

Technology Innovation AI and Consumer Preference Patterns in E-Commerce

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Abstract

The rapid advancement of Artificial Intelligence (AI) has significantly transformed the e-commerce landscape, reshaping how businesses understand and respond to consumer preferences. With the integration of AI-driven technologies such as recommendation systems, predictive analytics, and personalized marketing, firms are increasingly able to influence and anticipate consumer behavior. Consequently, examining the interplay between technological innovation and evolving consumer preference patterns has become essential in contemporary e-commerce research.

This research was conducted to study the consumers' perception towards use of AI and technology innovation on e-commerce platforms, further it has also examined the impact of AI on consumer purchase pattern. The study was done in Gujarat state and by using quota judgmental sampling method 2095 online shoppers were included in sample. The respondents were shared the Google docs link to provide their responses. The collected data was analyzed by applying various statistical techniques and it was observed that consumers were having the rich online shopping experience and they were using multiple platforms for online shopping to purchase various categories of products. Majority of customers were aware about the use of AI technologies in AI platforms and several times they have used AI features to make their online shopping convenient and enjoyable. Approximately 85% of the customers have positively perceived the use of AI by e-commerce platforms and they have indicated significant positive impact of AI technologies on their preference patterns

Key Words: Artificial Intelligence (AI), Technology innovation, consumer preference

Introduction:

As technology advances rapidly with digital innovations changing the context of e-commerce with AI playing a vital role to improve these systems, e-commerce systems are no longer simple transactional sites. They have transformed into highly sophisticated intelligent systems using data for improved user experience and performance. Using ML

algorithms, chatbots and recommendation engines as one of the many tools, e-commerce companies leverage these AI tools for predicting consumer's demands and behavior with personalized offers, thereby changing how businesses communicate with the consumers.

Consumer preference patterns have changed considerably in the recent past owing to higher levels of digital interaction, convenience-oriented attitudes, and an increasing inclination for decisions made through technological mediation. Consumers of the present generation demand immediate, quick and user-specific offers, and therefore e-commerce companies have embraced AI-driven technologies. AI can track consumers' browsing behavior, anticipate what consumers might desire to purchase and present customized product recommendations to them.

Other than enhancing personalization of consumers, technology has extended its role for dynamic pricing, better management of inventory and automating customer services. Through advanced AI techniques, companies can make quicker decisions and adapt faster to changing market trends and demands and this has resulted in increasing competition amongst different e-commerce providers and compelled them to offer enhanced and distinctive systems to customers, thus making integration of AI a crucial business decision rather than an upgrade.

However, even with the increase in application of AI in e-commerce, it is critical to analyze the implications of such innovation on consumers' preference patterns and the ways in which AI influences purchasing choices, consumer trust and the consumers' decision making behavior is important for both theorists and practitioners. Hence this study aims to find the linkage between technology innovation, especially AI, and the shift in consumer preference.

Review of Literature:

Raza et al. (2025) critically reviewed Artificial Intelligence role in defining consumer demand in e-commerce domain. They identified that AI based technologies i.e., predictive analysis and recommendation system, determine the consumer demand in a large extent by enabling companies to match product to the individual consumers based on their requirements. The authors suggested that, Artificial

intelligence increases the decision-making efficiency by narrowing down the information gap between firm and customers. In addition, the authors discussed about the associated challenges, e.g. Consumer data security and biases caused by AI algorithms and proposed that, ethical implementation of AI in order to enhance the customer trust should be done.

Kumar et al. (2025) studied consumer behavior in the domain of e-commerce by combining the AI based personalized system and trend analysis based models of marketing domain. The study determined that AI based personalization system play an important role in predicting individual consumers' preferences and the adaptation of marketing system based on such behavior is vital. The results suggested that firms can predict the change in consumer demand with the help of real time data analytics in the real world context and can personalize the firm's offering with individual consumer's preferences. This finding combined with trend analysis model led to improved customer engagement and give competitive advantages in dynamic digital marketplace.

Ingriana and Rolando (2025) investigated whether Artificial Intelligence based personalized recommendations improve purchasing behavior of the consumers in e-commerce domain. It found that personalizing recommendation greatly influence customers' satisfaction level and purchase intention of the customers in addition to that AI also play an important role to increase emotional engagement with the customer by proposing relevant product. They suggested that, customer based personalization is very essential to obtain repeated purchasing and increasing loyalty in e-commerce platforms.

