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Artificial Intelligence Driven Customer Engagement: A Study of Indian E-Commerce Consumers

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How To Cite: Wani, W.; Naqshbandi, M.A.B.; Baba, M.M. Artificial Intelligence Driven Customer Engagement: A Study of Indian E-Commerce Consumers. *Journal of Marketing and Management Insight* **2026**, *1*(1), 6. https://doi.org/10.53941/jmmi.2026.100006

Received: 2 May 2026
Revised: 17 June 2026
Accepted: 18 June 2026
Published: 9 July 2026

Abstract: This study examines how AI-powered service experiences influence customer satisfaction and customer engagement in the B2C e-commerce context in India. Drawing on affordance theory and service dominant logic the study conceptualizes AI as a commercial service and investigates the mechanisms through which AI service experience contributes to customer engagement. Primary data were collected from Gen-Z and Millennial customers in India who had interacted with AI-based tools on e-commerce platforms. The relationships among AI service experience, customer satisfaction and customer engagement were analyzed using SMART-PLS 4. The findings demonstrate that AI service experiences significantly improve customer engagement and satisfaction. Customer satisfaction also exerts a strong positive influence on customer engagement. Further, customer satisfaction has a crucial role in influencing AI-driven service results by partially mediating the relationship between AI service experience and customer engagement. The study offers practical marketing insights for professionals and service designers by showing how AI-enabled interactions enhance customer experience and engagement. The findings underscore the significance of creating AI systems that deliver functional and experiential affordances capable of improving satisfaction and fostering long-term engagement. This study extends affordance theory to the AI-enabled e-commerce context by offering empirical evidence on the process through which AI service experience strengthens customer engagement. It adds to the literature on AI-driven service design and provides meaningful implications for both researchers and practitioners.

Keywords: artificial intelligence; service experience; customer engagement; customer satisfaction

1. Introduction

Customer engagement is a concept that is critical to marketing and service industry and it denotes the relationship that the clients form with the companies [1,2]. As [3] points out, customer engagement can be measured using a number of variables, including retention, purchase amounts, purchase frequency, and cross-selling activities.[4] provided certain basic ground for understanding customer engagement with a stress on the various aspects of organizational properties, such as brand reputation, effective use of information and customer-oriented factors, such as satisfaction and trust. The development of the internet and digital platforms has initiated the shift in how companies interact with their customers, as it has created sustainable relationships that look beyond transactions [5]. Digital and AI revolutions have had a major influence on the buying behavior and the shopping patterns of customers have been completely transformed [6].

The service sector has been transformed by the presence of innovations in technology, particularly in the area of artificial intelligence (AI) [7]. AI, which refers to computational agents capable of doing tasks that could be

analogous to the human thought processes [8], plays a crucial role in improving the customer interaction through the use of chatbots, recommendation systems, and automated support agents [9]. Specifically, AI performs data analysis and communicates with a customer instantly, so technology-based interactions can be more human and individualized, depending on personal preferences [10]. With businesses striving to remain competitive in the evolving digital world, the field of AI and machine learning is becoming a more popular tool to support data-driven decision-making, improve customer experiences, and enhance business intelligence [11,12]. AI helps marketers get in touch with customers more effectively because it offers relevant information in a timely manner [13]. In service environments, including travel and hospitality, AI-based solutions have been applied to improve front-office interactions [14], and AI-based digital platforms have been used to attract and retain customers in a more competitive environment [15]. Also, AI allows custom engagement marketing strategies and social media interaction, assisting companies in communicating with clients by using the knowledge of business intelligence [14]. The online shopping platforms make use of chatbots to improve customer services and allow users to share their requirements in the specified chatbox and get a response that is highly relevant [16]. According to the past searches, an AI-based recommendation engine is used with an online retailer to find and recommend items that consumers finds attractive [17]. This type of data-based interaction is cost-effective and much more effective in increasing the conversion rates as the businesses can understand better the customers preferences and shopping habits and make it a central part of the customer experience [18]. There is not much research on how customers view AI technology as an important part of their purchasing experience and how it generates closer bonds with the company [19]. The insights concerning the relationship between AI and customer engagement can be utilized in the performance optimization in the organizations [4,20]. Customers are looking for personalized and fulfilling experiences in addition to quick and easy transactions as e-commerce platforms become more and more integrated into daily life. AI is a revolutionary advancement in fulfilling these changing demands because of its ability to evaluate enormous information and identify complex patterns [21]. India, has one of the fastest growing E-commerce industry globally [22]. The nation's sizable, and technologically literate population, along with the quick uptake of smartphones and growing internet usage, have sped up the incorporation of AI technologies into e-commerce platforms. The impact of AI technologies on customer's service experience in India's e-commerce industry is anticipated to grow. Although AI is growing rapidly, most of the prior studies [23–26] have focused on the adoption of AI in various service sectors and limited attention has been given to the service experience of customers with AI based technologies like chatbot agents during their purchase journey on e-commerce platforms and how this experience can lead to customer behaviors like satisfaction and engagement. This study aims to fill this gap, especially in fiercely competitive and rapidly expanding sectors like India's e-commerce industry, comprehending the service experience is necessary to explain how AI affects subsequent customer behaviors like satisfaction and engagement. Therefore, this research is intended to explore the connections between the experience of AI services, customer satisfaction, and customer engagement on B2C e-commerce websites, where AI systems like chatbots and personalized recommendations are utilized. AI has created new trends in the development of e-commerce and has provided a vast value to the field [27]. Examples of AI use in e-commerce include smart assistants (chatbots), recommendation systems, automated logistics, price optimization, and effective pricing mechanisms [28]. This study aims at bridging the gaps in existing literature in an attempt to enhance understanding of AI customer engagement through supplying theoretical knowledge and practical recommendations on how AI can be used in digital interaction areas to maximize its usefulness. To meet this goal, the research employs the concept of Affordance Theory [29] which is further complemented by service dominant logic theory [30] to further improve the understanding of customer interaction with AI-based services. Based on this, the research is guided by the research questions as follows:

