Exploring The Influence of AI On Online Shopping Behaviour - A Vadodara District Survey

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***Abstract*—The current research paper focuses on the effect of Artificial Intelligence (AI) on online shopping behaviour among shoppers of Vadodara district. One hundred and sixty respondents were used to obtain primary data in the form of a semi-structured questionnaire. The data obtained were analyzed in IBM SPSS and frequency, percentage, mean and standard deviation descriptive statistics were used. Cronbach's Alpha was used to establish the reliability of the data and the value was 0.746 which showed acceptable internal consistency.**

The results indicate that online shopping sites with AI capabilities are moderately positively perceived by the consumers. Product discovery (Mean = 3.53), and privacy (Mean = 3.52) as the most noticeable factors, and ease of use (Mean = 3.43), and time efficiency (Mean = 3.48) contribute greatly to the convenience and user experience. The level of consumer trust (Mean = 3.33 was found to be moderately good, so the improvement is possible, whereas the influence of AI recommendations on impulse buying behaviour (Mean = 3.28) was limited but significant.

In general, the research finds out that Artificial Intelligence is a powerful influence on consumer behaviour in terms of making it easier, refining the way people are discovering products, and affecting their decision to buy. The outcomes of the results indicate that usability, efficiency, and transparency are key actions that enhance consumer trust and involvement with AI-based e-commerce platforms.

***Index Terms*—Artificial Intelligence (AI), Online Shopping Behaviour, Consumer Behaviour, Trust, Privacy Concerns, Ease of Use, Product Discovery, Impulse Buying, E-commerce.**

I. INTRODUCTION

Artificial Intelligence (AI) has emerged as the primary factor in changing the nature of the e-commerce system because it made it a major factor in shaping the consumer experience with online retail outlets. The current AI innovations, including machine learning, recommendation systems and artificial assistants, allow platforms to understand consumer behaviour and provide them with individual shopping experience. These innovations enable the consumer to get relevant product recommendations, compare products more effectively, and need to make faster purchasing decisions, which makes the overall experience more convenient (Google AI, 2025; Amazon Science, 2024). The experience of online shopping has been enhanced through the introduction of AI to platforms to become more interactive and responsive. Chatbots, voice assistants, and intelligent recommendation systems are the features that allow consumers to easily navigate through big product lists. The AI-driven personalization, according to industry experts, enhances customer interaction and boosts the conversion rate, as it matches the product offering of a company and customers (McKinsey & Company, 2024). Consequently, consumers are turning to AI tools to give them a quicker and more effective shopping experience.

Nonetheless, with said advantages, there have also been the issues of data privacy and security that have arisen. Large amounts of data contributed by users are necessary to make AI systems work, which brings the question of gathering, retaining, and using personal information. The current generation of consumers is more conscious of such problems, and how they value their privacy may affect their confidence in AI powered platforms (PwC Digital Trust Report, 2024). In spite of these, the use of AI in e-commerce is gradually increasing as a result of the value and convenience offered by AI.

Furthermore, AI has a major impact on consumer behaviour, specifically, product discovery and impulse

buying. Individualized suggestions and personalized recommendations introduce the consumer to new products and in most cases, results into impulse buying. This shows that AI has the power to influence consumer behavior to go beyond standard shopping basic and to emphasize its significance in contemporary digital marketing practices (Statista, 2025).

Within the current framework of the area of emerging urbanization such as Vadodara district where digital functions are quickly gathering momentum, the question of the influence of AI on online shopping behaviour gains significant significance. The users of AI-driven platforms in such markets are progressively becoming accustomed to them, and it is necessary to learn the perceptions, preferences, and behaviors of such consumers. Thus, this paper seeks to examine the effects of AI on online shopping behaviour with a particular emphasis on criteria like ease of experience, time savings, confidence, privacy and impulse purchase behaviour.

Objectives of the study

1.To analyze use of AI shopping assistants on consumer trust in online shopping platforms.