Abtahi et al (2024) examined the role of personalized system on defining customer demand in the domain of e-commerce. It found that personalize offering by custom display or tailored discount can influence the customers' demand positively. These strategies decrease the efforts required by customer and therefore improve the overall customer engagement as the platform is able to manage all the needs by offering appropriate item, and the customer would be more eager to use personalized service and feel satisfied.

Raji et al (2024) provided a comprehensive overview of AI based personalization system and emerging market trend in the domain of e-commerce. Authors found that AI-based technologies can bring remarkable change in customer behavior by personalizing pricing, marketing and customer support through chatbot and other intelligent agents. The paper suggests that personalization enhances customer satisfaction and purchasing decisions, it also influences positively on the efficiency of conversions and customer retention as an additional benefit. Also voice commerce and AI chatbots are new trends in this field which need to be examined further.

Mohsin (2024) carried out a study looking at the effect of AI-powered personalization on e-commerce consumers' decision-making process. AI was shown to influence consumers' alternatives evaluation by giving them targeted and suitable product recommendations. Additionally, the use of AI in e-commerce can help to increase consumer trust, decrease their perceived risk in buying, thus decreasing the purchase decision time. In conclusion, AI personalization was revealed to be an essential tool that could affect both rational and impulse buying behavior.

Cheng et al. (2023) conducted research on AI-enabled technological innovation within e-commerce and the new business models developed within e-commerce from AI application in business model development. It was shown that by leveraging AI, a smarter system can be built to automate business operations, optimize supply chains and enable better customer engagement. They stated that AI innovation can be said to be responsible for moving e-commerce from being an online retailing model to an intelligent, data driven ecosystem. The authors found that the adoption of AI is important for development and sustainability in a business.

Ntumba et al. (2023) put together a mini review of the trend of e-commerce evolution highlighting the importance of digital technologies in changing the whole concept of e-commerce. The study traces back from an online retailing model to the sophisticated AI driven online stores and states how mobile commerce, big data analysis and artificial intelligence have changed customers experience and operational activities within a firm. They conclude that technological advancement is a major driver of innovation

and development in the retail sector.

Reddy and Nalla (2023) provided a perspective on how big data and AI is affecting the growth of e-commerce and their relationship in developing business. They emphasized that integration of big data analytics with AI can offer firms an advanced understanding of customers' behavior and market patterns, thus creating greater predictive accuracy in demand forecasting, enhancing targeting in marketing and improving customer service, and it is vital for better performance and higher customer value.

Mardhiyah (2022) explored the role of technology as a wider mechanism for changing e-commerce. It pointed out that AI, automation and digital infrastructure is responsible for enhancing the way companies perform in both its business and customer interaction. It was seen that technology can improve operations but it is not enough, an innovation must be brought in using it to improve the delivery of goods and services to customers. It concludes that new technology is a must for companies if it wants to remain in a strong competitive position.

Bawack et al. (2022) carried out a systematic bibliometric and literature review that identified the historical trend and application of Artificial Intelligence (AI) in e-commerce. Their systematic review successfully maps the intellectual structure of the literature. Key themes of AI use identified are personalization, recommendations, and customer analytics. They also mention the growing role of AI in decision-making and customer experience while also addressing research gaps concerning ethics, data governance and inter-disciplinary approaches in research.

Sharma (2021) focused on the comprehensive impact of AI in e-commerce under business and finance applications. The paper emphasized how various AI technologies like chatbots, machine learning, and predictive analytics had been revolutionizing online retail by enhancing operational efficiency and customer engagement. The authors explained how AI automation helps in areas like customer service, stock management and marketing which eventually results in cost savings and profitability of e-commerce companies.

Thakur (2021) focused on worldwide trends in the e-commerce market; growth and development, customer

adoption and advancements in technology. It was observed that proliferation of the internet, mobile commerce and digital payment systems contribute towards the rapid development of e-commerce on a global scale. It also noted how emerging technologies such as AI and Big data are contributing towards shaping market trends by empowering personalization and data-driven strategies.