RQ1: *How does AI service experience influence customer engagement in B2C e-commerce*?

RQ2: *To what extent does AI service experience affect customer satisfaction*?

RQ3: *How does customer satisfaction influence customer engagement*?

RQ4: *Does customer satisfaction mediate the relationship between AI service experience and customer engagement*?

2. Theoretical Framework

The paper employs the Affordance Theory [29] as a theoretical framework that will enhance the comprehension of customer engagement in AI-based services better. The Affordance Theory proposes that the objects in the environment provide the possible actions to an organism be it a human being or an animal based on their perceived usefulness [31]. In the ecological psychology literature, in which the concept of affordance was

first proposed, the term affordance is used to refer to the concept of possible actions as perceived by an organism in its environment [32]. Since the concept of affordances is the possibilities of action, actors must perform such actions to achieve the appropriate results [33]. According to [34] the theory of affordance helps to fully comprehend the relations of the users and their interaction with the technological system. While grounded in ecological psychology, the theory of affordance has been largely applied in organizational studies to explain how users perceive and use AI affordances in the business setting [35]. Ref. [36] applied the affordance theory to the human-chatbot interaction, focusing on the ways users can understand and use AI affordances in the business context. The various AI driven systems including chatbots and recommendation systems shape the service experience of customer during their purchase journey not just by their presence but through the various affordances they offer like personalization, anytime availability and efficient processing of information [37]. These affordances have an influence on how customers search for information, evaluate the alternatives and make purchase decisions in the online settings [38]. Thus, AI service experience can be conceptualized as an outcome of these technological affordances. There is a growing adoption of AI in the online environments which reflects a fundamental shift from the traditional human-human interaction to AI-human interaction [39]. The conventional interactions are based on interpersonal communication and human judgment but AI-human interactions are structured through algorithms and data driven processes that shape customer behavior [40]. Consequently, the evaluation of the customers is based on the how effectively these technologies affordances function rather than on human relational cues. Customers are more likely to be satisfied when they believe that these AI-enabled affordances are seamless and helpful [41]. According to [4], satisfied consumers are therefore more likely to display stronger engagement behaviors, such as ongoing interaction, increased participation, and long-term relational commitment with the platform. Moreover, Service-Dominant Logic [30] is used as a complementary theory which asserts that value is co-created through interactions between service providers and customers rather than being ingrained in products or technology themselves. Service experience is viewed as the locus of value co-creation, where customers actively derive value through their interactions with the firm. As value is determined by the customer during the experience, satisfaction reflects the evaluation of this co-created value and serves as a key driver of subsequent behavioral intentions [42]. While affordances explain what AI systems enable customers to do, Service-Dominant Logic explains how these interactions translate into perceived value. This combined framework provides a more comprehensive understanding of how AI-driven service experiences influence customer outcomes in contemporary e-commerce settings. Within AI-mediated environments, intelligent systems act as operant resources that facilitate continuous interaction, thereby enabling customers to actively participate in the value creation process. In this sense, AI service experience can be understood as a platform through which value co-creation occurs, ultimately shaping customers' perceptions and behavioral responses. By integrating these two perspectives, the present study conceptualizes AI service experience as a function of technological affordances that enable meaningful interactions, which in turn lead to customer satisfaction and engagement. While earlier studies [43,44] have looked at certain aspects of AI-enabled services, like system performance and service quality, but how technological affordances influence user behavior is underexplored. Hence, this study provides a more process oriented understanding of how technological capabilities transfer into experiential and behavioral results by conceptualizing AI service experience as the result of numerous technological affordances, supported by Service-Dominant Logic.

