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An Analysis of the Impact of Artificial Intelligence on Consumer Buying Behavior of Laptops in Delhi, Noida and Gurgaon Region

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Abstract

In today's digital landscape, Artificial Intelligence (AI) stands out as a game-changer affecting consumer purchasing decisions, especially in the electronics and laptop sector. In the present study, the effect of AI on consumer buying behavior was done with respect to the purchase of laptop in Delhi, Noida and Gurgaon area. This research investigates the impact of AI-powered technologies like recommendation engines, chatbots, comparison search engines, tailored ads, and AI-powered search engines on consumer decisions, brand choices, and buying trends. The quantitative and descriptive research design was used and primary data was gathered from 390 respondents using a structured questionnaire. The hypotheses were tested and analyzed with the use of SPSS software, which included: Pearson correlation, Independent samples t-test, One-way ANOVA, Chi-Square test and One-Sample t-test. The results reveal that there is a high positive correlation between AI influence and consumer buying behavior, showing that AI has an impact on the purchasing decision of laptops. The research also shows that there are significant moderations in AI influence across demographic factors including age, education, occupation, and income, but not for gender. AI-powered laptops also garnered high preference from consumers, as did AI-assisted purchasing platforms. According to the research, AI improves the consumer's awareness, personalization, ease of the shopping experience, and consumers' confidence when purchasing laptops in the urban market of Delhi NCR.

Keywords: *Artificial Intelligence, Consumer Buying Behavior, Laptop Purchase Decision, AI-Powered Marketing, Delhi NCR*

Introduction

Artificial Intelligence (AI) is one of the most impactful technological advancements that is shaping today's consumer markets and digital commerce. AI is a technology that involves computer systems engaging in intelligent activities like learning, reasoning, prediction, personalization, and automated decision making. In recent years, AI has been increasingly adopted in the field of marketing and retail, with a wide variety of applications including recommendation systems, chatbots and virtual assistants, predictive analytics, and personalized advertising. AI-powered tools have a profound impact on how consumers search, evaluate products, compare options and make their final decisions. With the surge in the growth of e-commerce platforms and online retailing, the adoption of AI has further gained momentum to shape consumer buying behavior. AI has become an increasing part of the laptop industry as it

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becomes more complex and expensive, and the user is expected to use it for a long time.AI is playing a more prominent role in simplifying consumer decision-making processes throughout the laptop industry, where products are increasingly technical, expensive and meant to be used for a long time. Buyers of laptops are frequently overwhelmed by the process of choosing the right model, understanding the differences between brands, decoding technical jargon and assessing the value for money. AI-powered systems are helping customers by providing tailored suggestions, smart comparison features, and live support – and enhancing the purchasing process and customer experience. Consequently, companies have seen a growth in using AI technologies to shape consumer choices, boost customer interaction, and offer electronics market edge.

Together, the areas of Delhi, Noida, and Gurgaon form one of the best internet-savvy, tech-savvy, and digital shopping-dependent urban consumer base in India. AI-powered marketing tools in online marketplaces, online ads, search engine recommendations, AI customer support—these are all the more prevalent in these metros, making consumers more susceptible to AI-driven marketing tactics. With the rise of digital transformation and remote work, the need for laptops has grown tremendously, driving the growing significance of AI-driven purchasing behaviors in these areas. AI technologies can impact consumers' decision-making process in many ways beyond just suggesting the right laptop for their needs and budget; it can also provide information about product features, specifications, reviews, and performance comparisons. But other elements, like trust, privacy concerns, education, job, and income also influence how much consumers use AI when they're buying a laptop. Hence, the role of AI in consumer buying behaviors in the laptop market is a crucial study to understand the changing buying habits and preferences of consumers in Delhi NCR. This research is based on the objective of examining the impact of AI on consumer decision making, brand preference, consumer intention to purchase and overall consumer buying behavior for laptops in Delhi, Noida and Gurgaon area.