II. LITERATURE REVIEW:

The concept of Artificial Intelligence (AI) has already become the driver of change in the e-commerce sector and it has profound impacts on the way of communication between the consumer and online stores. Through the incorporation of sophisticated technologies, including machine learning, predictive analytics, and intelligent recommendation systems, AI can help companies provide very personalized and efficient shopping experiences. Not only do these innovations make the entire process of consumer decisions easier, but they can also facilitate it by offering product suggestions that are the most relevant and a real-time customer service. Consequently, consumer behaviour has emerged to be driven by AI that influences consumer trust, convenience, and the intention to make a purchase. In the fast-paced urban markets such as Vadodara where adoption of digital is on the rise, the role of AI in online shopping behaviour would be vital in both research and business planning. This article by Farooq and Yuen (2024) discusses how the concept of Artificial Intelligence is now shaping consumer behaviour by conducting a systematic literature review of various academic studies. According to the research, AI has a substantial impact on consumer attitudes, decision-making, and engagements due to the provision of personalized and data-driven experiences. The results reveal that AI contributes to the convenience and efficiency of online shopping which is a crucial element of the modern digital trade. Nevertheless, the research also points to the necessity of further research on the emerging markets to get a better insight into the region consumer behaviour.

Sarwar (2025) investigates online shopping behaviour through the adoption of the Artificial Intelligence technologies with quantitative research approach. The research question of the study is how AI-driven technologies, including recommendation engines and chatbots, affect consumer choice and buying behaviors. Based on the findings, AI enhances customer experience by personalizing and assisting in real time, which results in consumer satisfaction and purchase intention. Nevertheless, the article mentions that over-dependence on AI suggestions can hamper consumer autonomy in decision-making. Dai and Liu (2024) discuss how Artificial Intelligence affects consumer purchasing behaviour in online shops. The analysis reveals that AI-related functions like predictive analytics and personalized recommendations are highly relevant in improving consumer interest. The findings indicate that AI does not only enhance product discovery, but it also enhances the probability of impulse buying behaviour. It is concluded that AI is a potent instrument in influencing the consumer choice and online purchases. Hassan and others (2025) explore how trust satisfaction and loyalty are interrelated in e-commerce that is powered by AI. On a structural model method, the research concludes that customer satisfaction and loyalty during the long term are strongly influenced by trust in AI systems. The study mentions that valid tips and credible functionality of the system are the main attributes in fostering reliability among buyers. However, the paper recommends the need to have transparency in AI usage to further it can build consumer confidence. Srivastava and Gurme (2025) look at the effects of personalization and privacy issues in AI-powered digital platforms. The paper concludes that despite the fact that personalization improves user experience and interaction, it creates

concerns about information security and privacy. The findings also suggest that the increased privacy issues have a negative impact on consumer confidence and make them less apt to adopt AI-based systems. Chen and Kumar (2023) consider the usage of the Artificial Intelligence to maximize customer experience on e-commerce platforms. This research has shown that AI technologies like virtual assistants and intelligent recommendation systems are very effective in enhancing ease of use as well as shortening the time taken to shop online. According to the findings, these are the factors that promote customer satisfaction rates and contribute to better platform usability. Nevertheless, the research also highlights that the technical complexity can be the impediment to the adoption on the part of less tech-savvy users. Gupta and Sharma (2024) tested the capacity of AI-based recommendation systems to check impulse purchasing behaviour. The research concludes that the AI-based recommendations are perceived as stimuli that motivate the consumers to make unplanned purchases. The findings have shown that individual suggestions augment exposure to novel products, hence boosting unplanned purchase behaviour. Nevertheless, the paper indicates that to avoid overindulgence in impulsive buying, consumer knowledge and discretion are needed in relation to Artificial Intelligence recommendations. The article by Aydin (2026) explores the contribution of Artificial Intelligence to e-commerce personalization and the resulting influence on the consumer trust and well-being. The research points out that the use of AI in personalization leads to improved user experience, when relevant product recommendations which are based on consumer data are shown. Besides, research found out that although personalization enhances satisfaction and engagement, it is also associated with the concern of privacy and data use. The research concludes that consumer privacy and personalization have to be balanced in the development of the long-term consumer trust. Using a quantitative study, Singh et al. (2024) evaluated the perceptions of consumers regarding e-commerce websites and the presence of trust. This paper recognizes that there are various factors that affect the trust like the perception of reliability, security and transparency of the system. The results have shown that trust is a very important factor in the acceptance of online transactions by consumers. Lack of trust is also the other aspect that can be a significant impediment to the adoption of online shopping in a research, as secure and reliable platforms were mainly noted. Ahmed (2024) looks at the ethical aspect of Artificial Intelligence regarding privacy of consumers in e-commerce especially in India. As the study reveals, AI positively influences the issues of personalization and the efficiency of operations but, at the same time, even causes serious doubts regarding the data security and abuse of personal data. The findings demonstrate that consumer trust and the acceptance of AI technologies have a direct relationship with privacy issues. The paper recommends the need to control the field and moral AI in order to bring confidence to the consumers. Raji (2024) analyses how the AI-based personalization will change the consumer behaviour and market trends in the e-commerce industry. The analysis provides that AI allows businesses to place a highly individual shopping experience based on consumer tastes and behaviour trends. The results indicate that personalization brings about customer engagement, satisfaction, and purchase intention. Nevertheless, the paper also highlights that excessive personalization can result in the privacy issue and lack of consumer freedom. Gantumur (2025) discusses the effects of Artificial Intelligence on online shopping behaviour on the consumer decision-making process. The results reveal that AI technologies like chatbots and recommendation systems complement the shopping experience, as it makes it easier to search the products and more interactive. The findings show that AI has a positive influence on the purchase intention and customer satisfaction. Nevertheless, the research also indicates that ethical issues especially those connected to privacy and trust are also major concerns regarding adoption of AI.