3. Literature Review and Hypothesis Development

3.1. AI Service Experience and Customer Engagement

Customer engagement is a psychological process involving more than the traditional perception of loyalty. Emergence of service activities through the concept of customer engagement has emerged all over the globe. In this way, engaging customers has been recognized as an unspoken rule of enhancing the performance of the brand and the organization [45]. The use of AI services by organizations can give a superior experience to the customers, which can boost customer engagement [46]. AI refers to machines that can act, react and behave intelligently [8]. Through assessing and comprehending information, AI can perform tasks, and handle the problems that otherwise would have needed human involvement [47]. AI can forecast the needs of customers, which impacts customer's investment in the service interaction which in turn impacts customer engagement [48]. The service industry has been applying AI widely as it is used to enhance decision-making process, as well as to deliver improved customer experience [49]. Applying to the hotel industry, ref. [14] have placed AI as a business service that makes a substantial impact on customer engagement and emphasized the importance of understanding customer perceptions and the importance of AI services. The outcomes of meaningful engagement are strongly influenced by attitude of the customers towards the use of service robots [50]. Ref. [51] demonstrated that functional and system-related

benefits are the primary drivers of customer engagement in AI-mediated scenarios. As stated by [52], AI technologies allow customized communication with the customers and assist in automating the routine [53], examined how artificial intelligence technologies are used and have a crucial impact on the conversion rates and user engagement. The higher conversion rates lead to greater user experience. In line with the discussion above, the hypothesis below is proposed.

H1. *AI Service experience has a positive influence on customer engagement*.

3.2. Customer Satisfaction and Artificial Intelligence Service Experience

Customer satisfaction is the process where the customers make comparisons of the perceived service performance with service expectation which leads to a sense of pleasure or disappointment [54]. Customer satisfaction adopts a new perspective when it comes to the AI powered services [55]. Satisfied customers are more likely to use new AI technologies [56]. As [57] pointed out, AI technology can be used to improve customer experience, customer engagement, and customer satisfaction. Companies could enhance the satisfaction of customers by offering them personalized services and better quality of service that could be attained by incorporating AI in service delivery systems [58]. According to [59], customer satisfaction is positively impacted by the system's ability to handle problems efficiently, display human-like comprehension, and deliver accurate and pertinent information. The results by [60] show that a variety of elements contribute to satisfaction, such as the degree of social influence, the degree of competence and warmth of the chatbot, the degree of trust it fosters, and the degree to which communication is socially orientated. As the research by [61] points out, e-commerce companies should implement AI tools to strengthen the satisfaction of the customers. The example of AI tools involve the system of individual suggestions in accordance with which customers will be able to get more involved. In accordance with the discussion above, the following hypothesis is proposed by us:

H2. *Customer satisfaction has a positive relationship with AI service experience*.

3.3. Customer Satisfaction and Customer Engagement

Customer engagement refers to the involvement of the customer in the different activities of the organization [62]. To improve customer engagement, platforms, online and offline, can be used by the firms [63]. As shown by [64], customer engagement is a cycle that comprises different components that involve interactions, engagement and commitment. When the customers interact with the firm and this interaction leads to customer satisfaction, it will subsequently translate into customer engagement. Ref. [65] has suggested a conceptual customer engagement model, and has emphasized the significance, emotions and satisfaction play in driving customer engagement between the customers and the organization. In case the customers feel that the organization is fulfilling the expectations of customers, then it leads to satisfaction [66]. It has been indicated through past studies [67] that customer satisfaction and retention are strongly tied. Ref. [4] has developed an outline of customer engagement. The research confirms the existence of customer engagement as a result of customer satisfaction. The customer who has positive past experience with a brand or organization is likely to engage more with the brand in future. On the basis of the above discussion, the following hypotheses are given:

H3. *Customer engagement is positively and significantly related to customer satisfaction*.

