

A STUDY ON ROLE OF AI IN SHAPING E – COMMERCE

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Abstract:

Artificial Intelligence (AI) is becoming very important in online shopping. As more people shop online, companies use AI to understand what customers like and make shopping easier. AI tools like recommendations, chatbots, and data analysis help suggest products, answer questions quickly, and give each shopper a more personal and convenient experience.

AI also helps e-commerce businesses manage their daily operations more efficiently. It supports tasks such as predicting customer demand, managing inventory, optimizing supply chains, adjusting prices, and detecting fraud. By using AI to analyze large amounts of data, companies can make smarter decisions, save time, and reduce costs. This allows businesses to operate more smoothly and respond faster to changing market conditions.

Using AI in online shopping also has some challenges. Companies need to be careful about privacy, security, ethical use of customer data, and high costs. Overall, AI helps e-commerce grow, making shopping faster, easier, and more customer-friendly, and will be very important for the future of online stores.

Keywords: Artificial Intelligence, E-Commerce, Machine Learning, Personalization, Chatbots, Big Data Analytics, Customer Experience, Automation.

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Introduction:

Artificial Intelligence (AI) has become an important part of modern business, especially in the e-commerce industry. E-commerce refers to buying and selling goods and services through online platforms, and AI helps make this process faster, smarter, and more efficient. From recommending products to customers to managing inventory and payments, AI is changing the way online businesses operate and interact with consumers.

In e-commerce, AI is widely used to understand customer behaviour and preferences. Online shopping platforms use AI-based tools such as chatbots, personalized recommendations, voice assistants, and smart search systems to improve customer experience. These technologies help customers find suitable products easily, receive quick support, and enjoy a

more personalized shopping journey, which increases customer satisfaction and loyalty.

Objectives of the Study:

1. To understand the role of AI in e commerce
2. To analyse how AI improve customer experience in e commerce
3. To understand future opportunities and challenges of AI in e commerce industries
4. To understand whether AI is secured and safe

Review of Literature:

Ms J.PRABHA(2021) A Study On Impact Of Artificial Intelligence In E-Commerce want to understand the present status of e commerce and to understand the impact of AI in E commerce. The study is to find out impact of artificial intelligence in e-commerce. For this purpose analysis of artificial intelligence in ecommerce how to impact now a days.

Dr. Megha Yogesh Kumar Bhatt (March 2024): Impact of Ai In E-Commerce: A Perception Of Consumers Of Ahmedabad. This study is crucial for several reasons, providing valuable insights into the dynamics of the e-commerce market in this specific region and shedding light on the evolving role of AI technology in shaping consumer behaviour and preferences

Dr. B. Sumalatha (August 2025) A Study on Impact of Artificial Intelligence In E-Commerce .Artificial intelligence is transforming the ecommerce industry, providing businesses with new Opportunities to improve customer experiences, optimize supply chain management, and prevent fraud. However, AI also poses several challenges that businesses must address, including data privacy, job displacement, bias and discrimination, and customer trust.

Scope of the Study:

Today, many people prefer shopping online instead of going to shops. E-commerce companies use Artificial Intelligence (AI) to make online shopping easier and faster. AI helps websites show the right products, answer customer questions, and manage deliveries. Because AI is being used more and more, it is important to study how it affects online shopping.

The study is also important to understand the problems related to AI, such as data safety, privacy, and loss of some jobs due to automation. By studying the impact of AI in e-commerce, we can learn how to use technology in a better and safer way for both businesses and customers.