Research Methodology

1. Research Design and Data Collection

The present study uses a quantitative approach along with descriptive research design to analyse the impact of Artificial Intelligence (AI) on consumer buying behaviour of laptops in Delhi, Noida, and Gurgaon area. This was chosen due to its ability to systematically understand consumers' attitudes, perceptions, and purchases regarding AI-enabled technologies without altering the study variables. The study aims to investigate the impact of AI-powered tools like recommendation systems, chatbots, comparison sites, and personalized ads on the decision to buy a laptop. Both primary and secondary data sources were used in the research. The primary data was gathered using a structured questionnaire and secondary data was gathered from journals, books, research papers, websites and published reports on Artificial Intelligence and consumer behavior.

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2. Sampling and Study Population

The study is based on the population of urban areas in Delhi, Noida, and Gurgaon, where there is a high concentration of laptop users, internet access, and exposure to AI-driven shopping platforms, making them ideal for the study. The target respondents were students, professionals, business owners, and working people who have recently bought the laptop or are planning to buy it. The respondents were selected using non-probability purposive sampling method which involved selecting those who are knowledgeable about AI-based purchasing systems and laptop buying process. The questionnaire consisted of demographic information (age, gender, education, occupation, and monthly income) as well as statements related to the impact of AI on purchasing behavior. The sample size for the present study was 390 which gives adequate representation and statistical reliability for descriptive and inferential analysis.

3. Data Analysis Techniques

The collected data was analysed using SPSS software with descriptive and inferential statistical data analysis techniques. Demographic profiles and response patterns were summarized using descriptive statistics: frequencies, percentages, means and standard deviation. Pearson correlation, Independent samples t-test, One-Way ANOVA, Post Hoc Tukey HSD test, Chi-Square test and One-Sample t-test were used to test the research hypotheses and look for significant relationships. Pearson correlation was used to analyze the relation between AI influence and consumer buying behaviour, and ANOVA and t-test were employed to compare the differences among the demographics. Chi-Square analysis was used to compare customer preference for the brand and One-Sample t-tests were used to compare consumer preference for AI-powered laptops and AI-based educational influence. These analytical methods helped maintain reliability, validity, and accuracy when studying the influence of AI on the purchasing of laptops.These analytical approaches contributed to ensuring reliability, validity, and accuracy in analyzing the effects of AI on laptop buying habits.

Results and Discussion

The study findings show that Artificial Intelligence (AI) plays a crucial influence on the buying attitude of consumers in the Delhi, Noida and Gurgaon region while shopping for buying laptops. The results of the Pearson correlation analysis showed that there is a strong positive correlation between AI influence and consumer buying behavior, which indicates that AI tools like recommendation systems, chatbots, intelligent comparison platforms, and personalized advertisements have a significant impact on purchasing decisions. The study also revealed that demographic factors like age, education, occupation and monthly income significantly affect the consumers' sensitivity toward AI technologies while gender does not. The reliance on AI-driven recommendations and digital shopping platforms was higher among young adults, higher education, students, professionals, and higher income groups. The study also found that there were significant differences in consumer brand preference with the top three preferred brands of laptop being HP, Dell and Lenovo respectively. In summary, the results indicate that AI contributes to a more convenient shopping experience, boosts product visibility, simplifies the decision-making process, and enhances consumer trust when buying a laptop in today's digital environment, revolutionizing the shopping experience.

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Hypothesis Testing

Hypothesis 1

H0: There is no relation between AI and consumer buying behavior regarding the purchase of Laptops.

H1: There is a relation between AI and consumer buying behavior regarding the purchase of Laptops.

Pearson correlation analysis was conducted to examine the linear relationship between AI Influence (measured by items 1–8) and Consumer Buying Behavior (measured by items 9–16).

