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IMPACT OF AI CHATBOTS ON CUSTOMER SATISFACTION AND PURCHASE INTENTION IN E-COMMERCE PLATFORMS

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ABSTRACT

Chatbots have become a key tool for customer service in online shopping, enhancing how companies talk to their customers. Compared to older ways of customer support, AI chatbots offer quick replies, tailored suggestions and help anytime, which makes customer service faster and more friendly. As more e-commerce websites use these chatbots, it is important to understand how customers feel about them and how they react.

This study looks at how AI chatbots affect customer satisfaction and the probability that people will buy things online. It focuses on important factors like chatbot responsiveness, ease of usage, personalized service and trust worthiness as found by customers. The study checks how these factors influence customer satisfaction and whether people are more likely to buy products after using a chatbot. The research uses a survey of data collected from 150 customers who have used AI chatbots while shopping online. Statistical tools like Cronbach's Alpha, Descriptive statistics, ANOVA have been used to analyse the data.

The study suggests that when chatbots work well, they improve the customer experience by reducing waiting time, giving correct information and offering help that's customised to each person. Customer satisfaction plays the mediating role between the quality of chatbot service and the desire to buy. The results should show that AI chatbots make customers happier when they give fast, relevant and personalized answers. The study will give useful information on how AI chatbots help with customer involvement and support business goals in a busy online market. This research will help e-commerce companies, marketing teams and technology creators by showing which chatbot features most affect customer satisfaction and buying behaviour. The findings can help organizations create better chatbot experiences that build stronger customer relationships and offer better services. It also adds to the growing body of knowledge about AI in customer engagement by sharing real responses from consumers in the online shopping world.

Keywords: Chatbots, Customer satisfaction, Digital transformation, Purchase intention

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I. INTRODUCTION

The future of e-commerce is being significantly shaped by rapid technological advances and the growing field of artificial intelligence (AI). It has become a crucial issue to respond to consumer demands as soon as possible and in the most accurate way given the increase in internet usage and online shopping. In this respect, companies conduct various marketing activities and seek innovative ways and tools to meet increasing and unique consumer expectations in the online environment. AI is at the forefront of transforming online retail by enhancing personalized shopping experiences, optimizing logistics, and creating more efficient supply chains. AI, with its ability to analyze vast amounts of data and learn from shopping patterns, is not just revolutionizing the way businesses interact with consumers but also setting a new benchmark for operational efficiency. AI-driven customer service, including chatbots and virtual assistants, has revolutionized the way online retailers interact with shoppers, significantly impacting shopper satisfaction. This technological leap forward promises to redefine the landscape of e-commerce, making it imperative for retailers to adapt to stay competitive.

The study aims to understand the influence the AI chatbots designs have on the satisfaction level of the shoppers on the e-commerce platforms. As a result of which, those satisfaction in turn leads to the intention to buy the products. The research adopts a quantitative empirical approach and uses statistical techniques to analyze the relationships among the selected variables. It also examines demographic differences, particularly across age groups, to understand variations in consumer satisfaction and purchase intention.

II. OBJECTIVES OF THE STUDY

1. To examine the impact of AI chatbot effectiveness on customer satisfaction in e-commerce platforms.
2. To analyze the influence of Customer Satisfaction on consumers' purchase intention in e-commerce platforms.
3. To examine whether customer satisfaction differs across age groups of e-commerce users.

III. IMPORTANCE OF THE STUDY

1. The study bridges the gap between AI chatbot design and consumer behavioural outcomes in e-commerce.
2. It provides empirical evidence on how well-designed chatbots can improve customer satisfaction and increase consumers' intention to purchase products online
3. Future researchers can extend by studying additional variables such as trust, customer loyalty, repurchase intention or emotional intelligence.

