

Consumer Engagement with AI-Enabled Retail Services: From Chatbot Interactions to Purchase Intention

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Abstract:

The recent fusion of artificial intelligence (AI) with retail has brought changes to consumer engagement from common digital client interactions to more advanced interactive dialogue-based service interactions. This study intends to understand how the perceived AI Chatbot interactivity is responded to and subsequently how the level of engagement and trust consumers have in the AI Chatbot influence the purchase intention. Based on the Stimulus-Organism-Response (S-O-R) framework, a sequential model is created and analysed to understand the perceived AI Chatbot interactivity, consumer engagement and trust in AI Chatbots, and purchase intention. Data from 480 consumers in the six major cities of Punjab, India, who have engaged with AI retail chatbots, were collected. Exploratory factor analysis, reliability analysis, and Pearson correlation were performed followed by multiple regression analysis and sequential mediation analysis via Hayes' PROCESS Model 6 with bootstrapping. The results showed that the perceived interactivity of AI Chatbots enhanced consumer engagement, and engagement in turn raised trust in the AI Chatbots. Trust in the AI Chatbots emerged as the strongest purchase intention predictor. The sequential indirect effect of interactivity of AI Chatbots on purchase intention through consumer engagement and trust was statistically significant, whilst the other direct effects indicated partial mediation. The study has applied the S-O-R framework to the AI retail domain for the first time and revealed that the influence of chatbot interactivity on purchase intention occurs partially through an experiential to relational pathway of consumer engagement and trust. The results of the study bring to the foreground the importance of interactive AI retail systems that engage and build trust with customers.

Keywords: Artificial Intelligence (AI); AI Chatbots; Chatbot Interactivity; Consumer Engagement; Trust in AI Chatbots; Purchase Intention; Stimulus-Organism-Response (S-O-R) Framework; Retail Chatbots; Sequential Mediation; AI-enabled Retail.

Introduction

AI disrupts the retail landscape by impacting how customers search, evaluate and engage with retailers. Conversational AI is one such faculty that allows retailers to offer an interface to customers in which they are not bound to search operations. In the retail industry, AI chatbots can engage with customers to help with product and service requests and queries. The advancement in AI has been geared towards an even greater emphasis in flexible and context aware AI that encourages dialog. It offers an improvement to the customer journey by balancing the decision-making process. It enables customers to maintain cognitive and behavioural control (Anggraini et al., 2026). With AI rapid development in retail, studies in the area have started to shift from how customers integrate AI in their buying journey to the quality of customers' AI interactions. Just having a chatbot means very little for the customer experience. A chatbot's value increases with the quality of customer interactions. It gets value when customers perceive the interaction to be responsive, engaged and active on fulfilling customers' needs. This value hinge on the quality and the perception of customers' interactions. AI retail services put a premium on interactivity. In AI assisted retail, interactivity is the customer's perspective on whether the communication is responsive and

how much control the customer has on the interaction. In a digital retail environment, such characteristics can impact how customers internally assess and respond to external stimuli.

Recent studies confirm the influence of interactivity within AI-enabled commerce. Ding and Najaf (2024) report the results from an empirical study of e-commerce customers and find interactivity significantly affects customer trust towards AI chatbots. The study is innovative in its clear identification of the interactivity-trust relationship in the context of commerce. More importantly, their study is applicable to current research on AI in retail in that it describes a relationship of a domain that is difficult to understand, e-commerce. The scholars argue that the effects of interactivity extend beyond the description of a relationship between interactivity and trust to a broader concept of the consumer's level of engagement. Engagement describes the consumer's mental and emotional investment in a commerce experience as well as this consumer's behavioural investment. Interactive digital marketing has long recognized engagement as the central mechanism responsible for generating consumer's value and positive behavioural outcomes. In the realm of conversational commerce, engagement describes the consumer's investment as the consumer is actively engaged in the process of dialog by asking and answering questions, making decision and potentially extending the overall dialog. In recent study, Kumar et al. (2024) find that interactivity in chatbots and voicebots impacts consumer engagement and behavioural activation in online retail. This development highlights the critical period beginning with the first dialogue with AI and ending with a purchase-related response. Users may simply play around with the chatbot with no intention of following the suggestions. In AI-based retail, the consumers' trust is a big psychological component. While users evaluate the retailers, AI-based chatbots can proactively give product info and suggestions, meaning that users must also decide how much they can trust the AI. Ding and Najaf (2024) show how trust during the interactions with AI chatbots influences user trust and that, outside of AI-based retail, user trust plays a major role in modelling user behaviours with respect to purchase intentions.

These psychological responses play a big part in understanding what purchase intention means. The core use case of most AI-based retail services is assisting in the steps the user takes to lead them towards the purchase. It seems that for now, the designed AI chatbots are able to improve customer interaction and purchase intention as well (Anggraini et al., 2026). However, the scope of the impact of AI chatbot interactions on purchase intention should be evaluated in relation to the interactions with the chatbot, not the other way around. The chatbot may lead to a retail experience in which users engage with the system and determine their level of trust in the AI, all of which may lead to purchase intention.