Table 1: Pearson Correlation Between AI Influence and Consumer Buying Behavior

Construct	AI Influence	Consumer Buying Behavior
AI Influence	1	0.682**
Consumer Buying Behavior	0.682**	1

The Pearson correlation analysis indicated that there was a significant positive correlation between AI influence and consumers' buying behavior (r = 0.682). The null hypothesis was rejected as the p-value (0.000) was less than 0.05, thus showing that AI does have an effect on the buying decisions of their laptops. AI aids consumer shopping through chatbots, recommendations and comparison sites, which allow consumers to compare products, assess features, and make informed decisions. The results suggest that AI enhances the shopping experience by making it more convenient, personalized, and efficient.

Hypothesis 2

H0: AI is not impacting customers buying behavior based on their demographics regarding laptops

H1: AI is impacting customers buying behavior based on their demographics regarding laptops

Table 2: Effect of Gender on AI Influence on Consumer Buying Behavior

Gender	N	Mean Consumer Buying Behavior	Std. Deviation	Test	t Value	p-value	Result
Male	230	4.25	0.51	Independent Samples t-test	1.85	0.065	Not Significant
Female	160	4.18	0.54				

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The independent samples t-test was performed to test the effect of gender in the case of AI influence on laptop buying behavior. The mean score of male respondents was 4.25 while female respondents had a mean score of 4.18. The acquired p-value (0.065) was more than the 0.05 implying that there was no statistically significant gender difference. The results indicate that male and female consumers use AI-powered recommendations and tools in the same way when making their laptop buying decisions.

Table 3 ANOVA – Effect of Educational Qualification on AI Influence on Consumer Buying Behavior

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.87	4	0.968	3.87	0.010*
Within Groups	108.82	385	0.282		
Total	112.69	389			

One way ANOVA analysis is used to analyze the impact of educational qualification on the behaviour of laptop buying influenced by AI. The results showed that there is a significant difference between the different educational groups and the p value was less than 0.05 ($F = 3.87$, $p = 0.010$). This suggests that consumers' use of AI when buying a laptop is significantly impacted by their level of education. People who have a higher level of education are more likely to use AI-driven recommendations, comparison websites, and digital information platforms when deciding on a purchase.

Table 4: Post Hoc Test (Tukey HSD) – Age Group

Comparison	Mean Difference	Std. Error	Sig.	Result
21–30 vs Below 20	0.22	0.08	0.010	Significant
21–30 vs 31–40	0.17	0.07	0.080	Not Significant
21–30 vs 41–50	0.27	0.09	0.025	Significant
21–30 vs Above 50	0.37	0.10	0.002	Significant
31–40 vs Below 20	-0.05	0.08	0.860	Not Significant
41–50 vs Above 50	0.10	0.09	0.450	Not Significant

The Post Hoc Tukey HSD test showed that there were significant differences across age groups in terms of the influence of AI on laptop purchasing. The differences among the respondents aged 21-30 years, younger than 20 years and older than 50 years were also significant in terms of the impact of AI. The difference between the two age groups (21-30 and 31-40) was not significant, however. The findings indicate that younger age groups are more likely to use AI tools like recommendations, comparisons, or digital platforms when buying their laptop.

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Table 5: ANOVA – Effect of Educational Qualification on AI Influence on Consumer Buying Behavior

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.87	4	0.968	3.87	0.010*
Within Groups	108.82	385	0.282		
Total	112.69	389			

The outcomes of the one-way ANOVA testing the impact of educational qualification on AI influence in laptop buying habits are shown in Table 5.The outcomes of one-way ANOVA testing the influence of educational qualification over AI in laptop buying habits are displayed in Table 5. There is a statistically significant difference between the educational groups ($F = 3.87$, $p = 0.010$), suggesting that education level has a significant influence on consumers' perception and use of AI tools. Those with greater levels of education are more likely to use AI-powered suggestions, comparison sites, and online information sources to inform their choices when purchasing laptops.People with higher education levels are more likely to access AI-powered suggestions, comparison sites, and online information sources to guide their choices in laptop purchases.