IV. RESEARCH METHODOLOGY

The study adopts a quantitative research design to examine the relationship between AI Chatbot design and Customer Satisfaction and Purchase Intention in E-Commerce Platforms. Empirical Study is undertaken to statistically analyse the relationship among the selected variables. The study employs Purposive Sampling Technique ensuring that the respondents have prior experience using AI chatbots on e-commerce platforms.

Primary Data

Primary data have been collected directly from respondents through a structured questionnaire administered using Google Forms

Secondary Data

Secondary data has been developed from research articles on AI chatbots and conversational AI & reports on e-commerce and AI adoption

V. LIMITATIONS OF THE STUDY

1. The study focuses only on AI Chatbots used in e-commerce shopping platforms and does not include other industries.
2. The study analyses Chatbot responsiveness, perceived ease of use & personalization ignoring the factors of trust, Customer loyalty, privacy concerns, perceived usefulness.
3. The study uses purposive sampling of where only the respondents who have used AI chatbots on e-commerce platforms. So, the findings may not be generalized for all.
4. The sample respondent size was only 150 which may not represent the entire population.

VI. REVIEW OF LITERATURE

1. **V. Kumar, et.al (2021)** in their research article “Influence of new-age technologies on marketing: A research agenda” clarified that advancements in AI technology have revolutionized e-commerce customer service. Chatbots now provide 24/7 assistance by answering FAQs, promoting products and generating leads. They enhance efficiency, promptly addressing up to 90% of requests, reducing wait times, and ensuring consistent service quality.
2. **Cheng, X, et.al (2021) and Lei, et.al** concluded that while there are studies focusing on research on chatbots, their impact on consumer behaviour, and findings on the consumers’ positive perception of the use of chatbots there is indeed a gap in the literature specifically addressing the combined effects of consumer- and business-oriented chatbot activities on online purchase intention and chatbot reuse intention.

3. **Cho et al. (2019)**, Interaction refers to a type of bot service that acts like a human conversation, which brings in factors such as control, personalisation, and responsiveness to the consumer's needs.
4. **Kim and Hur, (2024)** explained that personalization enhances perceived usefulness and ease of use, especially when responses are tailored as well as increases perceived quality and has been found to strengthen consumers' sense of being understood, thereby improving their interaction experience.
5. **Choudhury and Shamszare (2023); Konya-Baumbach et al. (2023); Sauka et al (2026)** deployed that there were limited investigation and validation of applied interventions for customer service providers to increase consumers' usage of automated machines rather than humans.