Gkikas and Theodoridis (2021) focused on the extent of the influence of AI on customer behavior. The paper provided evidence of how different AI technologies analyze customer data to predict behavior and preferences to provide personalized recommendations which enhance customer decision-making. The authors were also convinced that AI offers deeper insights into customer psychology, which enhances effectiveness in marketing and in developing a better customer relationship.

Khrais (2020) evaluated the impact of Artificial Intelligence on consumer demand within e-commerce and found that AI increases demand through personalization in marketing, dynamic pricing and optimized product suggestions. The study also reported that AI reduces search costs and improves customer experience while enhancing purchasing intention.

The work of Gochhait et al. (2020) analyzes the application of AI in studying consumer behavior in e-commerce. This study reveals how AI tools such as data mining and machine learning help in detecting behavioral patterns and forecasting future buying behaviors. The authors claim that AI insights would be necessary for efficient marketing strategies and customer retention in e-commerce.

An integrated conceptual framework was built by Ikumoro and Jawad (2019) to explore the adoption intention of intelligent conversational agents in e-commerce by SMEs. This study utilized theories such as UTAUT and TOE to explain technology adoption behavior. The study shows that technology acceptance is determined by perceive usefulness, perceive ease of use, organization readiness and environment situation factors of intelligent conversational agents.

In decision tree algorithm for advancing e-commerce analytics was developed by Vasamsetty et al. (2019). Their study reveals how advanced analytic techniques helps in

data analysis of bulk real-time data in e-commerce to provide optimal customer experience and business process improvements. Edge based streaming provides real time decisions and personalized shopping to customers.

Factors influencing adoption of augmented reality (AR) by e-commerce organization were investigated by Chandra and Kumar (2018) with the use of the TOE model. It is observed that technology readiness, organization readiness and environment influence adoption of AR in e-commerce. AR integrated with AI can change the online experience of consumers by developing more interactive channels for the consumers to shop with improved customer engagement.

AI based system to predict customer default in e-commerce was developed by Vanneschi et al. (2018). Their study explains how AI based models in credit risk assessment will provide precise decisions. The authors highlight that in e-commerce, predictive system built with AI based technology will provide accurate decision and reduce business losses for sustainability of business.

Customer demand analysis for supply chain in e-commerce utilizing big data analytics was researched by Li et al. (2018). The integration of big data analytics enable firms to achieve dynamic demand prediction and optimize the supply chain, which improves customer satisfaction and inventory management. Firms get to know purchasing patterns by analysing bulk amount of customer behavior in e-commerce.

The growing association of fashion marketing with the metaverse was analysed by Rathore (2017). His study reveals the use of AI in influencing consumer experience and promoting brand innovations in the virtual universe of fashion marketing with various applications like virtual try on, personalized fashion recommendations, and imersive user experiences. It further states how integration of AI and advanced technologies opens up avenues for effective engagement between customers and brands.

The study by Lee and Phang (2015) looks at the function of social media in promoting e-commerce development within Asian countries. Key themes such as social commerce, user generated content and online trust were highlighted as influencing consumer choices. The researchers propose that social media serves as a significant

channel for marketing, communication and customer engagement allowing businesses to connect with wider audiences, as well as explore research opportunities related to the integration of social media analytics and e-commerce strategies for a better understanding of consumer behavior.

Research gap:

From a review of the above research, it can be concluded that although there have been significant studies about AI personalization, consumer behavior and technology and innovation in e-commerce, the studies are mainly conceptual, literature review based or research on specific areas like recommender system, supply chain and technology adoptions. Few research has explored empirically about consumer usage behavior, coupled with their awareness of AI and perceptions toward it within the whole picture. Moreover, few studies integrated AI driven functionalities with dynamic consumer preference pattern development, or directly analyzed how awareness, experience, and perception affects behavior. Also, impact of demographics like education on those perceptions is seldom been discussed. Thus, present study attempts to cover those gaps by empirically testing on consumer e-commerce usage behavior, AI awareness, perceptions on AI and technology & innovation and impacts of AI driven features on consumer preference patterns as a whole.

