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# PERCEPTION OF CUSTOMER TOWARDS E-COMMERCE IN AI DOMAIN

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**ABSTRACT:**

This study explores customer perceptions of Artificial Intelligence (AI) in the e-commerce sector in Chennai. As AI becomes more prevalent in enhancing customer experiences through personalized recommendations, chatbots, and automated systems, understanding customer viewpoints becomes essential for e-commerce businesses. Data was collected from 100 respondents in Chennai using a structured questionnaire. The analysis reveals mixed perceptions, with a significant portion of customers acknowledging the convenience AI brings but also expressing concerns about privacy and security. The study provides insights for e-commerce platforms to address these concerns and improve user experiences.

## INTRODUCTION:

Artificial Intelligence (AI) is transforming the landscape of e-commerce by improving customer service, streamlining operations, and personalizing shopping experiences. AI-driven tools like chatbots, recommendation engines, and virtual assistants have redefined how customers interact with online platforms. While these innovations promise enhanced user experiences, the perception of AI among customers is still evolving. Factors such as trust, data security, ease of

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use, and accuracy of AI-driven interactions shape these perceptions. In the context of Chennai's growing e-commerce market, this study investigates how customers perceive AI technologies in their shopping experiences and what factors influence their trust and satisfaction.

**REIVEW OF LITERATURE:**

Several studies have examined the role of AI in transforming the e-commerce sector globally. Sharma (2021) noted that AI's capacity to deliver personalized customer experiences has led to higher customer satisfaction rates in e-commerce platforms. However, according to Jain and Gupta (2020), customers express concerns about data privacy when engaging with AI technologies, which can hinder their acceptance of AI-driven solutions.

Other research highlights the growing demand for transparency in how AI technologies operate (Singh, 2022), especially in the context of recommendation algorithms and chatbot interactions. Studies focused on the Indian e-commerce market (Kumar & Nair, 2023) emphasize that Indian customers are gradually embracing AI, but factors like ease of use, language preferences, and security concerns significantly affect their overall perception.

This study aims to build on these findings by providing insights into the specific customer perceptions in Chennai, a key metropolitan market in India.

**HYPOTHESIS:**

H1: Customers in Chennai perceive AI technologies in e-commerce positively, primarily due to convenience and personalization.

H2: Concerns about data privacy and security negatively affect customer perception of AI in e-commerce.

H3: Trust in AI-driven interactions (chatbots, personalized recommendations) significantly impacts overall customer satisfaction in e-commerce platforms.

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**DATA ANALYSIS:**

| Category | Data Distribution (%) |
|---|---|
| **Age** | - 20-30 years: 45% |
| | - 31-40 years: 35% |
| | - 41-50 years: 15% |
| | - Above 50 years: 5% |
| **Gender** | - Male: 55% |
| | - Female: 45% |
| **Profession** | - Student: 30% |
| | - IT Professional: 25% |
| | - Engineer: 20% |
| | - Other (Business, etc.): 25% |
| **Frequency of E-commerce Use** | - Once a week: 35% |
| | - Twice a month: 30% |
| | - Once a month: 25% |
| | - Less than once: 10% |
| **Perception of AI Recommendations** | - Positive (4-5): 70% |
| | - Neutral (3): 20% |

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| | |
|---|---|
| | - Negative (1-2): 10% |
| **Chatbot Efficiency** | - Satisfied (4-5): 60% |
| | - Neutral (3): 25% |
| | - Dissatisfied (1-2): 15% |
| **Privacy Concerns** | - High concern (4-5): 40% |
| | - Moderate concern (3): 30% |
| | - Low concern (1-2): 30% |
| **Overall Satisfaction with AI** | - Satisfied (4-5): 65% |
| | - Neutral (3): 25% |
| | - Dissatisfied (1-2): 10% |

**TABLE 1 – DEMOGRAPHIC TABLE**

Age Distribution: Most respondents (80%) are between the ages of 20-40, the primary age group for e-commerce users.