Table 6: Post Hoc Test (Tukey HSD) – Educational Qualification

Comparison	Mean Difference	Std. Error	Sig.	Result
Doctorate vs Higher Secondary	0.40	0.12	0.008	Significant
Postgraduate vs Higher Secondary	0.30	0.11	0.015	Significant
Graduate vs Higher Secondary	0.25	0.10	0.065	Not Significant
Doctorate vs Graduate	0.15	0.11	0.200	Not Significant
Postgraduate vs Graduate	0.05	0.09	0.700	Not Significant

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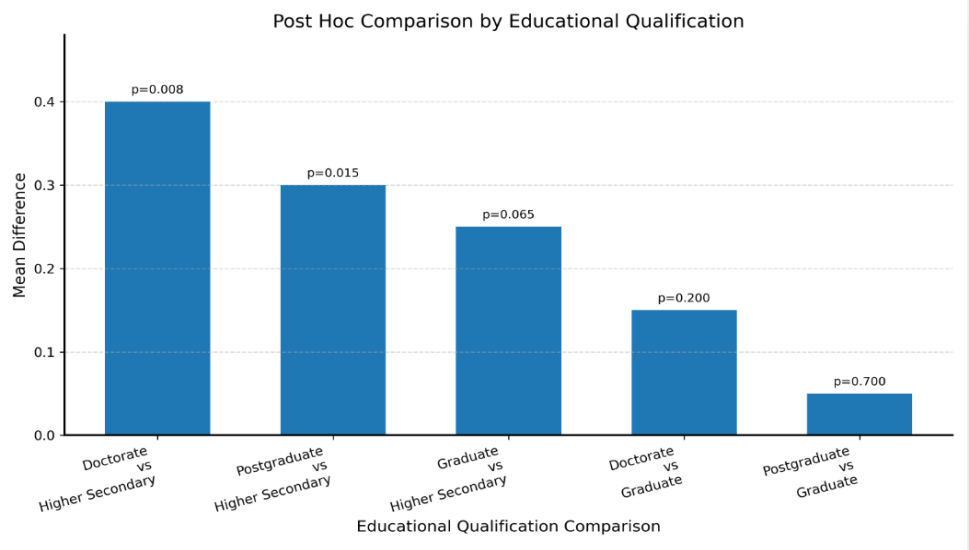


Table 6 presents the Post Hoc Tukey HSD test results for educational qualification and AI influence on laptop buying behavior. The findings show that respondents with Doctorate and Postgraduate qualifications were significantly more influenced by AI compared to those with Higher Secondary education. However, comparisons among Graduate, Postgraduate, and Doctorate groups were not statistically significant. The results suggest that higher educational levels are associated with greater trust, adoption, and responsiveness toward AI-based recommendations and digital tools during laptop purchase decisions.

Table 7: ANOVA – Effect of Occupation on AI Influence on Consumer Buying Behavior

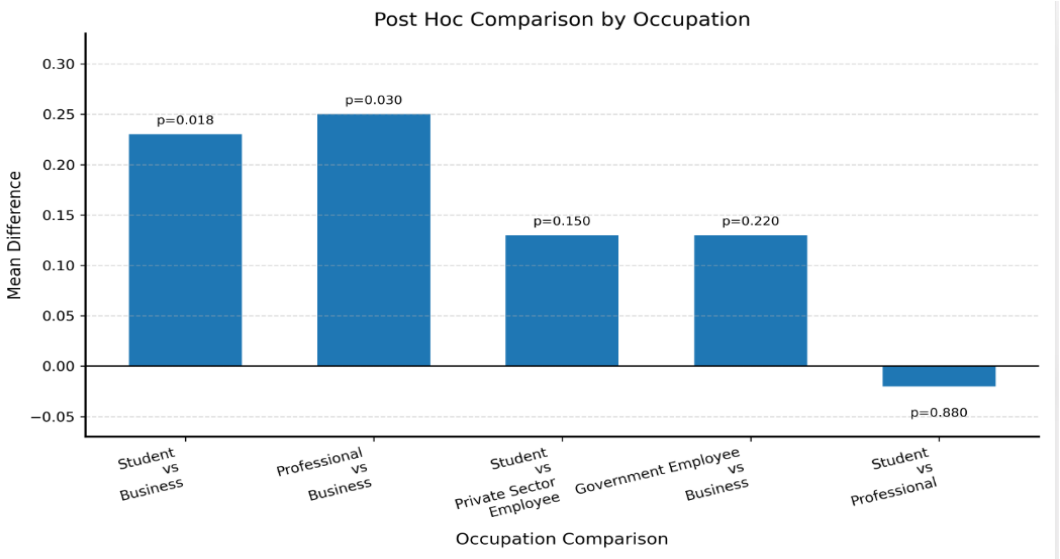
Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.29	5	0.658	2.95	0.022*
Within Groups	109.40	384	0.285		
Total	112.69	389			