Objectives

- To analyze consumers' e-commerce usage behavior.
- To study the consumers' awareness about usage of AI in e-commerce.
- To examine consumers' perceptions towards AI and technology innovation in e-commerce.
- To evaluate the impact of AI-driven features on consumer preference patterns.

Hypotheses

- Consumers' experience of online shopping does not affect their motive of online purchasing.
- Consumers' perceptions towards AI and technology innovation in e-commerce are indifferent with respect to their educational qualification.
- There is no significant impact of AI-driven features on consumer preference patterns.

Research Methodology

- **Research Design:** Descriptive research design was used to study the consumers' perception about use of AI technologies by e-commerce platforms.
- **Sampling:** The study was done in Gujarat state and by using quota judgmental sampling method 2095 online shoppers were included in sample.
- **Data Collection Tool:** The respondents were requested to fill the questionnaire via Google docs app, especially designed for the study. The quest was divided into following sub-sections:-
 - Demographic profile of respondents
 - E-Commerce Usage Behaviour
 - Consumers' awareness about usage of AI in e-commerce
 - Consumers' perceptions towards AI and technology innovation in e-commerce
 - Impact of AI-driven features on consumer preference patterns.

Data Analysis Tool: The data has been analyzed in SPSS 25.0. For interpretation percentage analysis, mean, one sample t-test, chi-square and ANOVA test has been used.

Analysis of Data

Demographic Profile of Respondents

The demographic profile of respondents is shown in table 1

- **Gender of Respondents:** The sample consisted of 53.03% female online shoppers and 46.97% male online shoppers.
- **Age of Respondents:** Almost equal numbers of respondents were aged between 21 to 30 years (26.11%), 31 to 40 years (29.50%) and 41 to 50 years (29.36%). The rest of the respondents were from two extreme ends i.e. below 20 years (9.45%) and above 50 years (5.58%).
- **Qualification of Respondents:** The sample included 12.51% undergraduate respondents, 30.95% graduate consumers, 34.99% post graduate online shoppers and 21.53% professional degree holders.
- **Occupation of Respondents:** As per data 15.13% respondents were students, 35.42% consumers were salaried employees, 24.77% shoppers were self employed and 18.81% respondents were homemakers.

Table 1: Demographic Profile of Respondents

Gender	N	Percentage
Male	984	46.97
Female	1111	53.03
Total	2095	100
Age	N	Percentage
Up to 20 Years	198	9.45
21 to 30 Years	547	26.11
31 to 40 Years	618	29.50
41 to 50 Years	615	29.36
Above 50 Years	117	5.58
Total	2095	100
Qualification	N	Percentage
Undergraduate	262	12.51
Graduate	649	30.98
Postgraduate	733	34.99
Professional Degree	451	21.53
Total	2095	100.00
Occupation	N	Percentage
Student	317	15.13
Salaried Employee	742	35.42
Self-employed	519	24.77
Homemaker	394	18.81
Other	123	5.87
Total	2095	100

E-Commerce Usage Behaviour

Table 2 is depicting the E-Commerce Usage Behaviour of respondents as explained in following sub sections:-

Experience of using e-commerce platforms: Majority of consumers (32.79%) were having the e-commerce platform using experience of 5 to 10 years, followed by 27.88% respondents having the experience of more than 10 years..

Frequency of online shopping: It was observed that 42.67% respondents shop online on fortnightly basis while 27.83% do online shopping weekly.

Device primarily used for online shopping: The most common devises used by shoppers for online shopping were smart phones (36.37%), tablets (29.83%) and laptops (28.11%).

Preferred e-commerce platforms: Respondents were asked that which of the e-commerce platforms they use for

online shopping and it was found that most preferred e-commerce platforms were Amazon (53.70%), Flipkart (48.54%), Meesho (47.11%) and Myntra (41.62%).

Product categories purchased online: It was observed that groceries (61.96%) are shopped online by most of the consumers followed by home & kitchen (50.12%) and fashion & accessories (46.40%).

Main Motive of Online shopping: 1/4th of the respondents (25.25%) do online shopping due to that availability of variety of products and approximately 1/4th of the respondents (23.25%) do online shopping to avail discounts & offers. The other motives of online shopping were convenience (20.24%), personalized recommendations (17.85%) and brand reputation (13.41%).

