THE IMPACT OF AI ON CUSTOMER SERVICE IN RETAIL BUSINESSES

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ABSTRACT:

In today's competitive retail environment, businesses are increasingly turning to Artificial Intelligence (AI) to improve customer service and enhance customer satisfaction. This study explores the impact of AI-powered tools, particularly chat bots, on customer satisfaction and loyalty within the retail sector. By focusing on prominent retail companies such as Amazon and Zara, the research investigates how AI is integrated into customer service operations and how it influences customer perceptions and experiences. The study employs a mixed-methods approach, combining case studies, customer surveys, and interviews with industry professionals. It examines the effectiveness of chat bots in handling customer queries, response times, personalization, and overall service quality. Preliminary findings suggest that while AI significantly improves efficiency and 24/7 service availability, customer satisfaction is strongly influenced by the chat bot's ability to understand and resolve complex issues. The research also addresses challenges such as lack of human empathy and potential errors in AI interactions. The study concludes that while AI enhances service delivery in many ways, the balance between automated and human support is key to maintaining customer trust and loyalty in the long term.

INTRODUCTION:

In today's fast-changing retail world, businesses are using new technologies to stay ahead and meet growing customer expectations. One of the most powerful tools being adopted is Artificial Intelligence (AI), especially in the area of customer service. Artificial Intelligence is a specialty within computer science that is concerned with creating systems that can replicate human intelligence and problem-solving abilities. They do this by taking in a myriad of data, processing it, and learning from their past in order to streamline and improve in the future. In 1950, Alan Turing a English mathematician and computer science pioneer published his work "Computer Machinery and Intelligence" which eventually became The Turing Test, to determine whether a machine is capable of thinking. The test was based on an adaptation of a Victorian-style game that involved the seclusion of a man and a woman from an interrogator, who must guess which is which. In Turing's version, the computer program replaced one of the participants, and the questioner had to determine which was the computer and which was the human. In 1956, two years after the death of Turing, John McCarthy, a professor at Dartmouth College, organized a summer workshop to clarify and develop ideas about thinking machines — choosing the name "artificial intelligence" for the project. It was organized by Marvin Minsky and John McCarthy, with the support of two senior scientists Claude Shannon and Nathan Rochester of IBM. Therefore, United States which is the home of these scientists and mathematicians is also considered as the birthplace for AI. AI technologies like chat bots are now common in online and offline retail, helping companies provide faster, more efficient service. Retail giants like Amazon and Zara have already started using AI to improve customer interactions, solve problems quickly, and offer 24/7 support. These tools are not only changing how businesses work but also how customers feel about the service they receive. However, even though AI makes service faster and available at all times, some challenges remain. Customers often miss the human touch, and AI tools can sometimes fail to understand complex problems or emotions. This raises questions about how much AI can really help in

building strong, loyal customer relationships. This research aims to explore the impact of AI-powered tools, especially chat bots, on customer satisfaction and loyalty in the retail sector. By studying leading companies and collecting real customer feedback, the study looks at both the benefits and the challenges of using AI in customer service. The goal is to understand how AI affects customer experience and what balance is needed between technology and human interaction.

CASE STUDIES:

ZARA CASE STUDY-

Zara has significantly improved customer service in its retail business by integrating AI technologies such as chat bots, smart mirrors, and predictive analytics. AI-powered chat bots now handle 30% of customer queries, offering 24/7 support for order tracking, returns, and product questions. In-store smart mirrors act as virtual stylists, suggesting outfits using AI and RFID tags, while automated click-and-collect systems reduce customer wait times by up to 60%. Real-time inventory management and predictive analytics help reduce out-of-stock issues and improve product placement. These innovations have led to a 25% faster resolution of "Where is my order?" queries, a 20% drop in customer service tickets, and a 22% increase in customer satisfaction. Personalized AI recommendations have also boosted cross-selling by 18% and improved retention rates among app users. Overall, AI has helped Zara deliver faster, more personalized, and more efficient customer service in both digital and in-store experiences. In conclusion, ZARA has got a significant growth after AI chat bots inclusion in their business.