VII. CONCEPTUAL FRAMEWORK

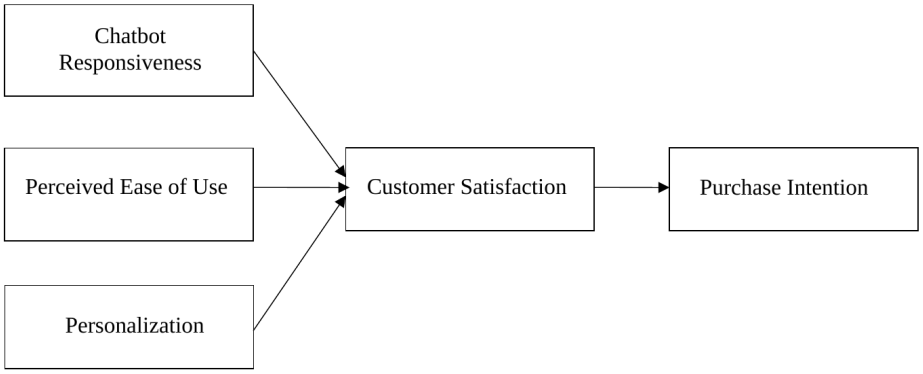


Figure 1: Conceptual framework of the study

VIII. CHATBOT

A chatbot, formerly known as a chatterbot, is a software application or online interface designed for conversation through text or speech, acting as a dialogue partner. While chatbots have been around for several decades, those powered by deep learning have surged in popularity during the AI boom of the 2020s, particularly with the introduction of generative AI (GenAI) chatbots like ChatGPT, Gemini, Claude, and Grok. These chatbots generally utilize fine-tuned large language models (LLMs) to create text. Historically, customer service and support have been significant areas where chatbots have been utilized, including various types of virtual assistants. In 1950, Alan Turing published a paper titled "Computing Machinery and Intelligence," in which he introduced what is now referred to as the Turing test as a measure of intelligence. This criterion is based on whether a computer program can convincingly imitate a human in a real-time written conversation. If the human judge cannot reliably tell the difference between the program and a real person just by reading the conversation, the program meets the standard.

In 1950, Alan Turing introduced the Turing Test, a method to assess whether a machine could demonstrate human-like intelligence. Modern chatbots like ChatGPT are often based on foundational large language models called generative pre-trained transformers (GPT). They are based on a deep learning architecture called the transformer, which contains artificial neural networks. They generate text after being trained on a large text corpus, exhibiting capabilities beyond their explicit training.

Chatbots built into apps and websites can use image-generation tools or search the internet. Some platforms let users chat directly through web browsers, making it easy to get help, create content, or automate tasks without needing to install any software.

Organisations use chatbots to assist customers, employees, and partners in various industries. These tools can support tasks such as customer service, sales, technical support, internal knowledge sharing, appointment scheduling, and many other routine activities.

While each chatbot may have unique features, their primary aim is to make it easier for people to access information and complete tasks through natural conversation, rather than going through menus or searching for content.

Marketers often use chatbots to create sequences of messages, similar to an autoresponder setup. These sequences can start when a user opts in or when specific keywords are used during interactions. Once triggered, a series of messages is sent until the user provides a response. Each response helps the chatbot navigate through a decision tree to deliver the most appropriate reply. Chatbots have been suggested as an alternative to traditional customer service teams.

Why are chatbots important?

Chatbots are significant because they enable organisations to provide quicker support, improve access to information, and deliver services across multiple digital platforms. They represent a shift in how digital experiences are created and managed. Modern customers expect faster, more tailored interactions across various channels. Employees also seek quick access to company knowledge and internal resources. Chatbots help meet these expectations by offering information and services through a familiar conversational format. The concept of computers engaging in conversation with humans has been around for decades.

Chatbots versus AI chatbots, AI assistants, and AI agents

Many people assume that chatbots always mean AI-powered chatbots, but chatbots existed long before the development of generative AI.

Conversational AI is sometimes used interchangeably with the term chatbot, but they are not the same.

Conversational AI refers to a broader category of technologies that allow systems to understand and respond to human language, while a chatbot is one application of that technology. In simpler terms, conversational AI can support various systems including chatbots, AI assistants, AI agents, and other conversational interfaces.

Traditional chatbots compared to AI chatbots

All AI chatbots are chatbots, but not all chatbots are AI-powered.

- Both traditional and AI chatbots use conversation to interact with users, but they differ in how they understand and respond.
- Traditional chatbots, also known as rule-based chatbots, operate based on predefined rules, decision trees, or scripted replies.
- They are effective for predictable interactions but have limited adaptability. Many businesses use these chatbots on their websites to answer frequently asked questions or guide users through common tasks.
- AI chatbots leverage AI models to interpret natural language, maintain conversation context, and generate responses.
- They can handle a broader range of questions and conversations. Well-known examples include ChatGPT and Claude, which allow users to ask open-ended questions and receive conversational replies.

IX. AI CHATBOTS AND CUSTOMER SATISFACTION

Chatbots are highly effective in customer service because they provide instant support anytime, whether during the day or at night. The ability to receive immediate assistance makes the overall customer experience more efficient and pleasant. They also play a significant role in improving customer service and business operations. As AI-based tools, chatbots can handle multiple requests simultaneously, which increases their efficiency. Additionally, the availability of chatbots ensures that customers always have access to support, making the service more convenient and likely to satisfy them. Businesses that have incorporated AI into chatbots often see better customer retention since they can effectively address their clients' needs. By offering specific product recommendations, answering customer questions directly, and ensuring compatibility across various platforms, chatbots deliver a superior customer experience that helps foster trust.