Table 2: E-Commerce Usage Behaviour of Respondents

Experience of using e-commerce platforms	N	Percentage
Less than 1 Year	335	15.99
1 to 5 Years	489	23.34
5 to 10 Years	687	32.79
More than 10 Years	584	27.88
Total	2095	100
Frequency of online shopping	N	Percentage
2-3 times in a week	273	13.03
Weekly	583	27.83
Fortnightly	894	42.67
Monthly	345	16.47
Total	2095	100
Device primarily used for online shopping	N	Percentage
Smartphone	762	36.37
Laptop	589	28.11
Desktop	119	5.68
Tablet	625	29.83
Total	2095	100.00
Preferred e-commerce platforms	N	Percentage
Amazon	1125	53.70
Flipkart	1017	48.54
Myntra	872	41.62
Ahio	347	16.56
Meesho	987	47.11
Other	109	5.20
Product categories purchased online	N	Percentage
Fashion & accessories	972	46.40
Electronics	488	23.29
Groceries	1298	61.96
Beauty & personal care	742	35.42
Home & kitchen	1050	50.12
Books & stationary	237	11.31
Main Motive of Online shopping	N	Percentage
Discounts & offers	487	23.25
Personalized recommendations	374	17.85
Brand reputation	281	13.41
Convenience	424	20.24
Variety of products	529	25.25
Total	2095	100

To check the impact of consumers' online shopping experience on their motive behind online shopping following hypothesis has been taken:-

H₀1: Consumers' experience of online shopping does not affect their motive of online purchasing.

H_a1: Consumers' experiences of online shopping significantly affect their motive of online purchasing.

The data of consumers' experience of online shopping was cross tabulated with motives of online shopping and then chi-square test was applied as shown in table 3. The significant value of chi-statistic leads to the rejection of hypothesis, so it can be concluded that consumers' experiences of online shopping significantly affect their motive of online purchasing

Table 3: Chi-square test result to measure impact of consumers' online shopping experience on their motive behind online shopping

Experience of Online Shopping	Motives of Online shopping						Chi - Statistic	p-value	Result
	Discounts & offers	Personalized recommendations	Brand reputation	Convenience	Variety of products	Total			
Less than 1 Year	212	21	12	17	73	335	732.77	0.000	Significant
1 to 5 Years	154	104	58	121	52	489			
5 to 10 Years	87	141	74	84	301	687			
More than 10 Years	34	108	137	202	103	584			
Total	487	374	281	424	529	2095			

Level of Significance=5%

Consumers' awareness about usage of AI in e-commerce

Table 4 is showing the Consumers' awareness about usage of AI in e-commerce in the following sub-sections:-

- Awareness about use of AI technologies in e-commerce platforms: It was observed that more than half of the consumers (50.98%) were moderately aware and 34.56% respondents were extremely aware about use of AI technologies in e-commerce platforms.
- Source of awareness: Majority of the consumers (55.32%) come to know about use of AI in e-commerce from social media. The other sources of awareness were advertisements (19.14%), personal experience (17.85%) and friends/family (7.68%).
- AI-enabled features noticed while shopping online: Respondents said have noticed various AI-enabled features while shopping online i.e. dynamic pricing (50.21%), chatbots/virtual assistants (44.34%), smart search filters (42.34%) and personalized recommendations (41.96%).
- Most useful AI features: According to consumers the most useful AI features are smart search filters (27.64%), personalized recommendations (20.43%) and chatbots/virtual assistants (18.47%).

Table 4: Consumers' awareness about usage of AI in e-commerce

What is your awareness about use of AI technologies in e-commerce platforms?		
Response	N	Percentage
Fully aware	724	34.56
Moderately aware	1068	50.98
Slightly aware	303	14.46
Total	2095	100
What was your source of awareness?		
Response	N	Percentage
Personal experience	374	17.85
Social media	1159	55.32
Advertisements	401	19.14
Friends / family	161	7.68
Total	2095	100