Research Methodology:

- **Limitations of the study:**

- The study is limited to selected respondents from the commerce industry; therefore, the findings may not represent all sectors or regions.
- The research relies on primary data collected through questionnaire/interviews, which may be affected by respondents' personal opinions and bias
- The study focuses only on impact of AI in E-commerce and does not deeply analyze the technical aspects of AI systems.
- Time constraints may restrict the depth of analysis and sample size of the study

- **Sample size:** 35 respondents (Commerce Students, Academicians, Business Professionals)

- **Data collection:**

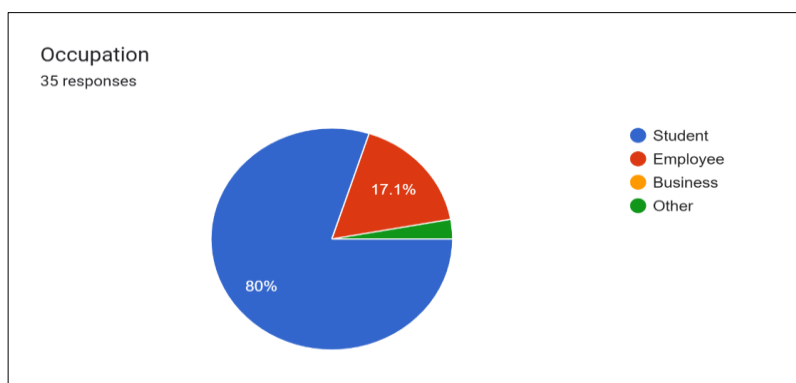
Primary Data: Data was collected by google forms survey called 'A study on challenges and ethical concerns of Artificial Intelligence in commerce industry' is the immediate, first-hand accounts of topic, from people who had a direct connection with it. Data collected form feedback.

Secondary Data: Journals, books, magazines, E-journals, Newspaper, Internet, Websites.

- **Sample design:** Descriptive and Analytical Nature
- **Sampling technique:** Convenience Sampling Method
- **Research approach:** Survey based research
- **Research Instrument:** Questionnaire Survey
- **Tools for Analysis:** Tables, Graphs and Pie Diagrams

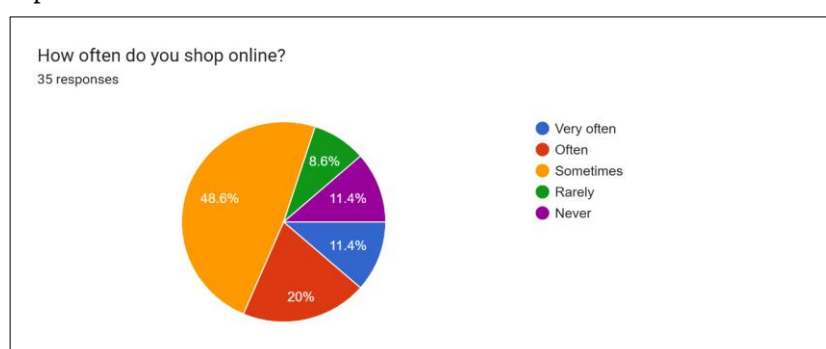
Impact of AI in E commerce:

- **Age:** The age group consists of age from 18 to 40 years. The population majorly belongs to younger group.
- **Occupation**



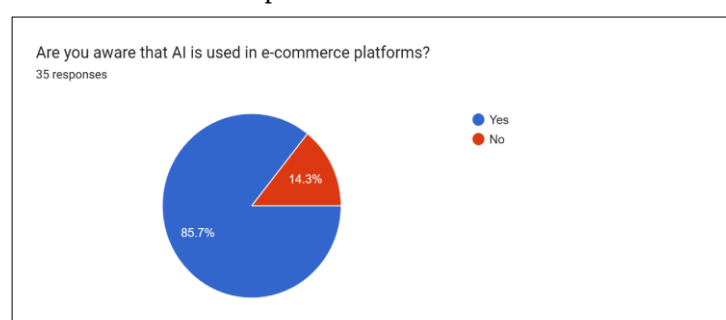
Interpretation: Form the above pie diagram, we observed that 28 respondent (80%) out of 35 are students, 6 respondent (17.1%) out of 35 are employee, 1 respondent (2.9%) out of 35 has other occupation and with 0 respondent (0%) out of 35 has business.