Table 7 shows the results of a one-way ANOVA to test the influence of occupation on people's buying behavior for laptops.Table 7 compares the results of a one-way ANOVA to test the influence of occupation on people's buying behavior for laptops. The results show that there is a statistically significant difference between the occupational groups ($F = 2.95$, $p = 0.022$), meaning that the consumers' use of AI tools during purchase decisions is significantly different between the groups. Across diverse groups like students, professionals, employees, and business owners, users' dependence on AI-powered suggestions, comparison tools, and digital information systems for laptop buying was found to vary.

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Table 8: Post Hoc Test (Tukey HSD) – Occupation

Comparison	Mean Difference	Std. Error	Sig.	Result
Student vs Business	0.23	0.10	0.018	Significant
Professional vs Business	0.25	0.11	0.030	Significant
Student vs Private Sector Employee	0.13	0.09	0.150	Not Significant
Government Employee vs Business	0.13	0.11	0.220	Not Significant
Student vs Professional	-0.02	0.09	0.880	Not Significant



The Post Hoc Tukey HSD test for occupation revealed that students and professionals were significantly more influenced by AI compared to business owners in laptop purchase decisions. However, differences among students, private sector employees, government employees, and professionals were not statistically significant. The findings indicate that occupation moderates AI influence on consumer behavior, with students and professionals showing greater reliance on AI-driven recommendations, comparison tools, and digital platforms than business owners.

Table 9: ANOVA – Effect of Monthly Income on AI Influence on Consumer Buying Behavior

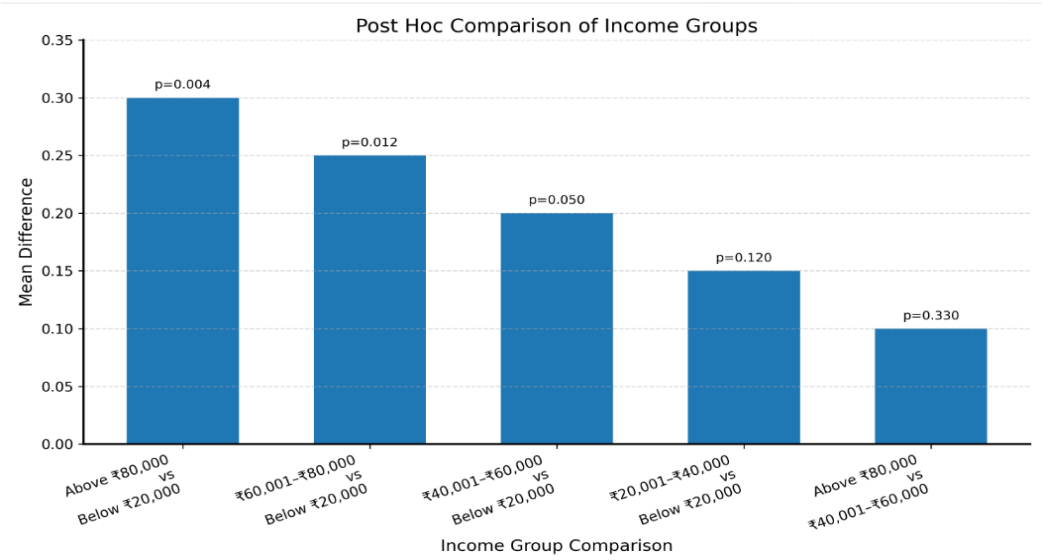
Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.55	4	0.887	3.20	0.014*
Within Groups	109.14	385	0.283		
Total	112.69	389			