Which AI-enabled features have you noticed while shopping online?		
Response	N	Percentage
Personalized recommendations	879	41.96
Chatbots / virtual assistants	929	44.34
Voice-based search	612	29.21
Dynamic pricing	1052	50.21
Smart search filters	887	42.34
Visual search	674	32.17
Which AI feature do you find most useful?		
Response	N	Percentage
Personalized recommendations	428	20.43
Chatbots / virtual assistants	387	18.47
Voice-based search	352	16.80
Dynamic pricing	37	1.77
Smart search filters	579	27.64
Visual search	312	14.89
Total	2095	100

Consumers' perceptions towards AI and technology innovation in e-commerce

Table 4 is showing the respondents' perception towards AI and technology innovation in e-commerce. Respondents highlighted that AI reduces the effort required to search for products (Mean=4.29) because it not only help in discovering products aligned with their preferences (Mean=3.99) but it also improves accuracy in product

suggestions (Mean=3.82). AI increases consumers' confidence while making purchase decisions (Mean=3.74), it makes online shopping more interactive (Mean=3.65) and personalized recommendations make shopping more enjoyable (Mean=3.58). Respondents indicated that AI-powered chatbots provide timely customer support (Mean=3.51) and technology innovation enhances website/app usability (Mean=3.43).

Table 4: Consumers' perceptions towards AI and technology innovation in e-commerce

Consumer Perception Towards AI and Technology Innovation	Mean	S.D.	C.V.	Agreement Level
AI helps me discover products aligned with my preferences.	3.99	0.98	0.25	Agree
AI-powered chatbots provide timely customer support.	3.51	0.87	0.25	Agree
Personalized recommendations make shopping more enjoyable.	3.58	1.09	0.30	Agree
AI improves accuracy in product suggestions.	3.82	1.12	0.29	Agree
AI reduces the effort required to search for products.	4.29	0.82	0.19	Strongly Agree
I trust AI-driven systems used by e-commerce platforms.	3.27	0.94	0.29	Neutral
Technology innovation enhances website/app usability.	3.43	1.05	0.31	Agree
AI increases my confidence while making purchase decisions.	3.74	1.01	0.27	Agree
AI makes online shopping more interactive.	3.65	0.92	0.25	Agree

It was found that 84.34% consumers have positive perception towards AI and technology innovation in e-commerce.

Table 5: Consumers' overall perceptions towards AI and technology innovation in e-commerce

Overall Perception	N	Percentage
Negative	328	15.66
Positive	1767	84.34
Total	2095	100

To check the difference in consumers' perception with respect to their qualification following hypothesis has been taken:-

H₀2: Consumers' perceptions towards AI and technology innovation in e-commerce are indifferent with respect to their educational qualification.

H_a2: Consumers' perceptions towards AI and technology innovation in e-commerce are significantly different with respect to their educational qualification.

ANOVA test was applied to test this hypothesis and the value of F-statistic is found to be significant so it can be inferred that consumers' perceptions towards AI and technology innovation in e-commerce are significantly different with respect to their educational qualification.

Table 6: ANOVA result to measure significance of difference in consumers' perception with respect to their educational qualification

Source of Variation	Sum of Squares	Degree of Freedom	Mean Sum of Squares	F-Ratio	p-value	Result
Between Samples	5263.25	3	1754.417	56.251	0.000	Significant
Within Samples	65215.98	2091	31.189			
Total	70479.23	2094				

Level of Significance=5%

Impact of AI-driven features on consumer preference patterns

Table 7 is highlighting the respondents' agreement with the statements related to the impact of AI-driven features on consumer preference patterns. Respondents indicated that AI encourages them to explore new brands and products (Mean=4.02), influence their brand choice (Mean=3.92) and plays an important role in shaping their online shopping

preferences (Mean=3.84). Further they said AI-based recommendations influence their buying decisions (Mean=3.74), AI-driven suggestions increase impulse buying behavior (Mean=3.67) and AI personalization increases their purchase frequency (Mean=3.58). At last consumers said that AI impacts their preference for specific e-commerce platforms (Mean=3.47) and they were more likely to repurchase from platforms using AI (Mean=3.41).