- How often do you shop online?



Interpretation: From the above pie diagram, we observed that 17 respondent (48.6%) out of 35 are shopping online sometimes, 7 respondent (20%) out of 35 are shopping online often, 4 respondent (11.4%) out of 35 are shopping online very often, 4 respondent (11.4%) out of 35 are never done shopping online, 3 respondent (8.6%) out of 35 are rarely shop online.

- Are you aware that AI is used in e-commerce platforms?



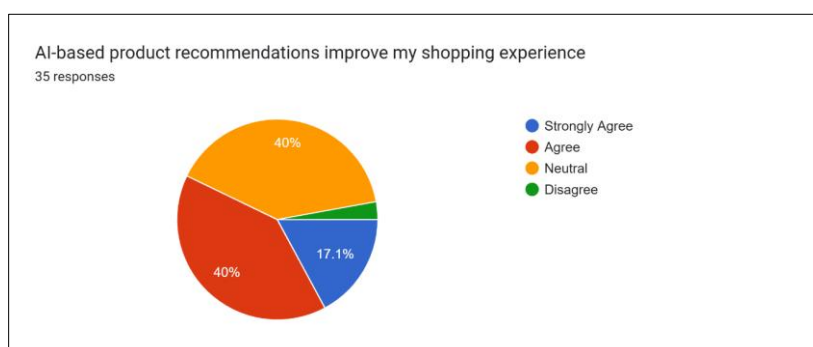
Interpretations: Form the above pie diagram, we have observed that 30 respondent (85.7%) out of 35 are aware of AI is used in e- commerce, 5 respondent (14.3%) out of 35 are not aware of AI is used in e- commerce.

- Which AI features have you noticed while shopping online?



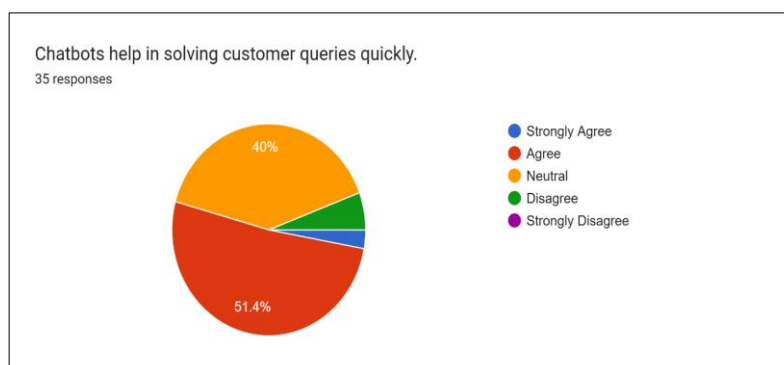
Interpretation: From the above pie diagram, we have observed that 27 respondent (77.1%) out of 35 have noticed product recommendations AI features while shopping online, 17 respondent (48.6%) out of 35 have noticed chatbots AI features while shopping online, 15 respondent (42.9%) out of 35 have noticed personalized ads AI features while shopping online, 7 respondent (20%) out of 35 have noticed voice search AI features while shopping online, 6 respondent (17.1%) out of 35 have noticed dynamic pricing AI features while shopping online.