X. PURCHASE INTENTION

Purchase intention refers to how consumers behave when considering products or services, showing their willingness or ability to make a purchase. In the context of e-commerce, online purchase intention means a consumer's desire to buy products or services through digital platforms. AI chatbots and digital marketing strategies play a significant role in shaping

customer purchasing intentions by improving consumer interactions, offering personalized experiences, and making the decision-making process more convenient. These tools help brands align personalized user interactions with effective digital marketing techniques that meet consumer expectations and needs. This alignment increases the likelihood of customers making online purchases. Such tools also lead to higher customer satisfaction and stronger brand loyalty.

XI. DATA ANALYSIS AND INTERPRETATION

Reliability Analysis – Chatbot Responsiveness

Reliability Statistics	
Cronbach's Alpha	N of Items
.954	4

Reliability Analysis – Perceived Ease of Use

Reliability Statistics	
Cronbach's Alpha	N of Items
.962	3

Reliability Analysis – Personalisation

Reliability Statistics	
Cronbach's Alpha	N of Items
.946	4

Reliability Analysis – Customer Satisfaction

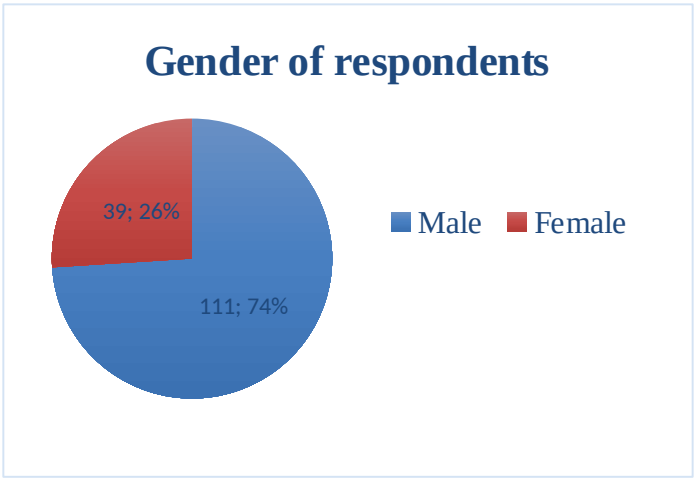
Reliability Statistics	
Cronbach's Alpha	N of Items
.942	4

Reliability Analysis – Purchase Intention

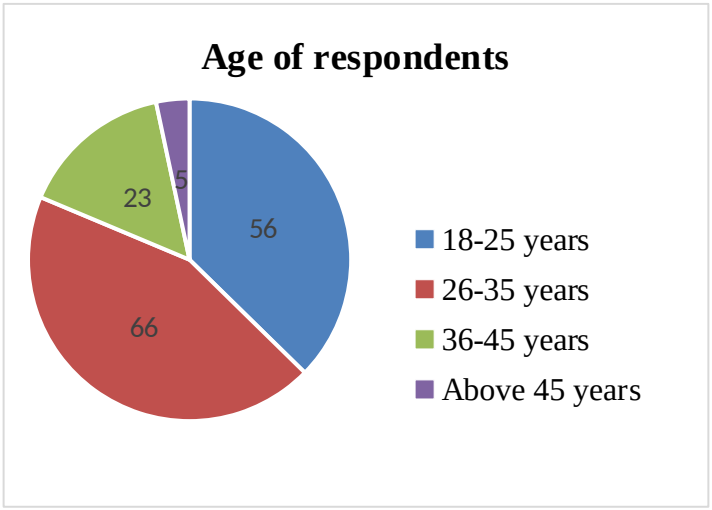
Reliability Statistics	
Cronbach's Alpha	N of Items
.952	4

The Cronbach’s Alpha Reliability test shows that all the chosen variables have values more than 0.9, which indicates the variables are highly consistent and reliable.