Gender: The sample is relatively balanced, with a slight male majority (55%).

Profession: A significant portion of respondents are students and IT professionals, highlighting AI's impact on younger, tech-savvy consumers.

E-commerce Usage: Over 65% of respondents shop online frequently (once a week or twice a month).

Perception of AI: A positive perception of AI recommendations and chatbot efficiency is seen in the majority (70% and 60% respectively), though privacy concerns remain high for 40% of users.

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Satisfaction: Overall, 65% are satisfied with AI in e-commerce, though privacy concerns slightly diminish the overall trust.

**DATA INTERPRETATION:**

**CHI-SQUARE TEST:**

The Chi-Square test is used to determine if there is a significant association between two categorical variables. Based on the consolidated data, we can analyze the relationship between, for example, gender and overall satisfaction with AI.

Hypothesis for Chi-Square Test:

Null Hypothesis (H0): There is no significant association between gender and overall satisfaction with AI in e-commerce.

Alternative Hypothesis (H1): There is a significant association between gender and overall satisfaction with AI in e-commerce.

| Gender | Satisfied (4-5) | Neutral (3) | Dissatisfied (1-2) | Total |
|---|---|---|---|---|
| Male | 35 | 15 | 5 | **55** |
| Female | 30 | 10 | 5 | **45** |
| **Total** | **65** | **25** | **10** | **100** |

**TABLE 2 – CONTINGENCY TABLE BASED ON GENDER AND OVERALL SATISFACTION CATEGORIES**

| Test | Chi-Square Statistic | p-value | Result |
|---|---|---|---|
| Chi-Square Test | 0.39 | 0.82 | No significant association between gender and overall satisfaction with AI |

**TABLE 3 – CHI-SQUARE TABLE VALUE**

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Since the p-value is greater than 0.05, we fail to reject the null hypothesis. This means that there is no significant association between gender and overall satisfaction with AI in e-commerce.

**T-TEST**

A T-test is used to compare the means of two groups. We can conduct a T-test to determine if there is a significant difference between the mean perception of AI recommendations among two groups, for example, frequent users (once a week) and less frequent users (once a month or less).

Hypothesis for T-Test:

Null Hypothesis (H0): There is no significant difference in the perception of AI recommendations between frequent and less frequent e-commerce users.

Alternative Hypothesis (H1): There is a significant difference in the perception of AI recommendations between frequent and less frequent e-commerce users.

Group 1 (Frequent users – once a week): Mean perception = 4.3, Std. dev = 0.5

Group 2 (Less frequent users – once a month or less): Mean perception = 3.8, Std. dev = 0.7

| Test | T-Statistic | p-value | Result |
|---|---|---|---|
| T-Test | 3.23 | 0.002 | Significant difference in perception of AI between frequent and less frequent users |

**TABLE 4 – T – TEST ANALYSIS**

Since the p-value is less than 0.05, we reject the null hypothesis. This means there is a significant difference in the perception of AI recommendations between frequent e-commerce users and less frequent users.

These results suggest that while gender does not significantly influence satisfaction with AI, frequency of use does impact how customers perceive AI recommendations.

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**FINDINGS:**

Age and Gender Distribution:

A majority of respondents (80%) were aged between 20-40 years, with a fairly balanced gender distribution (55% male, 45% female). This indicates that e-commerce platforms in Chennai attract a young, diverse audience.

Profession:

Students (30%) and IT professionals (25%) make up a significant portion of the e-commerce users, suggesting that tech-savvy individuals are more inclined to engage with AI-driven features in online shopping.

E-commerce Usage Frequency:

65% of respondents use e-commerce platforms frequently (once a week or twice a month), highlighting the high penetration of online shopping in Chennai.

Perception of AI Recommendations:

70% of users rated AI-based recommendations positively (4-5 on the Likert scale), showing strong acceptance of AI's ability to personalize the shopping experience.

Frequent users (once a week) have a significantly higher perception of AI recommendations compared to less frequent users, as confirmed by the T-test result (p-value = 0.002).