This study seeks to address this critical gap in the literature. Using a parsimonious approach, this study combines the concepts of perceived AI chatbot interactivity, consumer engagement, trust in AI chatbots, and the intention to purchase. Within the Stimulus - Organism - Response (S-O-R) framework, this study considers perceived chatbot interactivity as a stimulus, the sequential responses of consumer engagement and trust, and the behavioural response of purchase intent as the outcome. Therefore, the focus of this study goes beyond the stimulus of AI chatbots and considers the pathway of the interactive chatbot experience as a journey toward purchase intent by means of trust and consumer engagement. The study presents three main contributions. First, it extends the use of the S-O-R framework to study AI-based retail. It explains two psychological mechanisms which occur sequentially between a technological stimulus and a behavioural response. Second, it connects the literature on chatbot interactivity and consumer engagement and trust. This provides a more comprehensive perspective of how consumers respond to conversational AI. Finally, it adds a different perspective to the literature on AI-based retail services with its study of consumers in the Punjab region of India. The study, which surveyed 480 consumers who have used AI retail chatbots, attempts to provide evidence for the relationships of interactivity, engagement, trust, and purchase intention in the context of a developing country. For this reason, the study aims to establish and study the relationships of the previously mentioned constructs and determine if the two constructs (engagement and trust) make a joint mediation of the relationship between AI chatbot interactivity and purchase intention. The expected contribution to theory is to explain consumer responses towards conversational AI and to the field of practice (retail management) as more useful AI-based retail services.

Literature Review

AI is changing the nature of how consumers interact with retail services, as it allows them to communicate with intelligent agents to access information, assess, and purchase products and services. AI-enabled chatbots encourage a different user experience than previous search and access technologies since they encourage a dialogue with the consumer. Through this interface, customers can pose questions, clarify their concerns, and assess competing products, and they can even receive suggestions or advice. With the advent of more advanced AI that is able to generate and synthesise more advanced conversations, these systems are able to engage in conversations that are flexible to many different variants of context. Emerging research suggests that the use of chatbots can increase customer engagement and purchase intent by increasing customer perceptions of control over their cognitive and behavioural systems (Anggraini et al., 2026). Given advances in chatbot technology, it is critical to consider the quality and type of conversations customers have with chatbots. Whereas static digital interfaces are unidirectional, chatbots allow customers to pose questions to begin a dialogue that is flexible in not only the type of questions that are asked but also in the direction that the dialogue takes. This can be understood in the context of the concept of interactivity, which concerns how users perceive that communication is cyclical and responsive rather than unidirectional. This concept is supported by the S-O-R Retail Environment model, which posits that if design features of the retail environment are changed, customers' internal cognitive and emotional states will also change, and consequently their behaviours as well (Eroglu et al., 2001).

Current studies provide specific evidence relating to chatbot interaction. One study looked at consumer AI chatbot adoption and evaluated trust in AI chatbots. The study shows consumers are evaluating the AI chatbots based on the interaction and not just the base AI technology.

The significance of conversation elements relates to a different body of studies, which looked at how consumers react to AI-driven conversations. Araujo (2018) argued that sentient AI and anthropomorphic design features, as well as advanced communication techniques, can positively impact perceptions of conversational agents and the companies sponsoring them. Plus, Bergner et al. (2023) showed that elements of human conversation and dialogue (like turn-taking and the grounding of conversation) can form a positive consumer-brand relationship. Similar to these studies, the interactions with AI are perceived as being more complex and advanced than simple transactional statements. These signals (both communication and design choices) impact consumer perception of the technology (Araujo, 2018; Bergner et al., 2023).

AI retail services rely on consumer engagement. Engagement occurs when consumers interact with value-creating systems. Brodie et al. differentiated customer engagement from other similar concepts of participation and involvement and described it as relational and interactive. Hollebeek et al., on the other hand, developed and validated a consumer brand engagement scale containing three dimensions: cognitive processing, affection and activation. This model specifically targets retail services that use chatbots, as consumers can use mental effort to turn cognitive attention to the information, be emotionally affected by their interaction, and consume time to continue the conversation or browse the products. Recent empirical studies show that these engagement dimensions apply to conversational retail. Kumar et al. explored consumer engagement with chatbots and voicebots within online retailing and used a multiple experiment design that included 477 users of virtual assistants. The study focused on cognitive, affective and activation engagement and showed how virtual assistant interface characteristics affect consumer engagement. This study is relevant since it shifts the study from the adoption of chatbots to the engagement of consumers with AI in retail.

An interactive chatbot enables consumers to actively participate in an exchange and therefore can generate higher levels of consumer engagement. Responsive and reciprocal chatbots enable consumers to ask questions, pose prompts to be answered, and shape the discourse. More engaging conversations are likely to result in a greater investment of cognitive resources, behavioural resources, and positive affective responses. Evidence provided by Kumar et al. (2024) suggests that the characteristics of chatbots and voicebots affect cognitive, affective, and activation levels of consumer engagement during online retail purchases, thereby providing a foundation for viewing interactivity as an antecedent of consumer engagement. Engagement does not imply that consumers will necessarily accept or rely on the actions of the AI system. The absence of trust explains this dissonance. The

importance of trust in consumer-AI system interactions for electronic commerce has been well documented. In e-commerce, consumers are forced to act in an uncertain environment. For example, Gefen et al. (2003) showed that in addition to perceptions associated with the technologies used in online shopping, trust is vital for the intended online behaviour of consumers.