3.4. Mediating Role of Customer Satisfaction

The study by [68] compared the connection between the perceived service quality, customer satisfaction, and customer engagement in the Indian banking industry and found that customer satisfaction is an important mediating variable between perceived service quality and customer engagement. Their findings indicate that the level of customer satisfaction rises with the level of improved service quality that further results in a positive customer involvement. Ref. [69] has concluded that emotional and rational engagement are both quite intertwined. Customer satisfaction and customer experience are found to be critical elements in the establishment of long-term relationships with the customers [70]. Widespread Research has indicated the relationship between customer satisfaction and customer engagement [71,72]. This means that customer satisfaction levels with a particular product or brand play a significant role in the process of establishing the degree of interaction with that product or brand. Ref. [71] suggested that customer satisfaction is the predictor of engagement, especially when using brand Facebook pages. It implies that the higher the levels of satisfaction are, the higher the level of interaction via social media platforms. Furthermore, ref. [73] suggested that customer satisfaction mediates loyalty and reputation of the company in the retail context and [72] examined the positive correlation between the customer satisfaction and

interaction with mobile applications which are tied to these retailers. The results of this research indicate that there are high chances of increased customer engagement when customers are satisfied with the services and products offered by the retailers. Customer engagement is preceded by customer traits namely user satisfaction, brand loyalty, and brand emotional connection [4]. Consumer satisfaction in digital brand communities is a positively related with activities in the engagement strategy such as providing feedback, suggestions, and support to other customers [74]. The positive relationship between customer engagement and customer satisfaction has been previously studied and shown by multiple studies [75,76] customer satisfaction is known to influence the direct customer interaction but also the overall customer engagement parameter of multiple platforms. The above discussion suggests a sequential association between satisfaction with customers and engagement. In the light of the discussion presented above the following hypothesis is as follows:

H4. *Customer satisfaction has a significant mediating effect between AI service experience and customer engagement.*

4. Methodology

4.1. Research Design

Research design used in the study was a cross-sectional survey research of quantitative nature in which an attempt was made to study the effects of AI driven customer service on customer engagement in India. The relationships explored in the study are between, AI service experience, customer satisfaction and customer engagement in the B2C e-commerce platforms. The study focuses on the role of customer service experience with various AI-based tools such as chatbots and how these interactions contribute to satisfaction and result in increased engagement with the brand.

4.2. Sampling and Data Collection

A snowball sampling method was used to select participants who had used AI services tools on Indian e-commerce sites or applications such as Nykaa and Flipkart (E-commerce platforms for beauty, fashion and electronics) because it helps to reach a wider demographic that is otherwise challenging to access [77]. The study targeted Gen Z and Millennial customers since they use digital platforms the most. Before being included in the study, each participant gave their informed consent. Participant's voluntary involvement was verified by written consent, and they were given comprehensive information about the purpose and procedures of the study. Consequently, the respondents were required to be aged between 13 and 44 years and they were also expected to have used AI applications like chatbots on e-commerce platforms. The AI technologies in this study include widely used AI tools on e-commerce applications such as chatbots, recommendation systems, and personalized assistance features that facilitate customer interaction and decision-making. The beginning of the questionnaire had a filter question that ensured eligibility. During nine weeks, the data were collected online with the help of Google Forms (Google LLC) and the survey link was shared via the available social media platforms in India, namely Facebook, Instagram, and WhatsApp to ensure a large audience reach. Two hundred and eighty-two valid responses were collected, cleaned and accuracy of the responses ensured. The proposed research model is given in Figure 1.

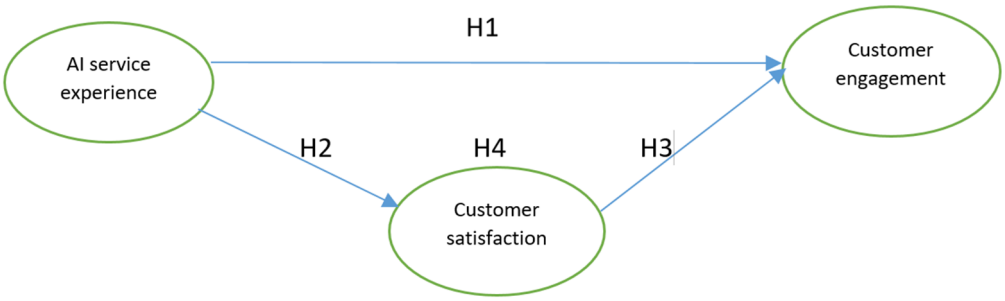

Figure 1. Research model. Source: Authors' own work.

4.3. Survey Instrument

The questionnaire had two sections. The former contained screening questions to determine the eligibility of the participants namely, if they had used AI tools on e-commerce platforms followed by questions comprising demographics. All the items on the form were necessary to ensure that the data was accurate and comprehensive. The second section contained 27 items that were modified based on validated and well-established measures

applied in previous research. All the questions were rated on a five-point Likert scale with 1 being "strongly disagree" and 5 "strongly agree". The measures of the study variables were all based on available studies that showed a high level of reliability and validity. To understand how AI service experience leads to customer satisfaction and consequently, customer engagement, a metric developed by [78] for AI service experience was used. Four dimensions as a reflection of reliability, assurance, empathy, and responsiveness of AI service experience based on ten items was used. An additional item by [79] to make the description of the responsiveness in the interaction between AI and customers more realistic was included. A scale developed by [54] was adapted to measure customer satisfaction, five-item scale was used to evaluate the degree of customer satisfaction with the AI services. The scale for customer engagement was adapted with eight items based on the [80] adaptation which measured the level of customer involvement when using AI services. All materials were scrutinized thoroughly and this was done to make sure that the language used, the context and the coherence are clear and fit within the context of the study.