- AI-based product recommendations improve my shopping experience



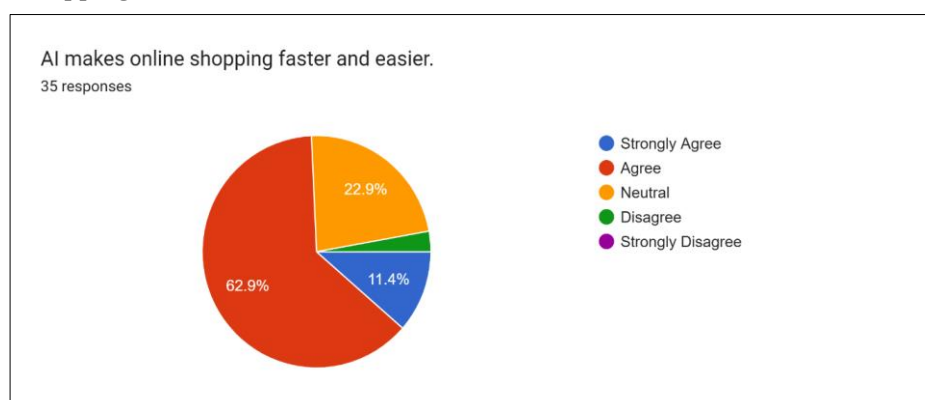
Interpretation: From the above pie diagram, we have observed that 14 respondent (40%) out of 35 are agree that AI-based product recommendations improve their shopping experience, 14 respondent (40%) out of 35 has neutral opinion that AI-based product recommendations improve their shopping experience, 6 respondent (17.1%) out of 35 are strongly agree that AI-based product recommendations improve their shopping experience, 1 respondent (2.9%) out of 35 are disagree that AI-based product recommendations improve their shopping experience.

- Chatbots help in solving customer queries quickly.



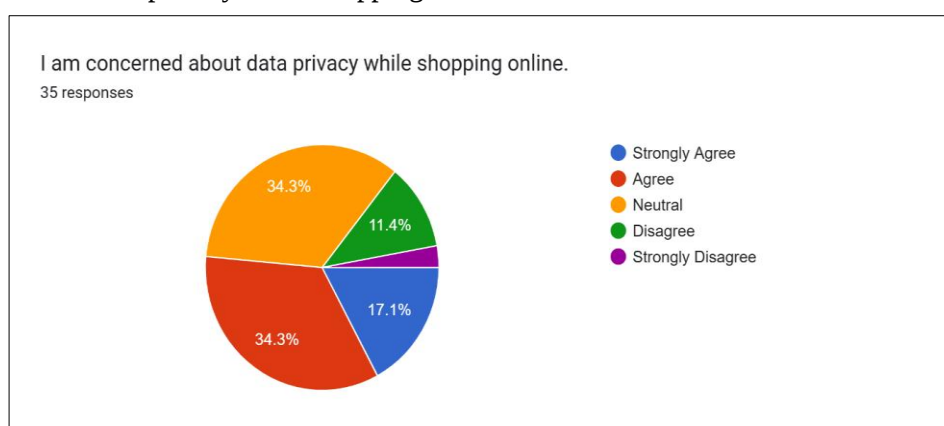
Interpretation: Form the above pie diagram, we have observed that 18 respondent (51.4%) out of 35 are agree that chatbots help in solving customer queries quickly, 14 Interpretation: Form the above pie diagram, we have observed that 18 respondent (51.4%) out of 35 are agree that chatbots help in solving customer queries quickly, 14 respondent (40%) out of 35 has neutral opinion that chatbots help in solving customer queries quickly, 2 respondent (5.7%) out of 35 are disagree that that chatbots help in solving customer queries quickly, 1 respondent (2.9%) out of 35 are strongly agree that that chatbots help in solving customer queries quickly.