AMAZON CASE STUDY-

Amazon's integration of AI in its customer contact center has significantly enhanced customer satisfaction and boosted sales. Key transformations include the use of conversational AI and chat bots to handle common inquiries and provide real-time support, enhanced knowledge management for quick and accurate information retrieval, and predictive analytics for personalized interactions. The impact includes reduced response times, increased first-contact resolution rates, and 24/7 support availability.

H&M CASE STUDY-

H&M has effectively integrated AI-powered chat bots into its customer service operations, leading to faster and more personalized support. These chat bots use Natural Language Processing (NLP) to understand customer queries and offer instant responses, resulting in a 70% reduction in response times. By providing tailored product recommendations and styling advice based on customer data, H&M has seen a 40% boost in customer engagement and a 25% increase in conversion rates. Additionally, size-specific suggestions have led to a 20% drop in product returns. The chat bot is seamlessly connected with H&M's CRM and inventory systems, enabling accurate, real-time assistance. Continuous improvements through feedback analysis ensure the chat bot evolves with customer needs, enhancing overall shopping satisfaction and operational efficiency.

MYTRA CASE STUDY-

Myntra, a leading Indian fashion e-commerce platform, adopted an AI-powered chat bot to improve customer experience and streamline support services. The chat bot offers personalized product recommendations, instant query resolution, and order tracking assistance. As a result, Myntra has got a noticeable rise in customer engagement and satisfaction, with more users relying on the bot for shopping and support. The chat bot significantly reduced the number of support queries directed to human agents, allowing them to focus on complex concerns. Key to its success was seamless integration with Myntra's product catalogue, advanced Natural Language Processing (NLP) for accurate interactions, and ongoing performance improvements to meet evolving customer needs.

FLIPKART CASE STUDY-

AI-powered chat bots could greatly enhance Flip kart's customer service by offering 24/7 instant support, personalized product suggestions based on user behaviour, and efficient handling of repetitive queries. With features like Natural Language Processing (NLP), machine learning, and integration with CRM and inventory systems, chat bots can deliver accurate, human-like interactions. This can lead to increased customer engagement through personalized updates and reminders, reduced service costs by managing high volumes of queries, and improved overall customer satisfaction through quick and relevant responses.

NEED FOR THE STUDY:

As retail companies adopt AI tools like chat bots to improve customer service, it is important to understand their real impact on customer satisfaction and loyalty. While AI offers faster and 24/7 service, there are concerns about its ability to handle complex issues and provide human-like support. This study

helps explore the benefits and challenges of using AI in customer service, guiding retailers to create a better balance between technology and human interaction.

LITERATURE REVIEWS:

1. D. W. Schrotenboer (2019) This paper reviews how artificial intelligence supports different stages of the customer journey. It highlights AI's role in improving both online and offline shopping experiences.

2. Aitor Goti, Leire Querejeta-Lomas, Aitor Almeida, José Gaviria de la Puerta & Diego López-de-Ipiña (2023) This review analyses 219 studies to map how AI applications—like computer vision, NLP, and multimodal systems—are used in fashion e-commerce, identifying key trends and future research needs.

3. Nasser A. Saif Almuraqab, Sajjad M. Jasimuddin & Fateh Saci (2024)
The paper reviews AI tools like chatbots in e-commerce, highlighting their impact on customer satisfaction and trust.

4. Ionuț-Florin Anica-Popa, Liana-Elena Anica-Popa, Cristina Rădulescu & Marinela Vrîncianu (2021) The study explores real-world benefits and risks of using AI in retail—such as chat bots, smart shelves, and personalized offers—and introduces the CECoR framework (Customer Experience, Cost, Revenue) to guide effective integration of AI in retail systems.

5. Hasnae Timimi, Mohammed Baaddi & Amina Bennouna (2025) This paper reviews how AI tools like chat bots and analytics improve customer experience, highlighting benefits and ethical concerns.

6. Ruben Machucho & David Ortiz (2025) This paper systematically reviews how AI drives business innovation—covering product/service development, operational efficiency, and human–AI collaboration—while discussing ethical, organizational, and technical challenges for successful adoption

7. Kanishka Pathak, Gyan Prakash, Ashutosh Samadhiya, Anil Kumar & Sunil Luthra (2025) This study explores how generative AI chatbots evoke a sense of "awe" in consumers and enhance service experiences and usage intentions, using a cybernetic framework to explain effective human–bot interaction.