4.4. Demographic Characteristics

The final sample included 282 respondents and had a mixed demographic profile (Table 1). The proportion of males constituting the sample was 43.46% and that of females was 56.54%. Most of the responders (68.20%) fell under the age group of 21 to 28, then there was the age group of between 29 to 36 (20.85%). The largest percentage (66.08%) were students, and the majority of them had postgraduate or higher degrees. The sample was heterogeneous in general, mainly comprising of young and well-educated people.

Table 1. Demographics.

Characteristics	Group/Category	%
Gender	Male	43.46
	Female	56.54
Age	13–20	5.65
	21–28	68.20
	29–36	20.85
	37–44	5.30
Occupation	Student	66.08
	Self employed	6.36
	Employee	24.38
	Home-maker	3.18
Education	12th & below	10.25
	UG	10.95
	Graduate	24.03
	Post Graduate	45.23
	Doctorate	9.54

Source: Authors' own work.

4.5. Multicollinearity and Common Method Bias

Variance inflation factor (VIF) was carried out to identify the existence of multicollinearity. According to [81], a VIF of less than the conservative cut off of 3 indicates negligible multicollinearity levels and all VIF values were found to be less than this value indicating that the predictors are independent. The procedural and statistical measures were implemented so as to address common method bias (CMB). The procedural measures were put in place by presenting the items in a randomized manner and ensuring anonymity. Harman single-factor test was statistically used to test the existence of CMB. The results showed that each of the factors did not explain more than a half of the total variance thus CMB was not a significant problem in this dataset [82].

5. Results and Data Analysis

The study was carried out using partial least squares structural equation modelling (PLS-SEM) with SMART-PLS 4.0 as it can handle medium-sized samples, approximate complex multivariate relationships, and it is also able to handle non-normal data distribution [81,83]. The two stages of data analysis were the measurement model (outer model) which determined the constructs validity and reliability and structural model (inner model) which examined both the relationships in the hypotheses and mediation effects. The predictive modelling and theory formulation are particularly effective using PLS-SEM due to its ability to reduce the residual variances of the endogenous constructs since it is a tool based on the variance [81].

5.1. Evaluation of Outer Model

The internal consistency reliability and convergent validity of the conceptions were initially evaluated using common metrics such as Cronbach alpha, composite reliability (CR) and average variance extracted (AVE). Table 2 shows that all the constructs had a good internal consistency with a value greater than the desired value of 0.70 [84] that indicates that the items are a good measure of the latent constructs. Besides, the convergent validity (see Table 2) as developed. All AVE values were greater than the standard figure of 0.50, which means that a significant amount of variance within the indicators was represented by the underlying construct [85]. Table 2 shows that all the values affirm that the model of measurement is not only internally consistent but also capable of explaining a considerable amount of the variance within the indicators.

The Fornell, Larcker criteria was used to assess the discriminant validity. It states that the square root of the AVE must be larger than it's corresponding inter-construct correlations. This criteria was met for every construct and results are presented in Table 3. Heterotrait-monotrait (HTMT) ratio was also examined to provide support for discriminant validity (see Table 4). The fact that all HTMT values were below the conservative cut-off value of 0.85 was the additional empirical evidence that the conceptions are not redundant, and are conceptually different [86,87]. All these findings indicate that the measurement model is valid and has adequate reliability. In addition, the acceptable levels of internal consistency and the confirmed convergent and discriminant validity give sufficient background to assess the structural model and to infer the hypotheses, which are offered.

Table 2. Reliability measures.

Constructs	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
AI service experience	0.782	0.801	0.859	0.604
Customer engagement	0.885	0.889	0.909	0.556
Customer satisfaction	0.787	0.784	0.861	0.564

Source: Authors' own work.

Table 3. Fornell-Larcker criterion.

Construct	AI Service Experience	Customer Engagement	Customer Satisfaction
AI service experience	0.777	-	-
Customer engagement	0.599	0.746	-
Customer satisfaction	0.458	0.459	0.751

Source: Authors' own work.

Table 4. HTMT ratio.

Constructs	AI Service Experience	Customer Engagement	Customer Satisfaction
AI service experience	-	-	-
Customer engagement	0.692	-	-
Customer satisfaction	0.578	0.546	-

Source: Authors' own work.