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Table 9 presents the results of a one-way ANOVA examining the effect of monthly income on AI influence in laptop buying behavior. The findings show a significant difference among income groups (F = 3.20, p = 0.014), indicating that monthly income significantly affects consumers' use of AI-based recommendations and comparison tools. Higher-income respondents demonstrated greater reliance on AI technologies for informed purchase decisions, suggesting that income level plays an important role in shaping responsiveness toward AI-driven purchasing platforms and digital decision-making tools.

Table `10: Post Hoc Test (Tukey HSD) – Monthly Income

Comparison	Mean Difference	Std. Error	Sig.	Result
Above ₹80,000 vs Below ₹20,000	0.30	0.10	0.004	Significant
₹60,001–₹80,000 vs Below ₹20,000	0.25	0.09	0.012	Significant
₹40,001–₹60,000 vs Below ₹20,000	0.20	0.09	0.050	Significant
₹20,001–₹40,000 vs Below ₹20,000	0.15	0.08	0.120	Not Significant
Above ₹80,000 vs ₹40,001–₹60,000	0.10	0.09	0.330	Not Significant



The Post Hoc Tukey HSD test for monthly income revealed that respondents earning above ₹80,000, ₹60,001–₹80,000, and ₹40,001–₹60,000 were significantly more influenced by AI compared to those earning below ₹20,000. However, some comparisons among middle- and higher-income groups were not statistically significant. The findings indicate that higher-income consumers show greater reliance on AI-based recommendations, comparison tools, and digital platforms for laptop purchase decisions, while lower-income groups demonstrate comparatively lower AI engagement.

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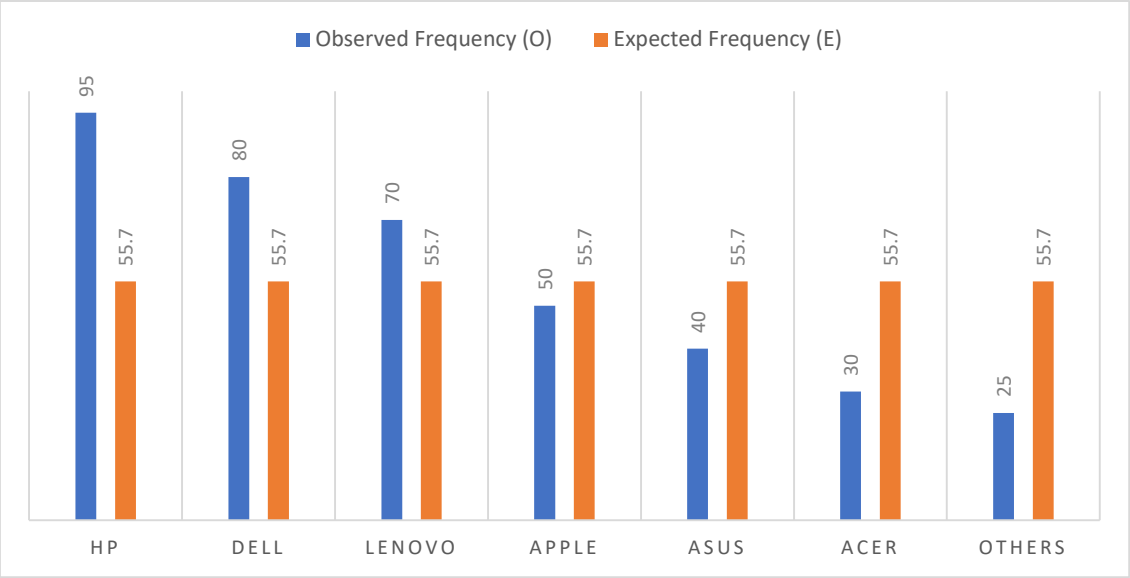
Hypothesis 3

H0: Customers preferences about laptops of different brands are not available in the market.