Demographic Profile of the Respondents

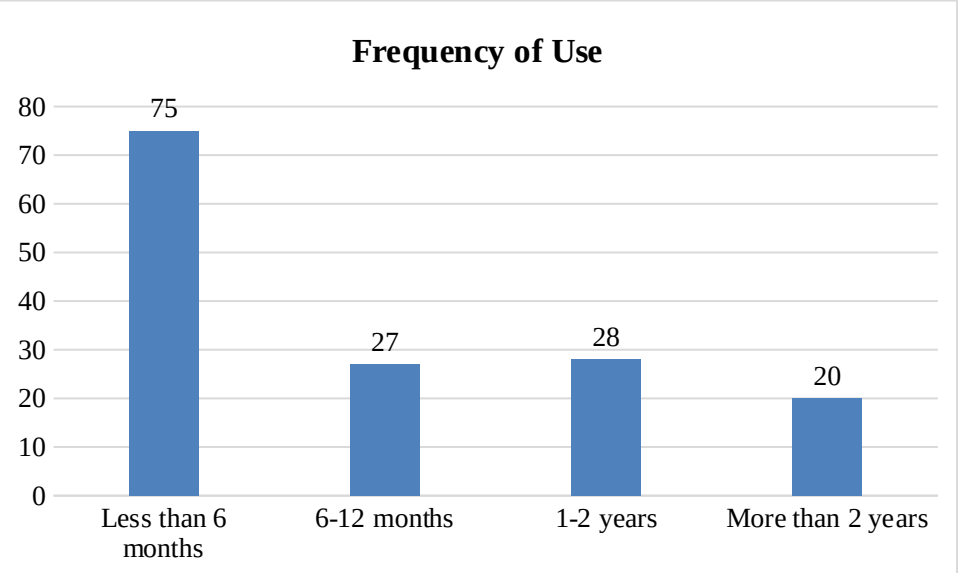


From the above chart, it is interpreted that about 74% of the respondents are Female and only 26% of the respondents are male.

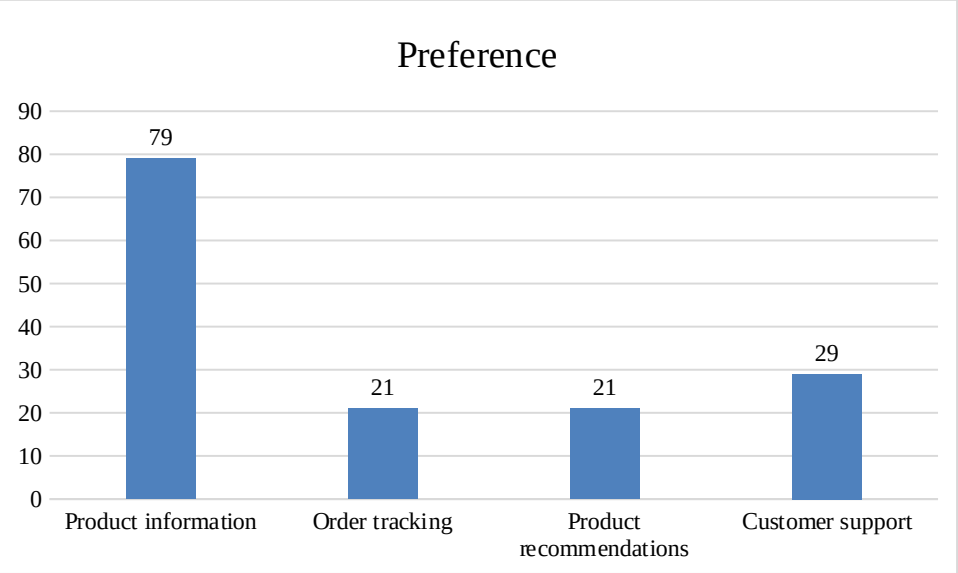


From the above chart, the age of the respondents shows that 26-35 years of people forms the majority of the sample with 66 of them responded. The least number of responses were from the people above 45 years of age.