5.2. Validating the Higher Order Construct

AI Service Experience was assessed through collinearity diagnostics and outer weight significance and was conceived as a higher-order formative measurement construct comprising four formative dimensions, including AI Responsiveness, AI Reliability, AI Empathy, and AI Assurance. The multicollinearity issues were not observed since the VIF values were below the cut-off point of 3. Although the other dimensions, AI responsiveness, AI reliability and AI empathy had non-significant weights but good outer loadings (>0.5), which indicated that they are theoretically relevant, bootstrapping analysis indicated that all the outer weights were significant ($p < 0.05$). These results indicate that each measure has a unique and important contribution to the overall conceptualization, and it provides a solid empirical evidence to explain that AI Service Experience is a powerful higher-order formative concept.

5.3. Evaluation of the Structural Model

The structural model (inner) has to be evaluated to establish the importance and predictive power of the proposed relationship among the constructs in the desired theoretical model. A bootstrapping procedure with 5000 samples was carried out to ensure the robustness, which is consistent with [88], which increases the consistency of the findings. The model explanatory power was assessed by obtaining the R-square of endogenous constructs

of which; customer engagement had the value of 0.402 and the customer satisfaction had the value of 0.210. The value of R-square above 0.13 can be considered moderate as stated by [89]. Also, the model fit measures supported the suitability of the framework and it had acceptable fit (SRMR = 0.090 and NFI = 0.767). Although the SRMR slightly exceeded the 0.08 standard, the NFI was below the desired 0.90 level, and the discrepancy measures were acceptable, confirming adequate overall model fit. Figure 2 shows the structural model output from SMART-PLS that illustrates proposed linkages. The proposed associations received strong empirical support from the hypothesis testing (see Table 5). The outcomes of hypotheses intended for direct correlations are listed in Table 5. As per results (Table 5), there is a significant positive and direct effect of AI service experience on customer engagement ($\beta = 0.492$, $t = 10.604$, $p < 0.001$). Therefore, H1 is supported. This indicates that higher-quality AI-driven service interactions meaningfully enhance customers' engagement levels. Similarly, there is significant positive effect of AI service experience on customer satisfaction ($\beta = 0.458$, $t = 7.984$, $p < 0.001$). The results also acknowledge the significant direct and positive effect of customer satisfaction on customer engagement ($\beta = 0.234$, $t = 4.518$, $p < 0.001$). Therefore, H3 is supported. These results collectively demonstrate that AI service experience plays a crucial role in strengthening both customer satisfaction and customer engagement.

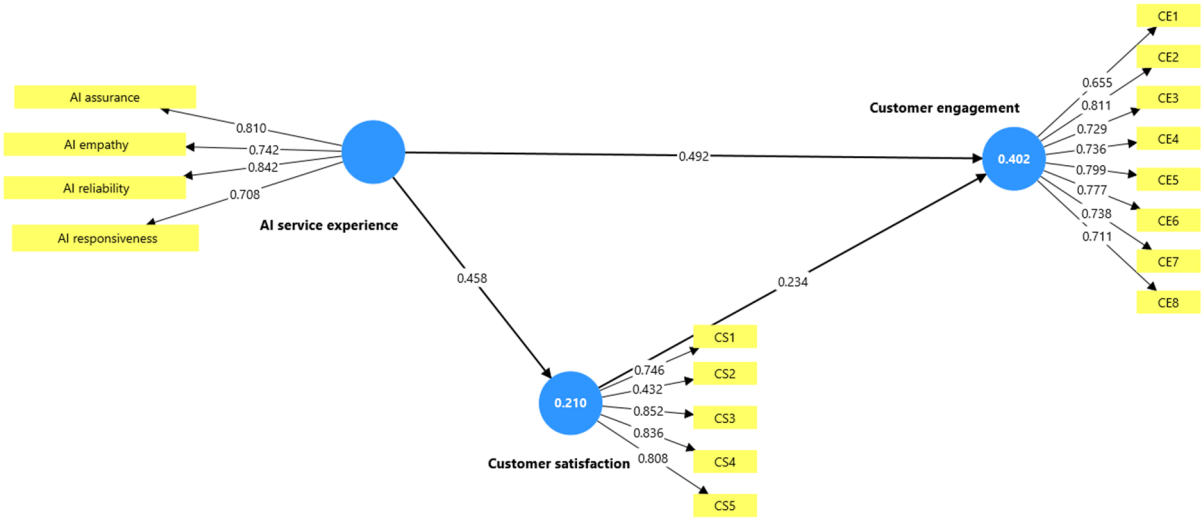

Figure 2. Structural model (output of SMART-PLS). Source: Author's own work.