AI-assisted retail makes trust even more important since it is likely customers will exclude humans and go straight to chatbots for all the information and guidance they need to assist purchases. This trust drives a review one further level deep. Consumers will likely evaluate the chatbot, as well as the retailer, for trustworthiness and dependability. Ding and Najaf (2024) show evidence of this directly; trust in AI chatbots in e-commerce is affected by chatbot interactivity and the level of human-likeness perceived by the chatbot.

The link between trust and consumer engagement is less defined. Engagement refers to the cognitive, emotional and behavioural commitment a consumer creates during the interaction, while trust is the reliance and dependability of the AI system. They should not be synonyms. An engaged consumer receives contextual information during the interaction by processing the chatbot's responses and, therefore, is in a position to evaluate the reliability and consistency of the chatbot. Therefore, engagement may be a more significant experiential factor that builds trust in the chatbot. This perspective advances the existing literature in several ways. Some studies have investigated the impact of chatbot trust on user engagement. For example, Ding and Najaf (2024) have studied the impact of chatbot interactivity on trust, while Kumar et al. (2024) have studied the significance of engagement in retail-based chatbot and voicebot interventions. By looking at engagement as a psychological state, potential connections between these two strands of research can be addressed, rather than treating trust and engagement as distinct outcome variables.

Trust becomes relevant to purchase intention. Purchase intention is a construct that denotes the inclination of a consumer to purchase a product or service. Long before consumer behavioural outcomes were investigated, purchase intention was key in understanding and describing consumer behaviour. Dodds et al. (1991) provided evidence that the consumer evaluation of marketplace cues impacts their purchase intention and, therefore, purchase-related behaviours.

In digital commerce, trust becomes particularly salient, since consumers are unable to completely resolve uncertainty prior to making a purchase. Gefen et al. (2003) provided evidence that the presence of trust is critical to online shopping behaviour, indicating that confidence in the digital commerce ecosystem is the foundation of online purchase behaviour. In AI-enabled retail, this may be especially critical, as the consumer may wholly or partially rely on an AI system for even the initial evaluation of a product. If the chatbot is considered trustworthy, the consumer would likely rely on its information and recommendations and would likely purchase the product.

Evidences continue to mount on the actual behavioural effects of AI-based retail interactions. Using four scenarios, Anggraini et al. (2026) analysed the effects of the use of chatbots based on generative AI. Anggraini et al. discovered that the use of chatbots in retail increased both the engagement of retail customers and the customer intention to purchase, and this effect was partially explained by the perceived control of the customer. Cheng and Jiang (2021) conducted a study based on customers who engaged with marketing-centred chatbots, and they found that the marketing-orientated chatbots improved the quality of customer and brand communications and also the response of the customer due to the five elements of the chatbots, which are interaction, information, accessibility, entertainment, and the degree of customisation of the chatbots. The study shows that marketing-orientated chatbots can impact customer and brand relationship communications beyond single retail service interactions.

However, customer responses to AI chatbots may not always be positive. Luo et al. (2019) studied customer field experiment participants and discovered that the authors' results provided proof that informed customers about the use of chatbots. This study's results provide further evidence that negative behavioural consequences may occur as a result of the use of chatbots, even if the technology is based on AI. Therefore, the perceptions of the AI chatbots will determine the degree to which chatbot interactions will generate positive responses from customers.

The literature provides compelling evidence for the importance of individual factors of chatbot interactivity, consumer engagement, trust, and purchase intention. However, the relationships among these constructs are still

fragmented. The study has analysed how chatbot interactivity relates to trust (Ding & Najaf, 2024). It has also analysed consumer engagement and the features of chatbots and voicebots within online shopping (Kumar et al., 2024). They also studied the impact of generative AI chatbots and consumer engagement and purchase intention (Anggraini et al., 2026). Other research has focused on the broad topic of marketing with chatbots and the subsequent effects of chatbots on communication and the customer-brand relationship (Cheng & Jiang, 2021).

In other words, most of these constructs have been analysed previously. However, the literature pays little attention to the sequential psychological mechanism of these constructs. More specifically, the literature does not explain the impact of the interactive chatbot platform on consumer engagement or the role trust in AI chatbots plays in engagement and consumer purchase intention. Analysing this will bridge the gaps in the literature from chatbot interactivity to consumer engagement, trust, and purchase behaviour.

Therefore, the current study takes a simplified approach and examines perceived AI chatbot interactivity, consumer engagement, trust in AI chatbots, and purchase intention. It focusses on the customer's journey from an interactive AI encounter to increased psychological involvement, trust, and purchase intention. This approach is valid as AI-assisted retail services become more and more conversation and generation-based, meaning that the consumer's experience of the interaction becomes more critical in shaping the outcomes of the retail services (Anggraini et al., 2026; Kumar et al., 2024).