8. N. D. Sharma, Meenal Arora, Urvashi Tandon & Amit Mittal (2024) This bibliometric review examines 147 studies (2016–2023) on chatbot use in online shopping, highlighting growth trends, collaboration patterns (especially in Asia), and key research areas. It also outlines a future research agenda to improve chatbot design and integration in e-retail.

9. Muhammad Ashfaq, Marian Makkar, Ai-Phuong Hoang, Duy Dang-Pham, Mai Do Thi Hoang, Anh T.V. Nguyen(2025) This paper found that AI chat bot features like interactivity and customization enhance customer smart experiences, leading to greater user affinity and stickiness. The study advances understanding of how technology affordances drive customer retention in online services.

10. Edward Kezron Isabirye (2025) This paper talks about cybersecurity framework to help small and medium-sized businesses securely adopt cloud and AI-driven services. The framework integrates risk assessments, zero-trust architecture, encryption, continuous monitoring, incident response planning, compliance oversight, and workforce development to bolster SME resilience, despite limited resources.

OBJECTIVES OF THE STUDY:

1. To examine how AI-powered tools, especially chat bots, are used in retail customer service.
2. To analyse the impact of chat bots on customer satisfaction and loyalty.
3. To assess the effectiveness of chat bots in handling queries, response time, and personalization.
4. To identify the challenges customers, face when interacting with AI in retail.

RESEARCH METHODOLOGY:

1. This research is done based on primary data i.e. using practical surveys and also includes few insights from secondary data i.e. literature reviews, existing data sets.
2. This analysis on the study is made using the software data tool SPSS.

SCOPE OF THE STUDY

1.Focuses on the use of AI-powered tools, especially chat bots, in the retail sector. Analyses how companies like Amazon and Zara use AI in customer service.

2.Covers key areas such as response time, personalization, query resolution, and service quality. Uses a mixed-methods approach: case studies and customer surveys. Aims to understand both the benefits and challenges of AI in customer services.

LIMITATIONS OF THE STUDY:

1.Focus is limited to chat bots; other AI tools in retail (e.g., recommendation engines, smart shelves) are not deeply studied. Research is based on a few selected companies (Amazon and Zara, etc), which may not represent the entire retail industry.

2.Customer satisfaction is subjective and may vary based on individual expectations and experiences. Possible bias in survey or interview responses, depending on participant understanding and experience with AI. No.of responses is limited and in reach of our college only.

STUDY INTERPRETATIONS:

age of the respondents-
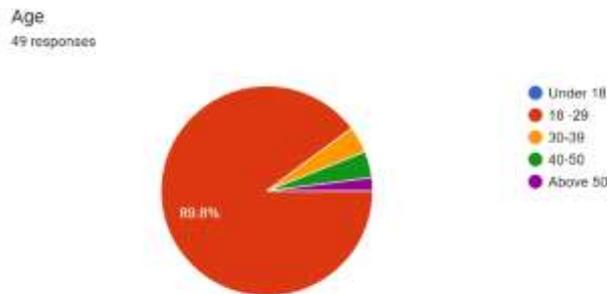
The survey included five age groups, with the largest segment being 18–29-year-olds (89.8%), indicating strong engagement among younger adults.

gender of the respondents-
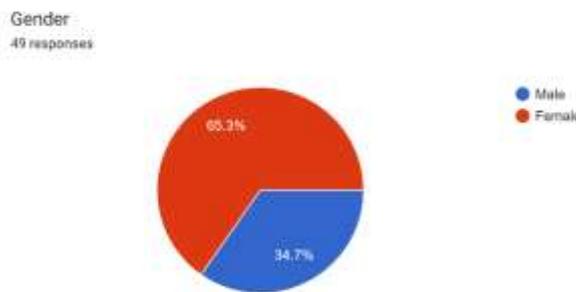
This form was mostly filled by female respondents (65.3%) and with low male participation (34.7%).