Beyond the direct effects, the analysis further highlights the mediating role of customer satisfaction between AI service experience and customer engagement. Although the mediation details are presented separately, the significant direct effects found here form the basis for establishing partial mediation. The relatively strong effect size of AI service experience on customer engagement, compared to the pathway mediated through satisfaction, aligns with the theoretical assumptions of Affordance Theory by demonstrating that both functional and experiential affordances contribute uniquely to engagement behaviors. Furthermore, the magnitude of the path coefficients and high *t*-values indicate robust and meaningful associations, confirming that AI-enabled service interactions serve not only as operational tools but also as strategic levers that shape consumer responses. The strength of the relationships also implies that customers increasingly rely on AI agents, such as chatbots, virtual assistants, and recommendation engines to navigate digital shopping environments, influence decision-making, and foster relational bonds with platforms. The structural model assessment validates the theoretical model, demonstrating that AI service experience is a powerful predictor of customer satisfaction and engagement. The evidence affirms the central premise that well-designed AI-based service encounters significantly elevate the customer experience and contribute to sustained engagement within the B2C e-commerce context.

Table 5. Results of structural model path coefficient (direct relationships).

Hypothesis	Relationship	β	SD	*t*-Value	*p*-Value	Decision
H1	AI service experience → Customer engagement	0.492	0.046	10.604	0.001	Supported
H2	AI service experience → Customer satisfaction	0.458	0.057	7.984	0.001	Supported
H3	Customer satisfaction → Customer engagement	0.234	0.052	4.518	0.001	Supported

Source: Authors' own work.

5.4. Mediation Analysis

Finally, H4 tests the mediation of customer satisfaction between customer engagement and AI service experience. The total effect of AI service experience on customer engagement was significant (β = 0.599, t = 15.915, $p < 0.001$), and the direct effect was also significant (β = 0.492, t = 10.604, $p < 0.001$) with the addition of the mediator to the model, the indirect effect also proved to be significant (β = 0.107, t = 3.944, $p < 0.001$). The mediation analysis is based on the classical method suggested by [90]. Hence, the findings indicate that customer satisfaction plays a partial mediating role between customer engagement and AI service experience. Consequently, H4 is supported and the results for mediation analysis are shown in Table 6.

Table 6. Results for mediation analysis.

Hypothesis	Total Effect β	t	Direct Effect β	t	Indirect Effect β	t	*p*
AI-service experience → Customer engagement	0.599	15.915	0.492	10.604	-	-	-
AI-service experience → Customer satisfaction → Customer engagement	-	-	-	-	0.107	3.944	.001

Source: Authors' own work.

6. Discussion

With AI gradually yet persistently becoming a part of the contemporary life, the new services, such as AI-based technology will be more and more factored into the marketing approach and will bring value to different types of businesses. Service organizations are infiltrated with AI-driven solutions that have the potential to enhance the performance of operations and customer satisfaction. Ref. [91] states that AI can enhance the customer journey and in this dynamic world, marketers need to understand how such innovations will influence the customer experience. Based on the theory of affordance, this study examined the impact of AI service experiences on customer satisfaction and customer engagement in an attempt to understand how service organizations can exploit AI-powered tools as customer-specific service indicators that provide opportunities for actions and behaviors of customers. The findings of this study show that, the experience of AI services is pivotal in shaping customer satisfaction and interactions on B2C e-commerce in India. Ref. [14] considered the relationships among customer involvement, AI satisfaction, service quality perception, and AI service indicators in the hotel industry. Our study found that the utilization of AI services enhanced customer satisfaction and engagement to a great extent, which supports the significance of such interactions. The satisfaction of customers was found to be a significant predictor of customer engagement and it partly mediates the association between customer engagement and AI service experience. Regression of all the sub-dimensions of AI service experience indicates a significant influence of each AI dimension on the outcome variable and strong correlation with customer engagement. In the case of AI services, the aspect of responsiveness is defined as the speed with which the AI technologies respond. Assurance indicates that the services offered by AI tools are accurate. Empathy in the case of AI is represented by the flexibility and versatility of machines to meet the needs of customers. The reliability of AI shows that the tools are reliable and dependable. These findings collectively emphasize that customers' views of AI-powered service attributes lead to significant behavioral reactions, underscoring the significance of AI incorporation in digital service contexts. While the majority of earlier studies [92,93] have focused on how human interactions lead to customer engagement, this study offers a novel approach to customer engagement through AI interactions. The current study shows how AI-based non-human entities utilized by businesses, such as chatbots and recommendation systems, can result in a positive customer experience that can ultimately lead to customer engagement. The results enhance customer engagement research by establishing AI service experience as a key precursor of engagement in digital commerce, illustrating how AI-driven interactions generate value that surpasses mere transactional exchanges. The results support the feasibility of utilizing AI as a beneficial addition to customer service and are in line with previous studies. These results align with those of [94]. The results of [95] further demonstrate that the application of artificial intelligence (AI) significantly improves customer service and satisfaction.