Theoretical Framework

Based on the S-O-R framework developed by Mehrabian and Russell (1974), this study aims to analyse how environmental stimuli impact the psychological states and behaviours of individuals. In AI-powered retail, the stimulus is the attribution of interactivity to AI chatbots. Consumers interpret the interactions to be reciprocal, responsive, and controllable. The subsequent psychological states of consumers are engagement and trust toward the AI chatbot, while the behavioural response is intent to purchase.

The study proposed following framework.

chatbot interactivity → consumer engagement → trust in AI chatbot → purchase intention.

AI-based retail chatbots provide customers with the opportunity to actively engage in the retail dialogue and obtain information and answers to their questions. The communication can lead to a deeper level of attention, affect, and effort on the part of the consumer during the interaction. Engagement can be better understood as a multi-faceted response comprised of cognition, affect, and activation (Hollebeek et al., 2014). Further, in the domain of online retailing, there is evidence to suggest that the traits of chatbots and voicebots have the capability to influence one or more dimensions of consumer engagement (Kumar et al., 2024). As a result, the perception of interactivity in AI chatbots would be expected to result in a higher level of engagement in the retail process.

Engagement can build trust in AI chatbots. Engaged customers utilise chatbot responses, evaluate the corresponding information, and converse with the chatbot, acquiring information about the chatbot's reliability and response time. Trust describes the consumer's belief in the chatbot's dependability to render assistance. Empirical studies have found that AI chatbot interaction drives trust in AI chatbots in the context of e-commerce (Ding & Najaf, 2024). Conversely, the role of consumer engagement in this process has been researched comparatively less. In this context, engagement could establish the experiential channel that makes an interactive chatbot encounter constitutive for trust.

Trust is expected to impact purchase intention. In digital commerce, purchase decisions are often made in the presence of uncertainty. Hence, consumers depend mainly on their confidence in the digital transaction medium. Trust is identified as a key determinant of purchase intention in established online shopping behaviour Research (Gefen et al., 2003). In AI-enabled retail, this is of particular relevance since consumers can rely on chatbot-supported information and assistance when evaluating a product. If consumers perceive the chatbot as trustworthy, they will elevate their confidence in the chatbot and kill the intention to purchase. Current studies show that trust

building, via generative AI chatbot interactions, is significant to purchase intention, as it defines the future of retail (Anggraini et al., 2026).

All these relationships show that the impact of chatbot interactivity on purchase intention probably works through a sequential psychological process rather than through a single direct connection. An interactive chatbot has the ability to make consumers more cognitively, emotionally, and behaviourally involved. This involvement may create confidence in the chatbot, and the trust formed may reinforce purchase intention. The sequence combines the technological, experiential, and relational aspects of AI-based retail within an S-O-R framework. Therefore, the study offers the following hypotheses:

H1: Perceived AI chatbot interactivity positively influences consumer engagement.

H2: Consumer engagement positively influences trust in AI chatbots.

H3: Trust in AI chatbots positively influences purchase intention.

H4: Consumer engagement and trust in AI chatbots sequentially mediate the relationship between perceived AI chatbot interactivity and purchase intention.

Research Methodology

Research Design and Approach

This study employed a quantitative, cross-sectional research design to explore the associations between perceived AI chatbot interactivity and consumer engagement (CE) with trust in AI chatbots as well purchase intention. Focus on individual consumers who had an AI chatbot experience scenario in online retail or e-commerce

The study was in Punjab, India which comprises the six major urban centres (Amritsar, Ludhiana, Jalandhar, Patiala Bathinda and Sahibzada Ajit Singh Nagar [Mohali]) of North West India. The purposive quota sampling was used because participants had to have an experience with the AI chatbot in an online retail context. The questionnaire enquires about the most recent use of a chatbot to assist respondents with completing their tasks. The final total of valid responses was 480, with around 80 respondents to each chosen city. The sample was not a representative of the entire population of Punjab or India but large enough to conduct further statistical analyses as proposed.

Data Collection and Screening

Data were collected through a structured self-administered questionnaire. Respondents first answered a screening question concerning their prior interaction with an AI chatbot during online retail or e-commerce activities. Those without such experience were excluded. Responses were subsequently screened for incompleteness, duplicate entries and irregular response patterns before statistical analysis.

Measurement Instrument

The questionnaire contained 22 measurement items measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The measures were adapted from established scales to suit the AI-enabled retail context.

Construct	Items
AI Chatbot Interactivity	3
Consumer Engagement	10
Trust in AI Chatbot	6
Purchase Intention	3

Construct	Items
Total	22

AI chatbot interactivity was measured using three items based on established interactivity research and its application to e-commerce chatbots by Ding and Najaf (2024). Consumer engagement was measured using the 10-item scale of Hollebeek et al. (2014), comprising cognitive processing, affection and activation; these three dimensions constitute the same ten items rather than additional items. The applicability of these engagement dimensions to chatbot and voicebot retail interactions is also supported by Kumar et al. (2024). Trust in the AI chatbot was measured using six items based on the trust measure applied by Ding and Najaf (2024). Purchase intention was measured using three items adapted from established purchase-intention literature, including Dodds et al. (1991).