profession of respondent-
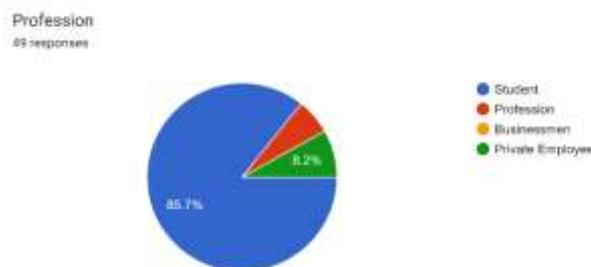
This form is mostly filled by students leading to 85.7% of student, and with 8.2% of Private Employee.

income of respondent-

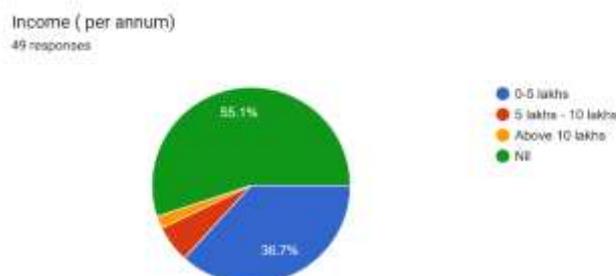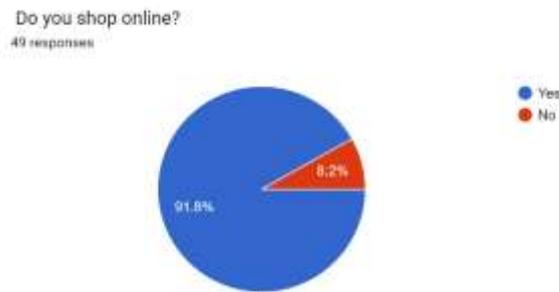This form was filled mostly by students and then private employees; therefore, their income is Nil or between 0-5 Lakhs.

respondents shopping online-

Do you shop online?
49 responses

Mostly every respondent shops online with a percentage rating to 91.8%...eventually leading to 8.2% of respondents not shopping online.

if the respondents know what a chat bot is-

Do you know what a Chat Bot is? (If not, please read the description)
49 responses
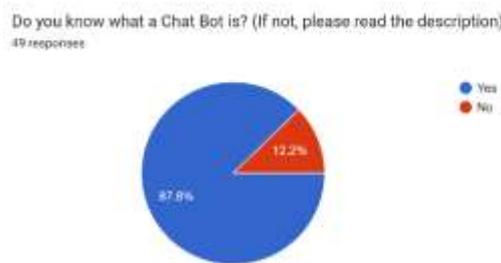
Most of the respondents rating to 87.8% claim to know that they know what a chat bot is, and 12.2% say that they don't know about chat bot.

have you interacted with a ai chat bot –

Have you interacted with a AI chat bot ?
49 responses
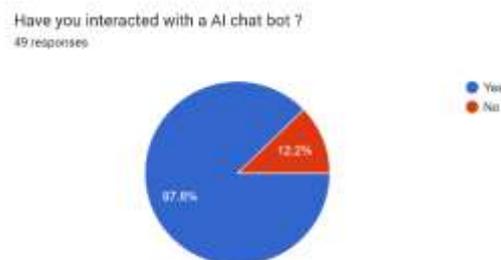
- Most of the respondents say that they have interacted with AI chat bot leading to 87.8%. showing wide usage and familiarity.
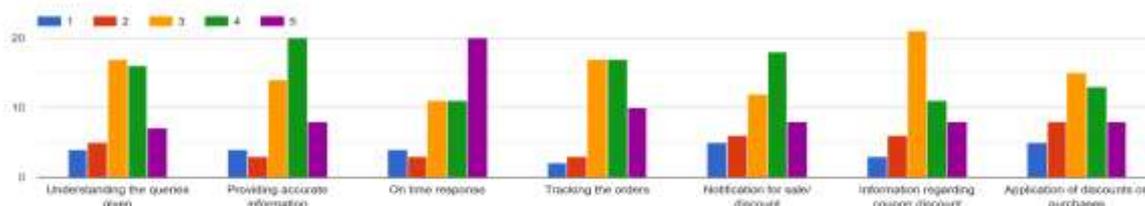
how satisfied are the respondents with the following-

