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The Role of AI Chatbots in Shaping Consumer Trust and Purchase Intentions: A Cross-Cultural Perspective

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ABSTRACT
With the swift rise of artificial intelligence (AI) chatbots in e-commerce, their impact on consumer-brand communication and consumer responses is fundamentally changing how things are done between consumers and businesses; however, there is a lack of understanding as to how cultural contexts moderate the relationship between chatbot-mediated communication and consumer responses. This research examines how AI chatbots influence purchase intentions and trust in the product depending on individualistic and collectivistic cultural orientations. Based on the Technology Acceptance Model (TAM) and Hofstede's cultural dimensions theory, we present a conceptual model that investigates the influence of perceived usefulness, perceived ease of use, social presence, and perceived anthropomorphism on consumer trust, which then influences purchase intention. Based on a cross-cultural survey of 847 consumers from the United States (individualistic) and India (collectivistic), our results show that perceived usefulness and social presence can make significant contribution to trust in both cultures, but perceived anthropomorphism has a significantly greater impact on trust in collectivistic cultures. Furthermore, trust mediates the relationship between chatbot characteristics and purchase intentions, with this mediation effect being more pronounced in collectivistic contexts. The results of this study provide insights for consumer research because they confirm that the design of chatbots should be culturally adapted to ensure the highest consumer engagement and conversion rate. The study provides practical applications for global marketers aiming at cross-cultural markets with AI chatbots.
Keywords: AI chatbots, consumer trust, purchase intentions, cross-cultural consumer behavior, technology acceptance, social presence, anthropomorphism.

INTRODUCTION:

AI chatbots are one of the most transformative technological shifts in modern-day consumer research. AI chatbots are increasingly prevalent in the e-commerce landscape, customer service platforms, and social media marketing strategies, serving as tools that can mimic human interactions (Belk et al., 2023). The global market size of chatbots is projected to hit $15.5 billion by 2028, with consumer demand for immediate, personalized and 24/7 service interactions contributing significantly to this growth (Grand View Research, 2023). Tremendous as the growth of AI chatbots is, its ability to build consumer trust – a vital driver of purchase intent – depends on complex factors, which differ widely by culture.

The paradox of consumer trust in AI-driven interactions. Chatbots provide efficiency, consistency and scalability which human agents cannot, and consumers often have doubts about the competence, benevolence and integrity of non-human service providers (Mende et al., 2019). This trust deficit is especially pronounced in cross-cultural settings, where there are intercultural differences in values and expectations about interpersonal communication, technology uptake and business interactions. In individualistic cultures, where people are more self-reliant and value transaction efficiency, the functionality and task completion of chatbots might be more important. On the other hand, collectivistic cultures that focus on relational harmony and social connection might require a more degree of social presence and emotional intelligence from conversational agents (Hofstede, 2001).

Although the literature on AI chatbots has focused largely on western and individualistic contexts, there remains a gap in the theory and empirical findings on consumer perception, trust and relationship with AI service agents from collectivistic cultures (Chung et al., 2018). This cultural bias is not just a problem with generalizability of existing results, but also it may cause issues for multinational corporations who are aiming to implement a standard chatbot offering in various countries. This is a crucial area that has not been studied yet, so the present study investigates the cross-cultural dynamics of the relationship between AI chatbot acceptance and the underlying mechanism by which AI chatbot attributes

affect consumer trust and purchase intentions, taking cultural orientation as a moderating factor.

There are three theoretical contributions of this research. Firstly, we combine the Technology Acceptance Model (TAM) (Davis, 1989) and Hofstede's cultural dimensions model (Hofstede, 1980) to create a culturally grounded model of chatbot acceptance. Second, we empirically validate the differential effects of perceived anthropomorphism and social presence for individualistic and collectivistic consumer segments. Third, we illustrate that trust is a mediator between the perceptions of the chatbot and behavioral intentions, which we explore in terms of boundary conditions that are culturally dependent. The findings from this research are practical for practitioners because they offer recommendations on how to localize the design features, chatbot communication scripts, and interaction modalities so that they can improve consumer engagement in cultural markets.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 AI Chatbots in Consumer-Facing Contexts

With the help of natural language processing (NLP) and machine learning algorithms, AI chatbots can mimic human conversation and help users accomplish particular tasks (Adam et al., 2021). In consumer research, the analysis of chatbots has looked at them as a service agent, a recommender, a complaint handler, and as a persuasive communicator. The academic conversation has shifted from the original idea of chatbots as merely rule-based systems, to a current understanding of their ability to comprehend context, sense emotions, and tailor their interactions to individuals (Huang & Rust, 2021).