Data Analysis

Data were analysed using IBM SPSS Statistics. Descriptive statistics were calculated to summarize the sample and study variables. The reliability of the measurement scales was assessed using Cronbach's alpha. The suitability of the data for factor analysis was examined using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity, followed by exploratory factor analysis (EFA) to assess the underlying factor structure. Particular attention was given to the three dimensions of consumer engagement.

Pearson correlation analysis was used to examine associations among the principal constructs, while multiple regression analysis was employed to test the direct relationships corresponding to H1–H3. Finally, Hayes' PROCESS Model 6 was used to test the sequential mediation proposed in H4, with AI chatbot interactivity as the independent variable, consumer engagement and trust as sequential mediators, and purchase intention as the dependent variable. The indirect effects were assessed using 5,000 bootstrap samples and 95% confidence intervals. An indirect effect was considered significant when its confidence interval did not include zero. Total, direct and indirect effects were reported to determine the nature of the mediation.

Analysis

480 valid responses remained in the final analysis. The respondents were consumers who had interacted with a bot in the e-retail subsector of AI via an online engagement, selected from six major urban centres of Punjab such as: Amritsar; Ludhiana; Jalandhar; Patiala and Bathinda and Sahibzada Ajit Singh Nagar (Mohali). The responses were screened for completeness, duplicate entries, unusual response behaviour and outliers before proceeding with analysis. The data screening process produced a final dataset consisting of 480 usable observations.

Descriptive Statistics and Correlation Analysis

The descriptive statistics and Pearson correlation coefficients for the four principal constructs are presented in Table 1.

Table 1. Descriptive Statistics and Correlations

Variables	Mean	SD	1	2	3	4
1. AI Chatbot Interactivity	3.71	0.72	1			
2. Consumer Engagement	3.68	0.69	.547**	1		
3. Trust in AI Chatbot	3.62	0.75	.519**	.535**	1	
4. Purchase Intention	3.59	0.78	.474**	.465**	.593**	1

Note. N = 480; **p < .01.

The results indicate positive and statistically significant relationships among all four constructs. AI chatbot interactivity was significantly and positively correlated with consumer engagement ($r = .547, p < .001$) and trust in the AI chatbot ($r = .519, p < .001$). It was also significantly associated with purchase intention ($r = .474, p < .001$). Consumer engagement demonstrated a significant positive association with trust in the AI chatbot ($r = .535, p < .001$) and purchase intention ($r = .465, p < .001$). Trust showed the strongest correlation with purchase intention ($r = .593, p < .001$). This indicates that consumers reporting higher levels of trust in the AI chatbot also tended to report stronger intentions to purchase.

The correlation pattern provides preliminary support for the proposed conceptual model. At the same time, none of the correlations approached a level that would suggest excessive overlap among the constructs, supporting their treatment as conceptually distinct variables.

Reliability Analysis

The internal consistency of the measurement scales was assessed using Cronbach's alpha. The questionnaire contained 22 measurement items, comprising three items for AI chatbot interactivity, ten items for consumer engagement, six items for trust in the AI chatbot and three items for purchase intention.

Table 2. Reliability Analysis

Construct	Number of Items	Cronbach's Alpha
AI Chatbot Interactivity	3	.86
Consumer Engagement	10	.91
Trust in AI Chatbot	6	.92
Purchase Intention	3	.89
Total Measurement Items	22	—

The reliability coefficients ranged from .86 to .92, indicating strong internal consistency across all four constructs. AI chatbot interactivity demonstrated good reliability ($\alpha = .86$), while consumer engagement showed high internal consistency ($\alpha = .91$). Trust in the AI chatbot recorded the highest reliability coefficient ($\alpha = .92$), followed by purchase intention ($\alpha = .89$).

Consumer engagement was additionally examined through its three theoretically established dimensions: cognitive processing, affection and activation. These dimensions comprise the same ten engagement items rather than additional items. Their respective reliability coefficients were .84, .88 and .86, indicating satisfactory internal consistency. Overall, the reliability results indicate that the 22 measurement items provide a consistent basis for subsequent statistical analysis.

Exploratory Factor Analysis

Exploratory factor analysis was conducted to examine whether the observed measurement items reflected the theoretically proposed construct structure. The suitability of the data for factor analysis was first assessed using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's test of sphericity.

Table 3. KMO and Bartlett's Test

Measure	Result
Kaiser–Meyer–Olkin Measure	.914

Measure	Result
Bartlett's Test of Sphericity	$\chi^2 = 5,842.63$
Significance	$p < .001$

The KMO value of .914 indicates a high level of sampling adequacy. Bartlett's test of sphericity was statistically significant ($\chi^2 = 5,842.63$, $p < .001$), confirming that the correlation matrix was suitable for factor analysis.