How satisfied are you with the following? (1 being the lowest and 5 being the highest)

The overall satisfaction levels vary across different features. Respondents are highly satisfied with the on-time responses of chat bots, as shown by the majority giving ratings of 5. Tracking orders and providing accurate information also received fairly good ratings, with many respondents rating them 4 or 5. However, some areas showed room for improvement. Understanding user queries and providing information about coupon discounts received more mixed responses, with noticeable numbers rating them 2 or 3. Features like sale notifications and applying discounts on purchases received moderate satisfaction. In general, while most users are happy with the speed and availability of chat bots, they expect better understanding and more accurate, personalized support.

how often do respondents use a chat bot for support or inquiries-

How often do you use a chat bot for support or inquiries?
49 responses

Legend:
- Always
- Often
- Sometimes
- Rarely
- Never
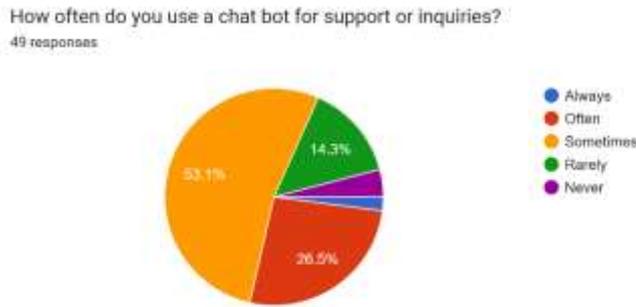
Most respondents (53.1%) use chat bots occasionally, while 26.5% use them often. Very few use them always or never, showing chat bots are helpful but not the first choice every time.

what benefits have respondents experienced with ai-powered customer service-

What benefits have you experienced with AI-powered customer service?
49 responses

- Faster Response Times — 37 (75.5%)
- 24/7 Availability — 39 (79.6%)
- Personalized Experience — 17 (34.7%)
- Efficient Issue Resolution — 8 (16.3%)
- Multi-language Support — 18 (36.7%)
- Reduced Hold Times — 10 (20.4%)
- Self-Service Options — 17 (34.7%)
- Lower Stress Levels — 10 (20.4%)
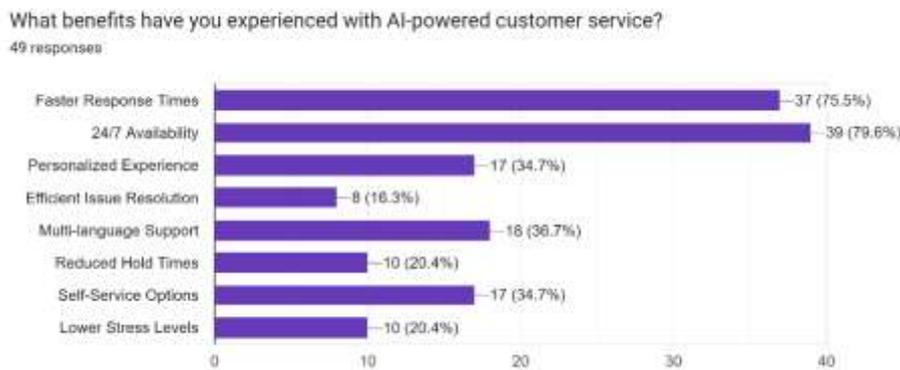
The top benefits users experienced with AI-powered customer service are 24/7 availability (79.6%) and faster response times (75.5%). Other helpful features include multi-language support, personalized experience, and self-service options, though fewer users felt it helped with efficient issue resolution or lowering stress levels.
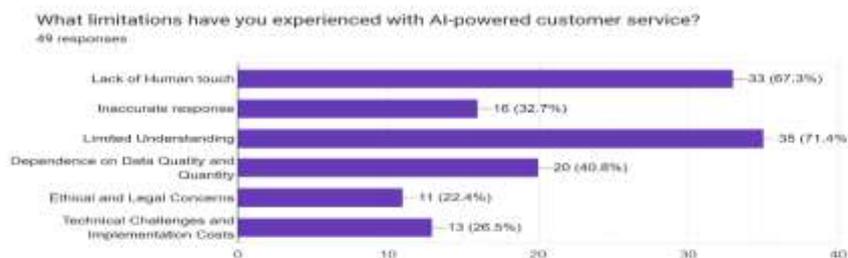
what limitations have respondents experienced with ai-powered customer service-