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The table indicates that majority of the respondents (75) were taking the assistance of AI chatbots for less than 6 months followed by 27 respondents for about a year and 28 respondents for around 2 years. Only 20 respondents were using AI Chatbots for more than 2 years.



The table indicates that 79 respondents were taking the assistance of AI chatbots for the purpose of getting information about products followed by 29 respondents for availing customer support and 21 respondents have been taking the help of AI assistance for tracking their orders & getting recommendations regarding the products

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XII. HYPOTHESIS TESTING

H_1- Chatbot responsiveness has a significant positive impact on consumer satisfaction.

H_2 - Perceived ease of use has a significant positive impact on consumer satisfaction.

H_3 - Personalisation has a significant positive impact on consumer satisfaction.

REGRESSION ANALYSIS

Correlations

		CustomerSatisfaction	ChatbotEffectiveness	Perceivedeaseofuse	Personalization
Pearson Correlation	CustomerSatisfaction	1.000	.677	.735	.783
	ChatbotEffectiveness	.677	1.000	.731	.651
	Perceivedeaseofuse	.735	.731	1.000	.721
	Personalization	.783	.651	.721	1.000
Sig. (1-tailed)	CustomerSatisfaction	.	.000	.000	.000
	ChatbotEffectiveness	.000	.	.000	.000
	Perceivedeaseofuse	.000	.000	.	.000
	Personalization	.000	.000	.000	.
N	CustomerSatisfaction	150	150	150	150
	ChatbotEffectiveness	150	150	150	150
	Perceivedeaseofuse	150	150	150	150
	Personalization	150	150	150	150

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.829[a]	.687	.680	.48054	1.738

a. Predictors: (Constant), Personalization, ChatbotEffectiveness, Perceivedeaseofuse

b. Dependent Variable: CustomerSatisfaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73.845	3	24.615	106.595	.000[b]
	Residual	33.715	146	.231		
	Total	107.560	149			

a. Dependent Variable: CustomerSatisfaction

b. Predictors: (Constant), Personalization, ChatbotEffectiveness, Perceivedeaseofuse

INTERPRETATION

Pearson correlation analysis was conducted to examine the relationships between chatbot responsiveness, perceived ease of use, personalization, and customer satisfaction. The findings revealed significant positive relationships between customer satisfaction and chatbot

effectiveness ([r = .677], [p < .001]), perceived ease of use ([r = .735], [p < .001]), and personalization ([r = .783], [p < .001]). These findings indicate that greater chatbot effectiveness, perceived ease of use and personalization are associated with higher customer satisfaction. Personalization demonstrated the strongest correlation with customer satisfaction.

Multiple regression model explained the joint influence of chatbot responsiveness, perceived ease of use and personalization on customer satisfaction. The model explained 68.7 % of variation in customer satisfaction.

The ANOVA results showed F=106.595 & p < 0.001, indicating that chatbot effectiveness, perceived ease of use and personalization jointly have influence on customer satisfaction.

H_4 – Customer Satisfaction has a significant positive impact on Purchase Intention

REGRESSION ANALYSIS

Correlations

		PurchaseIntention	CustomerSatisfaction
Pearson Correlation	PurchaseIntention	1.000	.707
	CustomerSatisfaction	.707	1.000
Sig. (1-tailed)	PurchaseIntention	.	.000
	CustomerSatisfaction	.000	.
N	PurchaseIntention	150	150
	CustomerSatisfaction	150	150

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.707[a]	.499	.496	.63296	2.136

a. Predictors: (Constant), CustomerSatisfaction

b. Dependent Variable: PurchaseIntention

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.123	1	59.123	147.573	.000[b]
	Residual	59.294	148	.401		
	Total	118.417	149			

a. Dependent Variable: PurchaseIntention

b. Predictors: (Constant), CustomerSatisfaction

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INTERPRETATION

Pearson correlation analysis was conducted to examine the relationships between customer satisfaction and Purchase intention. The findings revealed a significant positive relationship between customer satisfaction and purchase intention([r = .707], [p < .001]). The findings indicate that greater customer satisfaction is associated with higher purchase intention.

