritize ongoing improvement of chatbot algorithms to ensure high accuracy in product recommendations. Furthermore, using a user-centric approach in chatbot design might improve user experience and trust. Regularly monitoring chatbot performance and incorporating user feedback will be key for maintaining and growing on these positive outcomes in the long run.

9. LIMITATIONS AND FUTURE RESEARCH:

There are various limitations to the study that may have an impact on the results. To begin, the research is hampered by the availability and diversity of data from diverse e-commerce platforms, which may limit the conclusions' generalizability. Furthermore, the study may not properly account for differences in user preferences between demographics and countries, which could impact the chatbot's performance. Future study could overcome these limitations by include a broader range of e-commerce platforms and user categories, as well as conducting longitudinal studies to evaluate the long-term impact of AI-powered chatbots on customer satisfaction and retention. Further research could look into the integration of emerging technologies, such as augmented reality, to improve the chatbot's capabilities and user experience.

10. IMPLICATIONS OF THE STUDY

The study, “The Adoption of AI-driven chatbots into a recommendation for E-Commerce systems to Targeted Customer in the selection of product”. has important ramifications for both e-commerce platforms and consumers. The study demonstrates AI's disruptive potential in improving the shopping experience by demonstrating that AI-driven chatbots improve product selection accuracy, increase user pleasure, and favourably influence customer engagement and purchase decisions. Furthermore, the data indicate that faster reaction times and more accurate recommendations improve user experience while also increasing customer trust and retention. These findings highlight the significance of incorporating advanced AI technology into e-commerce to boost business growth, enhance user interactions, and build long-term consumer loyalty.

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