Chatbot Efficiency:

60% of respondents were satisfied with AI-driven chatbots. However, 25% were neutral, and 15% were dissatisfied, indicating that chatbot performance is generally appreciated but has room for improvement.

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Privacy Concerns:

40% of users expressed high concern (4-5) about data privacy when using AI in e-commerce. This suggests that privacy remains a key issue affecting trust and overall satisfaction with AI.

Overall Satisfaction:

65% of respondents reported being satisfied with AI-driven features, but the Chi-Square test showed no significant association between gender and satisfaction (p-value = 0.82), indicating that AI satisfaction levels are similar across genders.

**SUGGESTIONS:**

Enhancing Trust and Transparency:

Address Privacy Concerns: Given that 40% of respondents are concerned about privacy, e-commerce platforms should invest in enhancing the transparency of how AI technologies collect and use personal data. Clear communication on data protection and privacy policies will help build trust among users.

Improve Security Features: Implement stronger data encryption and privacy protocols to reassure customers, particularly those sensitive to data security issues.

Improving Chatbot Performance:

Enhance Chatbot Personalization: To address the dissatisfaction (15%) and neutrality (25%) towards AI-driven chatbots, platforms should focus on improving the chatbot's ability to provide more human-like interactions. Incorporating natural language processing (NLP) improvements and context-awareness can enhance the overall experience.

Multi-language Support: Given the diversity of Chennai, adding regional language support could improve customer satisfaction and usability.

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Tailoring AI Recommendations:

Leverage Frequent Users: Since frequent users (once a week) show a higher perception of AI recommendations, platforms can further personalize experiences for this group by utilizing deeper AI-driven insights. More accurate, dynamic product recommendations could lead to even greater satisfaction.

Address Skepticism in Less Frequent Users: For less frequent users, platforms should offer clearer, more transparent AI features, perhaps with tutorials or explanations of how AI recommendations work to reduce skepticism.

Targeting Specific Demographics:

Focus on Younger, Tech-Savvy Users: Since a majority of respondents are between 20-40 years and include a large proportion of students and IT professionals, marketing campaigns should emphasize the convenience and personalization benefits of AI to attract this demographic.

Expand AI Accessibility: To attract other demographics, such as older age groups, simplifying AI-based features and ensuring an easy-to-navigate interface will help improve adoption.

Continuous User Feedback and Adaptation:

Collect User Feedback: Continuously gather feedback from users regarding AI-driven features to understand evolving perceptions and concerns. This can help in refining AI algorithms to suit customer needs better.

AI Feature Upgrades: Regularly update AI features based on user behavior and feedback to maintain a competitive edge and keep user satisfaction high.

## CONCLUSION:

The study on Customer Perception Towards AI in E-Commerce in Chennai reveals a generally positive outlook toward AI-driven features, such as personalized recommendations and chatbot services, with most respondents appreciating the convenience and efficiency that AI brings to their online shopping experiences. Younger, tech-savvy users (particularly students and IT professionals) form a significant portion of the e-commerce customer base and are more likely to engage with AI features.

While 70% of respondents have a positive perception of AI recommendations, privacy concerns remain a key issue for 40% of users. Despite these concerns, overall satisfaction with AI features is high, with 65% of respondents expressing satisfaction. However, the Chi-Square test indicated no significant difference in satisfaction across genders, and the T-test confirmed that frequent users perceive AI recommendations more favorably than less frequent users.

The findings suggest that while AI is well-received, there are areas for improvement, particularly in addressing privacy concerns and enhancing chatbot interactions to provide more personalized and human-like experiences. For e-commerce platforms to sustain and increase customer satisfaction, it is essential to invest in trust-building measures, improve AI capabilities, and tailor services to meet the evolving needs of both frequent and less frequent users.

In conclusion, AI has the potential to significantly enhance the e-commerce experience in Chennai, but careful attention to privacy and continuous improvement in AI-driven services will be crucial to maintaining customer trust and satisfaction in the long term.

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