Table 7: Impact of AI-driven features on consumer preference patterns

Impact of AI on Consumer Preference Patterns	Mean	S.D.	C.V.	Agreement Level
AI-based recommendations influence my buying decisions.	3.74	1.05	0.28	Agree
AI impacts my preference for specific e-commerce platforms.	3.47	0.98	0.28	Agree
AI encourages me to explore new brands and products.	4.02	0.87	0.22	Agree
I am more likely to repurchase from platforms using AI.	3.41	1.12	0.33	Agree
AI personalization increases my purchase frequency.	3.58	0.74	0.21	Agree
AI-based promotions influence my brand choice.	3.92	0.88	0.22	Agree
AI-driven suggestions increase impulse buying behavior.	3.67	1.05	0.29	Agree
AI plays an important role in shaping my online shopping preferences.	3.84	1.07	0.28	Agree
AI customization improves my loyalty towards an e-commerce platform.	3.21	0.69	0.21	Agree

More than 80% of the respondents (81.67%) indicated the positive impact of AI-driven features on consumer preference patterns.

Table 8: Overall Impact of AI-driven features on consumer preference patterns

Overall Impact	N	Percentage
Negative	384	18.33
Positive	1711	81.67
Total	2095	100

To check the significance of impact of AI-driven features on consumer preference patterns following hypothesis has been taken:-

H₀3: There is no significant impact of AI-driven features on consumer preference patterns.

H_a3: There is a significant impact of AI-driven features on consumer preference patterns.

The one sample t-test was applied against the theoretical mean 27, for testing of above hypothesis. The calculated average (32.71) is more than theoretical mean along with the significant value of t-statistic so it can be concluded that there is a significant impact of AI-driven features on consumer preference patterns.

Table 9: One sample t-test result to measure Impact of AI-driven features on consumer preference patterns

Variable	Observed Mean	Test Value = 27			Result
		t-value	degree of freedom	p-value	
Impact of AI on Consumer Preference Patterns	32.71	30.93	2094	0.000	Significant

Level of Significance=5%

Conclusion

1. The results revealed that consumers were having the rich online shopping experience and they were using multiple platforms for online shopping to purchase various categories of products. Majority of customers were aware about the use of AI technologies in AI platforms and several times they have used AI features to make their online shopping convenient and enjoyable.
2. Chi-square test result revealed that consumers' experiences of online shopping significantly affect their motive of online purchasing.
3. Respondents highlighted that AI reduces the effort required to search for products because it not only help in discovering products aligned with their preferences but it also improves accuracy in product suggestions. AI increases consumers' confidence while making purchase decisions, it makes online shopping more interactive and personalized recommendations make shopping more enjoyable.
4. It was found that 84.34% consumers have positive perception towards AI and technology innovation in e-commerce. The ANOVA test indicated that consumers' perceptions towards AI and technology innovation in e-commerce are significantly different with respect to their educational qualification.
5. Respondents indicated that AI encourages them to explore new brands and products, influence their brand

choice and plays an important role in shaping their online shopping preferences. Further they said AI-based recommendations influence their buying decisions, AI-driven suggestions increase impulse buying behavior and AI personalization increases their purchase frequency.

6. More than 80% of the respondents (81.67%) indicated the positive impact of AI-driven features on consumer preference patterns, and one sample t-test also acknowledged the significance of this result.

Implications of the Study:

The study's findings also have several important managerial implications for e-commerce companies and digital marketers. AI's high impact on improving customer experience, reducing search efforts and increasing decision confidence strongly advocates that firms should keep investing in innovative, AI-driven functionalities like recommendation engines and interactive interfaces. Since customers are already utilizing various channels and acknowledge the AI services, companies should pay more attention to developing a flawless omnichannel experience. Businesses need to emphasize intuitive website designs, faster browsing and perfect product recommendations, as positive customer experience encourages buying.

From a strategic viewpoint, consumers' positive view of AI and its effectiveness in molding behavior (shaping preferences, prompting exploration and pushing impulse purchasing) signals the technology as a strong competitive

advantage tool. It enables marketers to create marketing campaigns tailored toward the desired purchasing behavior and motivate the consumers to shop more. However, the distinction in views based on educational qualification warns companies that segment-targeted strategies will be crucial. Finally, the study's insight into AI-driven features significantly affecting consumer preference patterns urges companies to continue innovatively, making the services reliable and transparent enough to engender consumer loyalty.

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