III. RESEARCH METHODOLOGY

The present study adopts a quantitative research approach to examine the influence of Artificial Intelligence on online shopping behaviour. The research is descriptive and analytical in nature, as it aims to identify relationships between various AI-related factors and consumer behaviour. This approach is suitable for analyzing measurable data and drawing meaningful conclusions based on statistical techniques. Primary data is collected directly from 160 respondents in Vadodara District (Gujarat) through a

semi- structured questionnaire. The collected data is analyzed using IBM SPSS. The descriptive statistics i.e., frequency, percentage, mean and standard deviation (S.D) are calculated.

IV. RESULTS AND DISCUSSION

Reliability analysis is conducted to evaluate the internal consistency of the measurement scale.

4.1. Reliability Analysis

Cronbach's Alpha	N of Items
.746	9

Source: Primary study

The Cronbach's Alpha value of 0.746 (Table1.1) indicates that the scale used in this study is reliable and acceptable, as it exceeds the standard threshold of 0.7.

4.2. Socio-economic Profile of Respondents

Age	Frequency	Gender	Frequency	Income	Frequency
Under 25 Years	88 (55.0)	Male	105 (65.6)	Less Than 25000	71 (44.4)
26 - 41 Years	32 (20.0)	Female	55 (34.4)	25001 - 50000	41 (25.6)
42 - 57 Years	22 (13.8)	Total	160 (100)	50001 - 75000	18 (11.3)
58 Years & Above	18 (11.3)			75000 & above	30 (18.8)
Total	160 (100)			Total	160 (100)

Source: Primary data collected by the author, note: Figures in parent is percentage.

Table 1.2 shows the demographics profile of respondents gives a perception on the sample population that is to be used in the research. As per table 1.2 the majority of the respondents 88 (55%) belong to the "Under 25 Years" age group, followed by 32 (20%) in the "26–41 Years" category, while 22 (13.8%) and 18 (11.3%) fall under the "42–57 Years" and "58 Years & Above" groups respectively. In terms of gender, 105 (65.6%) of respondents are male and 55 (34.4%) are female. Regarding income, 71 (44.4%) earn less than ₹25,000, followed by 41 (25.6%) in the ₹25,001–₹50,000 range, 18 (11.3%) in ₹50,001–₹75,000, and 30 (18.8%) earning above ₹75,000.

4.3. Descriptive Analysis

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	S. D
I find AI shopping assistants easy to use and interact with	11 (6.9)	24 (15.0)	43 (26.9)	50 (31.3)	32 (20.0)	160 (100)	3.43	1.169
I am worried about how AI assistants handle my personal data	14 (8.8)	13 (8.1)	46 (28.8)	50 (31.3)	37 (23.1)	160 (100)	3.52	1.187
I use AI assistants primarily to find the lowest price or discounts	18 (11.3)	17 (10.6)	49 (30.6)	50 (31.3)	26 (16.3)	160 (100)	3.31	1.197
I use AI assistants to save time and complete my shopping faster	10 (6.3)	22 (13.8)	40 (25.0)	58 (36.3)	30 (18.8)	160 (100)	3.48	1.132
I enjoy the "human-like" personality or voice of an AI assistant	13 (8.1)	31 (19.4)	35 (21.9)	49 (30.6)	32 (20.0)	160 (100)	3.35	1.230
I like using AI to discover new products I've never seen before.	16 (10.0)	22 (13.8)	27 (16.9)	52 (32.5)	43 (26.9)	160 (100)	3.53	1.293
I trust the product recommendations provided by AI assistants	17(10.6)	19(11.9)	48(30.0)	46(28.8)	30(18.8)	160 (100)	3.33	1.217

I feel uncomfortable when an AI assistant makes a decision for me	11(6.9)	23(14.4)	43(26.9)	51(31.9)	32(20.0)	160(100)	3.44	1.164
I often buy things spontaneously because of an AI recommendation	23(14.4)	19(11.9)	46(28.8)	34(21.3)	38(23.8)	160(100)	3.28	1.337

Source: Primary data collected by the author, note: Figures are in percentage.