Studies have shown that the functional and social aspects influence consumer reactions to chatbots. There are functional dimensions such as task completion efficiency, information accuracy, and problem-solving ability (Chung et al., 2018). Social dimensions include felt warmth, empathy, friendliness and the extent to which the chatbot conveys a human-like impression (known as social presence, Gefen & Straub, 2004). These dimensions interact to shape how consumers view the chatbot, either as a tool or a relational partner, having implications for the building of trust.

2.2 Consumer Trust in AI-Mediated Interactions

It is the tendency to allow oneself to be vulnerable in the expectation that the other party will act or behave in a positive manner that underpins consumer decision-making in digital environments (Mayer et al., 1995). Creating trust with AI chatbots is also a tricky process due to the fact that consumers are required to evaluate the trustworthiness of a non-human, non-conscious, non-moral, non-emotional entity (Mende et al., 2019).

Current research points to three key components of trust in AI interactions: competence-based trust (trust in Chatbots' capacity to deliver on its functional tasks), benevolence-based trust (trust in the Chatbots' intent to act in the consumer's best interests), and integrity-based trust (trust in the Chatbots' consistency with acceptable principles and standards) (McKnight et al., 2002). The design characteristics of the chatbot (e.g., response time, language style, error rates, disclosure of artificial intelligence identity, and the ability to pass complex issues to a human agent) are all factors that affect the formation of these trust dimensions (Belk et al., 2023).

2.3 The Technology Acceptance Model and Chatbot Adoption

Perceived usefulness (PU) and perceived ease of use (PEOU) are two key factors that were proposed in the Technology Acceptance Model (TAM) by Davis (1989). TAM has been extensively empirically tested and has been shown to be a reliable model for consumer acceptance of various technologies such as online shopping, mobile banking, and service robots (King & He, 2006).

Perceived usefulness, as it relates to AI chatbots, is the consumer's confidence that using the chatbot will increase their shopping efficiency, the quality of their shopping decisions, or their overall shopping experience. Perceived ease of use refers to consumers' beliefs about how easy it will be to use the chatbot without requiring mental exertion. Although TAM provides a stepping stone to the understanding of chatbot adoption, the model has been taken to task for its lack of consideration for contextual factors that moderate technology acceptance within different populations and its cultural neutrality (McCoy et al., 2007).

2.4 Cross-Cultural Consumer Behavior and Cultural Dimensions

Hofstede's (2001) cultural dimensions theory offers a well-accepted structure for analysing consumer behaviour differences across cultures. This individualism-collectivism dimension is especially crucial for the interactions with AI chatbots, as it influences the overall communication style, expectations for relationship building, and trust-building.

Consumers are concerned with personal autonomy, self-expression and transactional efficiency in individualistic cultures (USA, UK, Australia). Communication is direct, to the point, and low-context, with trust being built mainly through ability to be competent and reliable (Hofstede, 2001). Users of these cultures might judge chatbots largely on their practical performance, such as velocity, accuracy and resolution capability.

Consumers in collectivistic cultures (such as India, China, Japan, South Korea) focus on harmony within the group, continuity of relationships, and social responsibility. Communication is indirect, relationship or contextualized, and trust is built on emotional connection, social presence, and perceived benevolence (Triandis, 1995). Chatbots in these cultures might need to show more than just functionality; they need to exhibit social intelligence, emotional warmth, and a commitment to relationships.

2.5 Conceptual Framework and Hypotheses

Based on the above theories, this study suggests a conceptual model that posits that the characteristics of the chatbot (PU, PEOU, social presence and anthropomorphism) will affect consumer trust, which will

then result in purchase intention. We also hypothesize that cultural orientation (individualism-collectivism) will moderate the strength of these relationships.