What limitations have you experienced with AI-powered customer service?
49 responses

- Lack of Human touch — 33 (67.3%)
- Inaccurate response — 16 (32.7%)
- Limited Understanding — 35 (71.4%)
- Dependence on Data Quality and Quantity — 20 (40.8%)
- Ethical and Legal Concerns — 11 (22.4%)
- Technical Challenges and Implementation Costs — 13 (26.5%)

The main limitations users experienced with AI-powered customer service are limited understanding (71.4%) and lack of human touch (67.3%). Other issues include dependence on data quality (40.8%), inaccurate responses (32.7%), and technical or ethical concerns, showing that while chat bots are useful, they still struggle with human-like communication and accuracy.

chi-sqare test results-

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Do you shop online?	50	100.0%	0	0.0%	50	100.0%

gender * do you shop online? crosstabulation

Count					
		Do you shop online?			
		1	2	Do you shop online?	Total
Gender	Male	16	0	0	16
	FEMALE	28	5	0	33
	Gender	0	0	1	1
Total		44	5	1	50

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.755[a]	4	.000
Likelihood Ratio	14.028	4	.007
N of Valid Cases	50		
a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .02.			

There is a significant association between gender and online shopping behavior ($p < 0.001$). Females are more likely to shop online than males in this sample. the Pearson Chi-Square test indicates a statistically significant association between Gender and shopping online behavior ($p = .012$).

Gender * Do you know what a Chat Bot is? (If not, please read the description) Cross tabulation					
Count					
		Do you know what a Chat Bot is? (If not, please read the description)			
		Yes	No	Do you know what a Chat Bot is? (If not, please read the description)	Total
Gender	Male	14	2	0	16
	FEMALE	29	4	0	33
	Gender	0	0	1	1
Total		43	6	1	50

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	50.001ᵃ	4	.000
Likelihood Ratio	9.805	4	.044
N of Valid Cases	50		

a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .02.

Gender is significantly related to awareness of chat bots (p < 0.001). More females reported knowing about chat bots compared to males.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Have you interacted with a AI chat bot ?	50	100.0%	0	0.0%	50	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	50.414ᵃ	4	.000
Likelihood Ratio	10.242	4	.037
N of Valid Cases	50		

a. 7 cells (77.8%) have expected count less than 5. The minimum expected count is .02.

There is a significant difference between males and females regarding interaction with AI chat bots (p < 0.001), with females more likely to have interacted with AI chat bots.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Understanding the queries given]	50	100.0%	0	0.0%	50	100.0%

Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Providing accurate information]	50	100.0%	0	0.0%	50	100.0%
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Application of discounts on purchases]	50	100.0%	0	0.0%	50	100.0%
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Information regarding coupon discount]	50	100.0%	0	0.0%	50	100.0%
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Notification for sale/discount]	50	100.0%	0	0.0%	50	100.0%
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Tracking the orders]	50	100.0%	0	0.0%	50	100.0%
Gender * How satisfied are you with the following? (1 being the lowest and 5 being the highest) [On time response]	50	100.0%	0	0.0%	50	100.0%

Crosstab		
Count		
	How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Understanding the queries given]	Total

		1	2	3	4	5	How satisfied are you with the following? (1 being the lowest and 5 being the highest) [Understanding the queries given]	
Gender	Male	1	3	4	7	1	0	16
	FEMALE	3	2	10	12	6	0	33
	Gender	0	0	0	0	0	1	1
Total		4	5	14	19	7	1	50

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	53.203^a	10	.000
Likelihood Ratio	12.980	10	.225
N of Valid Cases	50		
a. 15 cells (83.3%) have expected count less than 5. The minimum expected count is .02.			

Satisfaction levels regarding query understanding by chatbots differ significantly between genders ($p < 0.001$).