H1: Customers preferences about laptops of different brands are available in the market.

Table 11: Chi-Square Test for Customer Brand Preferences

Laptop Brand	Observed Frequency (O)	Expected Frequency (E)	O – E	$(O – E)^2 / E$
HP	95	55.7	39.3	27.77
Dell	80	55.7	24.3	10.60
Lenovo	70	55.7	14.3	3.67
Apple	50	55.7	-5.7	0.58
ASUS	40	55.7	-15.7	4.42
Acer	30	55.7	-25.7	11.86
Others	25	55.7	-30.7	16.92
Total χ^2				**75.82**



The Chi-Square test was conducted to examine customer preferences for different laptop brands. The results showed a significant difference between observed and expected brand preferences ($\chi^2 = 75.82$, $p < 0.05$), leading to the rejection of the null hypothesis. The findings indicate that consumer preferences are concentrated toward specific brands, with HP, Dell, and Lenovo being the most preferred, while Acer and ASUS showed lower preference among consumers.

Findings

The study revealed a significant positive correlation between AI and consumers' buying behavior in the context of laptop purchases. The analysis was carried out using the Pearson

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correlation method, which showed that AI technologies, such as recommendation systems, chatbots, and comparison platforms, have a significant impact on consumer decision-making. AI-driven tools enhance consumer convenience, personalization, and shopping efficiency by providing them with the tools they need to compare laptop specs, assess options, and make informed decisions.

The findings also indicated that the demographic variables have significant effects as moderating variables in the process of buying a laptop using AI. The statistically significant difference in consumers' use of AI tools was related to their level of educational qualification and occupation, age and monthly income, while gender did not demonstrate any significant difference. Higher education respondents, students, professionals and consumers with higher incomes were more likely to be dependent on AI-powered recommendations and digital platforms when making a laptop purchase.

The study also detected definite preferences among the customers for specific brands of laptops available in the market. The brand preference was statistically significant from the Chi-Square analysis of the consumer preference. HP, Dell and Lenovo were the top three brands that consumers preferred and Acer and ASUS were comparatively less preferred. This means that reputation, quality, and AI-driven features have a significant impact on buying decisions.

The results indicate that AI has revolutionized the laptop buying experience, making consumers more aware of their options, less overwhelmed by selection, and more comfortable shopping online. Laptops, especially those consumed by urban people in Delhi NCR, have been impacted by AI-powered technologies, which have played a vital role in shaping consumer preferences and purchasing decisions.

Conclusion

The conclusion of the present study is that, Artificial Intelligence (AI) has a significant influence on the buying behaviour of consumer in respect of Laptop in Delhi, Noida and Gurgaon region. The results reveal that the use of AI-driven technologies like recommendation systems, chatbots, customised advertisements, intelligent comparison tools, and AI-driven search capabilities has a profound impact on consumer decision-making. Consumers are increasingly using these technologies to compare the specifications of laptops, consider the options, get technical information, and make buying decisions. The study further reveals a very positive correlation between AI influence and consumer purchasing behaviors, which shows that AI can impact consumer shopping experiences positively by improving the shopping convenience, personalization, purchase confidence and satisfaction.

The study also finds that the age, educational qualification, occupation and monthly income were statistically significant variables that moderate the influence of AI on purchasing behavior, while gender was not. Higher income, professionals, higher education, and young adults were all identified as more receptive towards AI recommendations and digital purchasing solutions. Moreover, the research also revealed that there was a high customer appetite for brands like HP, Dell, and Lenovo in the laptop segment.

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The research reveals how AI has revolutionized the contemporary laptop buying journey, by enhancing consumer understanding, streamlining the choice-making process, and fostering reliance on digital technologies. The results will educate marketers, retailers, and laptop manufacturers about the importance of individuality, transparency, and consumer-centric approaches to AI, empowering them to create strategies that improve customer engagement and competitiveness in the market.

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