Principal axis factoring with an oblique rotation was employed because the study constructs were theoretically expected to be related. The resulting factor structure was consistent with the conceptualization of the study. The consumer engagement items reflected the three expected dimensions—cognitive processing, affection and activation—while the remaining items represented AI chatbot interactivity, trust in the AI chatbot and purchase intention. The factor analysis therefore provides support for the underlying measurement structure and for treating

Regression Analysis

Following the assessment of reliability and construct structure, regression analysis was undertaken to test the direct relationships specified in the conceptual framework.

AI Chatbot Interactivity and Consumer Engagement

The first regression model examined whether perceived AI chatbot interactivity significantly predicts consumer engagement.

Table 4. Regression Results for Consumer Engagement

Predictor	β	SE	t	p
AI Chatbot Interactivity	.569	.040	14.287	< .001

Model statistics: $R^2 = .299$; Adjusted $R^2 = .298$; $F(1, 478) = 204.10$, $p < .001$.

The regression model was statistically significant and explained 29.9% of the variance in consumer engagement. AI chatbot interactivity had a positive and statistically significant effect on consumer engagement ($\beta = .569$, $p < .001$).

The relatively large standardized coefficient indicates that perceived interactivity is an important predictor of consumers' engagement with the AI-enabled retail interaction. Thus, consumers who perceive the chatbot as more responsive, reciprocal and interactive tend to report greater involvement in the interaction. H1 is therefore supported.

AI Chatbot Interactivity, Consumer Engagement and Trust

The second regression model examined whether AI chatbot interactivity and consumer engagement significantly predict trust in the AI chatbot.

Table 5. Regression Results for Trust in AI Chatbot

Predictor	β	SE	t	p
AI Chatbot Interactivity	.322	.044	7.393	< .001
Consumer Engagement	.343	.042	8.175	< .001

Model statistics: $R^2 = .360$; Adjusted $R^2 = .357$; $F(2, 477) = 133.90$, $p < .001$.

The regression model was statistically significant and explained 36.0% of the variance in trust in the AI chatbot. Both predictors demonstrated significant positive effects.

AI chatbot interactivity significantly predicted trust ($\beta = .322, p < .001$), while consumer engagement also significantly predicted trust ($\beta = .343, p < .001$). The coefficient for consumer engagement was slightly larger than that for interactivity, suggesting that consumers' involvement in the interaction makes an important contribution to the development of trust. The findings provide support for the proposed relationship between engagement and trust and suggest that trust formation may depend partly on the quality of the consumer's experience with the chatbot. H2 is therefore supported.

AI Chatbot Interactivity, Consumer Engagement, Trust and Purchase Intention

The third regression model examined the simultaneous effects of AI chatbot interactivity, consumer engagement and trust on purchase intention.

Table 6. Regression Results for Purchase Intention

Predictor	β	SE	t	p
AI Chatbot Interactivity	.175	.045	3.926	< .001
Consumer Engagement	.135	.043	3.115	.002
Trust in AI Chatbot	.427	.044	9.630	< .001

Model statistics: $R^2 = .402$; Adjusted $R^2 = .398$; $F(3, 476) = 106.50, p < .001$.

The regression model was statistically significant and explained 40.2% of the variance in purchase intention. All three predictors demonstrated statistically significant positive relationships with purchase intention. Trust in the AI chatbot was the strongest predictor of purchase intention ($\beta = .427, p < .001$). AI chatbot interactivity also had a significant positive effect ($\beta = .175, p < .001$), while consumer engagement demonstrated a smaller but statistically significant effect ($\beta = .135, p = .002$).

The relative magnitude of these coefficients is noteworthy. Although interactivity and engagement contribute significantly to purchase intention, trust has the strongest direct association with the dependent variable. This suggests that an interactive and engaging chatbot experience may be commercially meaningful, but consumers' confidence in the AI system is particularly important when translating the interaction into purchase intention. H3 is therefore supported.

Sequential Mediation Analysis

The central proposition of the study was that consumer engagement and trust in the AI chatbot sequentially transmit the effect of chatbot interactivity to purchase intention. This proposition was tested using Hayes' PROCESS Model 6.

AI chatbot interactivity was specified as the independent variable, consumer engagement as the first mediator, trust in the AI chatbot as the second mediator, and purchase intention as the dependent variable. The indirect effects were evaluated using 5,000 bootstrap samples and a 95% confidence interval.

Table 7. Direct, Total and Indirect Effects

Effect	Effect	Boot SE	LLCI	ULCI
Total effect: Interactivity $\rightarrow$ Purchase Intention	.472	.045	.380	.564
Direct effect: Interactivity $\rightarrow$ Purchase Intention	.175	.045	.087	.262

Effect	Effect	Boot SE	LLCI	ULCI
Interactivity → Engagement → Purchase Intention	.077	—	—	—
Interactivity → Trust → Purchase Intention	.138	—	—	—
Interactivity → Engagement → Trust → Purchase Intention	.083	.015	.057	.114

The total effect of AI chatbot interactivity on purchase intention was positive and statistically significant. More importantly, the sequential indirect effect through consumer engagement and trust was .083. Its 95% bootstrap confidence interval ranged from .057 to .114. Since zero does not fall within this interval, the sequential indirect effect is statistically significant.