7. Conclusions

This research was mainly aimed at analyzing the impact of AI-enhanced service experiences in the development of customer satisfaction and customer engagement in the B2C e-commerce platform in India. In a continuation of the Affordance Theory and service dominant logic, the results not only affirm previous studies that emphasize on the efficacy of AI in a customer service setting but also expound the existing literature by providing

empirical findings of the progressive mechanism through which AI service experience leads to customer engagement through customer satisfaction. In particular, the findings suggest that positive service interactions based on AI positively affect the satisfaction of customers because they allow them to experience functional and experiential affordances introduced by AI technologies. Such increased satisfaction, in its turn, is converted into an increased behavioral and psychological involvement in e-commerce platforms. The empirical validation of this process by the study makes the latter a more lucrative sight on how AI-based service experiences bring value to both customers and firms, enhancing the theoretical background of the AI-driven research of customer engagement.

7.1. Theoretical Implications

This study strengthens theoretical understanding of AI-driven customer interaction in e-commerce by extending Affordance Theory to digital service environments. By viewing AI systems such as chatbots and recommendation tools as resources that offer action possibilities, the research shows how functional and experiential affordances influence psychological outcomes (satisfaction) and behavioral responses (engagement). This broadens the application of Affordance Theory beyond ecological and organizational contexts, positioning it within AI-customer interactions. Moreover, the perspective of Service-Dominant Logic, which views value as co-created through interactions rather than rooted in technology, can further enhance these findings. According to [30], AI-enabled affordances can be thought of as operant resources that make it easier for customers to participate in value co-creation. Therefore, affordances' effects on customer satisfaction and engagement are a reflection of both technology capabilities and the efficiency of the interaction processes that provide value to customers. The study also adds to customer engagement literature by identifying AI service experience as a significant driver of engagement. While prior research has focused on customer, firm, or environment-related factors, this research highlights the growing role of non-human agents-intelligent machines and service robots in shaping customer experience and relational outcomes. According to Service-Dominant Logic, these AI systems serve as resource integrators that facilitate ongoing communication and involvement, promoting the co-creation of value between clients and businesses. In AI-mediated service environments, where value is created through dynamic interactions rather than being provided unilaterally, this perspective offers a more modern and theoretically sound basis for comprehending engagement.

7.2. Practical Implications

The findings highlight that AI should be treated not just as a cost-saving tool but as a strategic service capability that strengthens customer relationships and enhances online shopping experiences. For e-commerce platforms, adopting AI technologies is not enough; they must be designed to deliver interactions that are timely, accurate, adaptive, and trustworthy. Practitioners should focus on improving four key dimensions of AI service experience: responsiveness, reliability, empathy, and assurance. Enhancements in these areas can significantly improve customer satisfaction and foster deeper engagement. By refining AI-powered touchpoints, managers can create customer-centric digital environments that meet and exceed expectations, ultimately improving loyalty and competitiveness in the e-commerce sector.

8. Limitations

While this research offers valuable insights into AI-powered service experiences in online shopping, certain limitations must be recognized. The results may not be generalized due to the use of data from Gen Z and Millennial consumers only. Future studies should consider more diverse samples. It utilizes a cross sectional design, future studies may use a longitudinal research design. The model centers solely on AI service experience, customer satisfaction, and customer engagement, omitting other psychological or behavioral factors that could enhance the understanding of customer reactions to AI. Including other variables may provide a deeper insight into AI-driven customer experiences. Furthermore, AI-driven service interactions and human service agents are not compared in the study. Future studies may use comparative service models.

Author Contributions

M.W.: conceptualization, methodology, literature search, design of the work, writing—original draft preparation, writing—review and editing, critical revision of the article, visualization, validation, supervision; M.A.B.N.: literature search, design of the work, writing—original draft preparation; M.M.B.: design of the work,

writing—review and editing, critical revision of the article, visualization, validation. All authors have read and agreed to the published version of the manuscript; and have approved the submitted version.

Funding

This research received no external funding.

Institutional Review Board Statement

This study was conducted in accordance with ethical standards and received approval from the Institutional Ethics Committee of Islamic University of Science & Technology (Reference No: IUST/PHD/2026/115). Informed consent was obtained from all participants prior to their participation in the study.

Informed Consent Statement

Informed consent was obtained from all subjects involved prior to their participation in the study.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflict of interest.

Use of AI and AI-Assisted Technologies

No AI tools were utilized for this paper.

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