- AI makes online shopping faster and easier



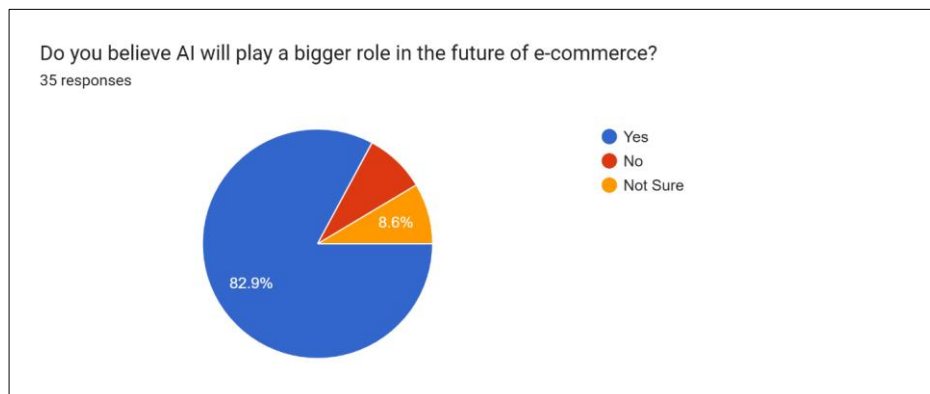
Interpretation: Form the above pie diagram, we have observed that 22 respondent (62.9%) out of 35 are agree that AI makes online shopping faster and easier, 8 respondent (22.9%) out of 35 has neutral opinion on AI makes online shopping faster and easier, 4 respondent (11.4%) out of 35 are strongly agree that AI makes online shopping faster and easier, 1 respondent (2.9%) out of 35 are disagree that AI makes online shopping faster and easier.

- I am concerned about data privacy while shopping online.



Interpretation: Form the above pie diagram, we have observed that 12 respondent (34.3%) out of 35 are agree that there are concerned about data privacy while shopping online, 12 respondent (34.3%) out of 35 has neutral opinion that there are concerned about data privacy while shopping online, 6 respondent (17.1%) out of 35 are strongly agree that there are concerned about data privacy while shopping online, 4 respondent (11.4%) out of 35 are disagree that there are concerned about data privacy while shopping online, 1 respondent (2.9%) out of 35 are strongly disagree that there are concerned about data privacy while shopping online.

- Do you believe AI will play a bigger role in the future of e-commerce?



Interpretation: Form the above pie diagram, we have observed that 29 respondent (82.9%) out of 35 believe that AI will play a bigger role in the future of e-commerce, 3 respondent (8.6%) out of 35 not believe that AI will play a bigger role in the future of e-commerce, 3 respondent (8.6%) out of 35 are not sure if AI play a bigger role in the future of e-commerce.

Conclusion:

The study clearly shows that Artificial Intelligence has brought significant improvements to the e-commerce industry. AI has enhanced customer experience by providing personalized services, quick responses, and efficient shopping processes. It has also helped businesses improve decision-making, reduce costs, and increase sales.

However, the study also highlights certain challenges, especially related to data privacy, security, and ethical use of AI. While customers appreciate the convenience provided by AI, they expect companies to use their data responsibly and transparently. In conclusion, AI is a powerful tool for e-commerce growth, but its success depends on building customer trust and maintaining ethical standards.

Findings:

- The majority of respondents are students from younger age group who frequently shop online, showing strong growth and acceptance of e-commerce platforms.
- Most participants including students followed by employees and business owners are aware that AI is

used in e-commerce, especially for product recommendations, chatbots, and personalized offers.

- A large number of respondents that is students agree or strongly agree that AI improves their online shopping experience by making it faster, easier, and more convenient.
- Many student users feel that AI helps them discover relevant products and saves time during shopping.
- Some respondents expressed concerns about data privacy and security, indicating a lack of full trust in AI systems.
- Most respondents believe that AI will play a bigger role in the future of e-commerce.

Suggestions:

E-commerce companies should adopt strong data protection measures and comply with legal standards to safeguard customer information. Clear privacy policies should be communicated to users.

Businesses should inform customers about how AI systems work and how their data is used. Transparency will help reduce fear and increase trust among users.

AI should be used in a fair and unbiased manner. Regular monitoring should be done to avoid discrimination, misleading recommendations, or unfair pricing.

Companies should regularly update and improve AI tools to make them more accurate, user-friendly, and efficient, ensuring better customer satisfaction.

Awareness programs should be conducted to educate customers about the benefits and limitations of AI in e-commerce, helping them make informed decisions.

Future studies can focus on specific AI tools, ethical challenges, or comparative studies across different regions and industries using a larger sample size.

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