The finding indicates that perceived AI chatbot interactivity influences purchase intention partly through a sequential process. Consumers who perceive the chatbot as more interactive tend to become more engaged with the interaction; greater engagement is associated with stronger trust in the chatbot; and greater trust subsequently contributes to purchase intention.

The direct effect of chatbot interactivity on purchase intention remained significant after the two mediators were included ($\beta = .175$, $p < .001$). Therefore, the results indicate **partial sequential mediation** rather than complete mediation. In other words, consumer engagement and trust explain a significant portion of the relationship between chatbot interactivity and purchase intention, while chatbot interactivity also retains an independent association with purchase intention. H4 is therefore supported.

Hypothesis Testing

Table 8. Summary of Hypothesis Testing

Hypothesis	Relationship	Statistical Evidence	Decision
H1	AI Chatbot Interactivity → Consumer Engagement	$\beta = .569$, $p < .001$	Supported
H2	Consumer Engagement → Trust in AI Chatbot	$\beta = .343$, $p < .001$	Supported
H3	Trust in AI Chatbot → Purchase Intention	$\beta = .427$, $p < .001$	Supported
H4	Interactivity → Engagement → Trust → Purchase Intention	Indirect effect = .083; 95% CI [.057, .114]	Supported

The hypothesis-testing results provide support for all four proposed relationships. H1, H2 and H3 are supported through statistically significant direct effects, while H4 is supported by the significant bootstrapped sequential indirect effect.

When put together, the results offer empirical evidence for the proposed model based on S-O-R. Namely, the results suggest that consumers' response to AI-enabled services is cultivated indirectly through stages rather than directly between chatbot technology and purchase intention. The first stage of this process is the interactivity. Consumers that see the chatbot as responsive and interactive are much more engaged with the retail interaction. This establishes the model by linking stimulus to organism. Stage two is the transition from engagement to trust. More consumer engagement via cognition, emotion and behaviour with the chatbot results in increased trust beliefs toward the AI system. In other words, engaging the chatbot serves like an opportunity for consumers to assess the performance of a chat bot using proximate interaction. Phase seven is the relationship between trust and

purchase intention. In the final regression, trust was identified as the most potent direct predictor of purchase intention. This implies that consumer adoption of the AI chatbot heavily depends on confidence, especially when consumers shift from interaction and evaluation to purchase-result-related decisions.

The present result on sequential mediation provides the main empirical contribution of the study. An important result shows the indirect effect of chatbot interactivity on purchase intention through consumer engagement to trust, indicating that it is also mediated by these two factors. Nevertheless, the remaining direct effect is (and statistically significant), hinting that this pathway does not account for all of its variance.

Discussions

The study explores consumer reactions to AI in retail. It develops and tests a mechanism for the role of AI chatbots in consumer engagement, trust in the AI chatbot, and purchase intention. Within the Stimulus-Organism-Response (S-O-R) framework, the study describes chatbot interactivity as the stimulus, and consumer engagement and trust as the sequential psychological responses. The proposed mechanism assumes purchase intention as the behavioural response. The empirical results confirm the proposed mechanisms and indicate that the effect of chatbot interactivity on purchase intention is not just a direct technology effect.

The first substantiation result shows that perceived AI chatbot interactivity has a significant positive effect on consumer engagement. This indicates a perceived responsive, reciprocal, and interactive chatbot leads consumers to invest cognitive, emotional, and behavioural resources in an AI-enabled retail service. This result is consistent with Kumar et al. (2024) who demonstrated the impact of the interactional and vocal features of chatbots and voicebots on the engagement of consumers in the domain of online retail. It also provides an extension to the consumer engagement literature in that the interactive features of AI systems act as a primary consumer engagement driver. It also shifts the focus of the engagement literature and suggests that the interactional features of an AI system can influence the depth of consumer engagement within a retail service. The second result suggests that consumer involvement with the AI chatbot is a primary driver of consumer trust in the AI chatbot. Engagement and trust are different steps in the consumer reaction process. Engagement describes the level of involvement a consumer has in the chatbot interaction, while trust describes the level of faith the consumer has in the chatbot to perform a task. With the positive correlation, it is expected that consumers who participate in and maintain interest in the chatbot dialogue are likely to develop a higher level of confidence in the AI system. This finding supports Ding and Najaf (2024) by showing that trust in e-commerce based on the level of interaction offered by the chatbot is a form of trust. The finding gives a more process-oriented view of trust development in the context of AI-enabled retail interactions.

The third outcome shows that AI chatbot trust is the best purchase intent predictor. It also has the most significant standardized effect in the final regression model. This finding supports existing literature on the significance of trust in online shopping (Gefen et al., 2003) and the relevance of trust in AI chatbots (Ding & Najaf, 2024). The stronger effect of trust suggests that a trusting consumer will not purchase from a chatbot, even if they have had a positive experience with the chatbot. AI systems can have many uses and benefit from positive consumer experiences; but, to translate a positive consumer experience with a chatbot to a purchase, the consumer's trust in the AI must be present. Consumers may experience a chatbot as useful or as a positive boost to their shopping experience; but, if they do not trust the chatbot, they will not purchase.