Multiple regression model explained the influence of customer satisfaction on purchase intention. The model explained 49.9 % of variation in purchase intention.

The ANOVA results showed whether the multiple regression model was statistically significant F=147.573 & p < 0.001, demonstrating that customer satisfaction predict purchase intention.

H5- Consumer satisfaction differs significantly across age groups of e-commerce users

ONE-WAY ANOVA

Test of Homogeneity of Variances

CustomerSatisfaction

Levene Statistic	df1	df2	Sig.
.692	3	146	.558

ANOVA

CustomerSatisfaction

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.325	3	.108	.147	.931
Within Groups	107.235	146	.734		
Total	107.560	149			

INTERPRETATION

From the above output, it is interpreted that the p-value (0.558) is greater than 0.05; the assumption of equal variances across age groups is satisfied, with F = 0.147 and p = 0.931.

Since the significance value (p = 0.931) is well above 0.05, we accept the null hypothesis. There is no statistically significant difference in customer satisfaction scores across the four age groups.

XIII. FINDINGS

1. The survey sample was predominantly female, with majority of the respondents falling between the age group of 26 years and 35 years, while shoppers over the age of Above 45 years represented the smallest participation group.
2. Most of the respondents were relatively new to using AI chatbots while having used them for less than six months. Customers primarily relied on chatbots to get product details, followed by resorting to customer support, tracking orders and receiving product recommendations.
3. The statistical testing for reliability confirmed that all measured factors were highly consistent and reliable across the collected responses.
4. Personalized assistance in AI chatbots have the strongest impact on making shoppers happy. The Customers who felt satisfied with their AI chatbot interaction have a much higher intention to complete a purchase on the e-commerce platform.
5. Customer satisfaction level does not change regardless of the shopper's age group, indicating that age does not change how satisfied customers are with AI chatbots.

XIV. SUGGESTIONS

1. E-commerce businesses should invest in customised recommendation systems, as personalized responses on chatbots are the main driver of customer happiness.
2. Chatbot interfaces should remain easy to use and fast to respond, minimizing wait times and simplifying the shopping experience.
3. Platforms should upgrade their chatbots assistance with detailed product data and real-time inventory updates, catering to the mass majority of users seeking product information.
4. Since user satisfaction is stable across all age groups, design upgradations can be applied uniformly across the platform without separating the interfaces for different age groups.
5. Future research can be undertaken to evaluate whether AI chatbots produce similar levels of customer satisfaction and purchase intention in other service sectors, such as banking, healthcare, hospitality, and online education.

XV. CONCLUSION

The findings of the study demonstrate the critical role that AI chatbots play in modern digital commerce by serving as powerful factor for customer satisfaction. The strong positive relationships observed between service quality factors and purchase intention highlight that chatbots are no longer mere utility tools for basic assistance, but core drivers of commercial growth and brand loyalty in online retail environments. E-commerce businesses that invest in refining these interactive touchpoints can effectively guide prospective shoppers through the

buyer's journey, making product search and decision-making far more efficient and engaging. The fact that satisfaction levels were stable across different age groups show that effective, user-friendly conversational AI delivers value universally, transcending generational boundaries.

Finally, as AI technology continues to evolve, integrating intelligent, empathetic and responsive conversational agents will remain an essential strategy for retail platforms who seeks to optimize customer service, elevate shopping experiences and maintain a strong competitive edge.

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