Table 1.3 showed that 50 (31.3) out of the total respondents confirm that AI shopping assistants are easy to use and then 43 (26.9) persons agree that they are neutral. Table 1.3 presents the results. When asked about their privacy issues, 50 (31.3) participants answered that they are concerned with the way AI processes their personal information, and 46 (28.8) are indifferent. About the price usage, 50 (31.3) respondents will say that they use AI to discover the lowest price, and then 49 (30.6) will say that they remain neutral.

Moreover, 58 (36.3) of the respondents claim that they do use AI assistants to save time, and 40 (25.0) say that they are neutral. Regarding enjoyment, 49 (30.6) respondents would say that they like the human-like character of AI assistants, and 35 (21.9) would be neutral. To discover products, the respondents state that they like using AI to discover new products at 52 (32.5), and 43 (26.9) highly agree.

Besides, the percentage of neutrality towards trusting AI recommendations is 48 (30.0), and the percentage of approval is 46 (28.8). On autonomy 51 (31.9) respondents believe they do not like to see AI make choices about them, and 43 (26.9) are neutral. Finally, 46 (28.8) respondents are indifferent regarding impulse purchase under the recommendation of AI, and 38 (23.8) would strongly agree with the sentence.

V. CONCLUSION

The purpose of the study was to investigate how Artificial Intelligence affects online shopping behaviour in Vadodara district among the consumers. According to the analysis, there is a moderate to high perception of AI-enabled online shopping among the consumers as all the variables obtained the mean values of more than 3, meaning overall acceptance of AI technologies. Among the variables, the most prominent variables were product discovery (Mean = 3.53) and privacy (Mean = 3.52), implying that consumers are highly satisfied with the fact that AI constantly can be used to discover some novel product, and people are also respectful of the aspect related to data privacy. Further, convenience and time efficiency (Mean = 3.43 and 3.48 respectively) mean that consumers appreciate the convenience and efficiency, thus AI can significantly help to make the shopping process easier.

The results also demonstrate that consumer trust (Mean = 3.33) is still medium, and it is possible to note that even though users trust AI to a considerable degree, it is necessary to boost the levels of trust in such systems. In the same vein, the impulse buying behaviour (Mean = 3.28) also has a moderate impact, which implies that AI suggestions can drive impulse purchases, but they are not the only factor. The issues of privacy can also be discerned in the group of consumers, but they are not critical impediments to the implementation of AI-based platforms. The reliability test with 0.746 Cronbachs Alpha value indicates that the data gathered is consistent and reliable, which proves the validity of the study.

In general, the research draws a conclusion that online shopping behaviour is positively influenced by Artificial Intelligence and its effects are only increasing. Product discovery, ease of use, and time efficiency are important in consumer experience improvement whereas trust and privacy areas need improvement. It is more probable that e-commerce sites, aimed at enhancing the usability, transparency, and reliability of the system, can gain the confidence of consumers and achieve long-term growth in the increasingly competitive digital market environment.

E-commerce providers must also pay attention to the ability to make AI systems more user-friendly, i.e., to create simple, intuitive, and friendly interfaces that help improve user experience. To enhance convenience of users, companies ought to enhance time saving qualities, quick suggestions, faster search platforms and effective navigation. Businesses must also maintain transparency in data collection and data usage practices in order to overcome any issue relating to consumer privacy and establish long term trust with

the users. Moreover, AI algorithms are to be constantly upgraded to give correct and useful product recommendations, thus making consumers trust AI systems.

VI. LIMITATIONS OF THE STUDY

The study is limited to Vadodara district, which restricts the generalizability of the findings to other regions or populations. The sample size of 160 respondents, although adequate, may not fully represent the entire population of online shoppers. Additionally, the study is based on primary data collected through a questionnaire, which may be subject to respondent bias and personal opinions. The use of convenience sampling further limits the randomness of the sample, which may affect the overall accuracy of the results.

In addition, the analysis relies mostly on descriptive and reliability techniques and this restricts the potential of determining strong cause-and-effect relationships between variables. It is also incomplete as only a few variables regarding AI and consumer behaviour are taken into account and other variables that affect the online shopping behaviour may not be taken into consideration.

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