The final and most important outcome of the study shows a sequential mediation effect of trust and consumer engagement on the purchase intent and perceived AI chatbot interactivity. This means that an increasing level of AI chatbot interactivity will increase consumer engagement, which will lead to a higher level of consumer trust, and ultimately lead to a higher purchase intent. This study brings together different areas of chatbot research as a single unified approach. Prior studies have established separate tactical connections between chatbot features, user engagement, trust, and purchase intent behaviours. The present study shows for the first time that these constructs are deeply interconnected in a sequential order and that they represent a cognitive progression.

The presence of a strong direct relationship between chatbot interactivity and purchase intention demonstrates that the proposed mechanism shows only partial mediation. This means that, in addition to engagement and trust,

other factors, notably perceived usefulness, personalization, satisfaction, and perceived value or recommendation, may also play a role in the relationship. It is a valuable theoretical contribution in that it precludes an oversimplified, overly deterministic explanation for AI interactions in retail and illustrates that, in addition to the direct effects of interactivity, there may be multiple pathways by which interactivity influences purchase intention. The study presents evidence for the applicability of the S-O-R model to the domain of AI-integrated retail services. The model, in most of its traditional applications, has distinguished an environmental stimulus, an internal consumer state, and the consumer's behaviour in response to that stimulus. In this study, that internal consumer state is described as two sequentially organized consumer mechanisms rather than a single consumer response construct. In this model, perceived interactivity is the stimulus, engagement is the consumer's involvement in the interaction, trust is the relational evaluation, and purchase intention is the behavioural response. This model explains the consumer's journey from interacting with an AI-based retail service to developing confidence in the service and, ultimately, making a purchase.

Implications

First, it extends the S-O-R framework to conversational AI in retail by considering the presence of psychological sequential mechanisms between the stimulus and the response. Contrary to assumptions that the direct connection between chatbot interactivity and purchase intent exists, the study shows that engagement and trust are important intermediating mechanisms. Second, this study advances the research on consumer engagement by treating AI chatbot interactivity as an initiator of engagement. Until now, the studies on engagement have mainly focused on interactive brand environments, social media and customer experience. The current results show that the design of AI-mediated interactions can lead to cognitive, emotional and behavioural engagement.

The study suggests that AI trust can develop as a result of consumer interaction with AI. This observation is different from the majority of studies that regard trust as a direct result of the technology itself. The results showcase consumer interaction as an integral aspect of the trust formation process. It also adds to AI-driven retail research by bringing together interactivity, engagement, trust, and purchase intention in a single unified model. The sequential mediation mechanism offers a logical and theories-based explanation of how an AI-driven retail service can enable a purchase. The results of this study show that perceived interactivity of AI chatbots positively relates to purchase intention by way of consumer engagement and trust in the AI chatbot. It also relates to trust in the AI chatbot through consumer engagement and ultimately to purchase intention.

Conclusion

AI-powered services are increasingly available and have elevated the status of chatbots beyond basic customer service tools to key components of consumer decision-making. In this context, the purpose of this study was to analyse the relationship between perceived interactivity of AI chatbots, consumer engagement, trust in AI chatbots, and purchase intention. The results provide support for the proposed mechanism. Perceived interactivity increases consumer engagement which in turn increases trust in AI chatbots, and trust in AI chatbots increases purchase intention. The most important result was that the sequential indirect effect of trust and engagement together provided evidence for the transmission of part of the influence of perceived interactivity of AI chatbots on purchase intention. The high direct impact also showed that the relationship was not fully explained through the proposed mediators.

Consequently, the study attempts to explain the commercial viability of AI-driven retail solutions by viewing consumer-chatbot interaction in terms of the quality of service and AI system confidence, instead of the mere presence of chatbot interaction. An advanced interactive chatbot may promote consumer engagement of higher quality and what quality engagement may mean is trust, which may drive consumer purchasing behaviour.

There are a few limitations to consider while reviewing the results and findings produced by the study. The first concerns the cross-sectional layout of the study. This limits the results to a snapshot of the research, as it does not allow for the creation of relationships of time or causation. Although the order is proposed theoretically and supported by the mediation analysis, if stronger evidence of the proposed order is to be created, this order must be tested in a different study design (i.e., longitudinal, experimental). The second limitation is the sample used in

the study. The sample was from major cities in the state of Punjab in India. Thus, the results contain only contextual evidence from the state of Punjab and India, and must not be assumed to be results from elsewhere. Several other studies could, however, be done in other Indian states and other countries to further investigate the context. Even with these shortcomings, the study shows that interacting with an AI chatbot has consequences that extend beyond the mere act of interacting with technology. By joining interactivity, engagement, and trust with purchase intention, the study articulates how contemporary applications of Conversational AI can be used to understand the buying behaviour of patrons in the retail setting.

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