Gender * Did the chat bot understand your queries accurately? (1 being the lowest and 5 being the highest) Crosstabulation						
Count						
	Did the chat bot understand your queries accurately? (1 being the lowest and 5 being the highest)					
						Did the chat bot understand your queries accurately? (1 being the lowest and 5 being the highest)	Total
	1	2	3	4	5	

Gender		1	4	8	2	1	0	16
	Male	1	4	8	2	1	0	16
	FEMALE	1	2	15	12	3	0	33
	Gender	0	0	0	0	0	1	1
Total		2	6	23	14	4	1	50

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.849a	10	.000
Likelihood Ratio	15.597	10	.112
N of Valid Cases	50		

a. 15 cells (83.3%) have expected count less than 5. The minimum expected count is .02.

There is a significant gender difference in perceived chat bot accuracy (p < 0.001), with females generally reporting higher satisfaction.

Gender * How confident are you that online stores have adequate security measures to protect your data? Crosstabulation

Count

		How confident are you that online stores have adequate security measures to protect your data?					How confident are you that online stores have adequate security measures to protect your data?	Total
		1	2	3	4	5		
Gender	Male	0	2	7	6	1	0	16
	FEMALE	3	6	17	5	2	0	33
	Gender	0	0	0	0	0	1	1
Total		3	8	24	11	3	1	50

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	54.284a	10	.000
Likelihood Ratio	14.761	10	.141

N of Valid Cases	50		

a. 14 cells (77.8%) have expected count less than 5. The minimum expected count is .02.

Gender is significantly associated with confidence in online store security ($p < 0.001$). Males appear slightly more confident compared to females.Pearson Chi-Square (.000) Indicates a statistically significant relationship between gender and confidence in security measures. This suggests gender might influence confidence levels. Likelihood Ratio (.112) Doesn't show a significant relationship at the typical .05 threshold. This discrepancy might be due to the test's different approaches to calculating significance.

gender * has using the chat bot improved your opinion on the brand/company? cross tabulation					
Count					
		Has using the chat bot improved your opinion on the brand/company?			
		Yes	No	Has using the chat bot improved your opinion on the brand/company?	Total
Gender	Male	9	7	0	16
	FEMALE	24	9	0	33
	Gender	0	0	1	1
Total		33	16	1	50

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.358[a]	4	.000
Likelihood Ratio	11.107	4	.025
N of Valid Cases	50		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .02.

Using chatbots has significantly influenced brand opinion differently by gender ($p < 0.001$). Females are more likely than males to report a positive impact on their opinion of the brand.

Conclusion:
AI-powered chat bots have enhanced customer service by improving efficiency, response time, and 24/7 availability in the retail sector. However, customer satisfaction relies heavily on the chat boat's ability to understand and resolve complex queries accurately. While AI handles routine tasks well, it often lacks human empathy and struggles with emotionally nuanced interactions. Errors or impersonal responses can negatively impact user experience. Therefore, a balanced approach—combining AI automation with human support—is essential. This hybrid model ensures effective service delivery, maintains customer trust, and strengthens long-term loyalty. Businesses that strategically integrate both elements can offer faster, smarter,and more satisfying customer experiences.

The study highlights that while AI-powered chat bots significantly enhance efficiency, availability, and personalization in customer service, they are not without limitations. Customer satisfaction is strongly

influenced by the chatbot's ability to handle complex queries accurately—something that still requires human-like understanding and empathy.

Therefore, although AI tools like chat bots are valuable in modern retail operations, they should not completely replace human interaction. A well-balanced integration of AI and human support is essential to maintain customer trust, deliver high-quality service, and foster long-term customer loyalty.

Suggestions:

The suggestions given by few of our respondents says that It'd be better if the chat bots are equipped with more levels of understanding and also they give a systematic pre generated response which does not always clarifies the queries of the user.They also suggest that chat bots should include more options and not just a few limited ones. Few say that chat bot generated by algorithms that analyze large datasets to predict what a user might be interested in can be implemented. Few feel that chat bots should understand and give more reasonable responses. One of the respondent's says that chat bots still require improvement for proper and accurate responses and also need to make more advancement so it's easy to use for older generations.

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