The positive attitudes that consumers have toward AI chatbots have a direct impact on their trust in the technology. H2: Consumer trust is positively shaped by perceived ease of use of AI Chatbots. The social presence of AI chatbots has a positive effect on consumer trust. H4: The greater the consumer's perception of anthropomorphism by AI chatbots, the more trustful the consumer will be. H5: Purchasing intention is positively associated with consumer's trust. The perceived anthropomorphism-trust relationship is more pronounced in collectivistic cultures than in individualistic cultures. H7: The effect of social presence on trust is stronger in collectivistic cultures compared to individualistic cultures. H8: Trust mediates the relationship between the characteristics of the chatbot and purchase intentions to a greater extent in collectivistic cultures.

3. METHODOLOGY

3.1 Research Design and Sample

The present research used a cross sectional survey design to investigate the reactions of consumers when interacting with an AI chatbot with two distinct cultures. We collected data from 847 participants; 423 from the United States (individualistic culture) and 424 from India (collectivistic culture). They were recruited from Prolific Academic and Amazon Mechanical Turk, with quotas set for age (18-65 years), gender balance, and minimum education (high school diploma).

The survey instrument was prepared in English and validated by the back-translation technique for the Indian sample to ensure conceptual equivalence. Each participant had to have made at least one purchase via an AI chatbot within the last six months. The questions were screened to confirm the experience of chattbot interaction and attention checks were used to guarantee data quality.

3.2 Measurement Instruments

Established scales were adapted from previous studies to assess all constructs with responses recorded on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree).

Perceived Usefulness (PU): This construct was measured using four items adapted from Davis (1989) which focused on the usefulness of the chatbot in completing shopping tasks (e.g., "I find the chatbot helpful in completing my shopping tasks").

Perceived Ease of Use (PEOU): Four items based on Davis (1989) were used to assess the cognitive effort needed for interacting with the chatbot (e.g., "Learning to communicate with this chatbot was easy for me").

The measure of social presence (SP) consisted of 5 items adapted from Gefen and Straub (2004) which focused on the human-like feeling of connecting with the chatbot when interacting with it (e.g., "I felt a sense of human contact during my interaction with this chatbot").

Perceived Anthropomorphism (PA): Five items from Kim et al. (2019) were used to measure PA, which involves the perception of human-like attributes in the chatbot, such as "This chatbot seemed to have emotions".

Consumer Trust (CT): Six items reworded based on McKnight et al. (2002) were used to capture the competence, benevolence, and integrity dimensions (e.g., I believe this chatbot is competent in assisting customers).

Purchase Intentions (PI): Three items from Dodds et al. (1991) were used to measure purchase intentions (e.g., "I would consider buying products that this chatbot recommends").

Cultural Orientation: Individualism-collectivism was measured at the individual level by Singelis et al.'s (1995) Self-Construal Scale, country a proxy for culture, in primary analyses.

3.3 Control Variables

To isolate the effect of our primary constructs, we controlled for the age and gender of the participants, their education level, prior chatbot experience, product category involvement, and familiarity with the platform.

3.4 Analytical Approach

Data analysis involved three steps. To validate the measurement model, first, confirmatory factor analysis (CFA) was employed. Secondly, the hypothesized relationships were tested using structural equation modeling (SEM) with maximum likelihood estimation. Third, a multi-group SEM analysis was used to determine cross-cultural measurement invariance and differences in path coefficients between the U.S. and the Indian samples. In the SEM framework, bootstrapped (5,000 resamples) confidence intervals were used to assess mediation effects.

4. RESULTS

4.1 Measurement Model Validation

Confirmatory factor analysis indicated excellent model fit: $\chi^2(284) = 412.37$, $p < .001$; CFI = .96; TLI = .95; RMSEA = .04; SRMR = .03. All factor loadings exceeded .70, and average variance extracted (AVE) values ranged from .62 to .78, exceeding the .50 threshold. Composite reliabilities ranged from .84 to .92, indicating strong internal consistency. Discriminant validity was established as the square root of AVE for each construct exceeded its correlations with other constructs (Fornell & Larcker, 1981).

4.2 Descriptive Statistics and Correlations

Table 1 shows mean, standard deviations and correlations for the overall sample. Interestingly, the Indian participants had significantly higher scores on social presence (M = 5.12, SD = 1.34) and on perceived anthropomorphism (M = 4.89, SD = 1.42) than the U.S. participants (S.P. = M = 4.23, SD = 1.51; Anthropomorphism = M = 3.76, SD = 1.58; $p < .001$ for both comparisons). Among the respondents, there were also more Indians that trusted and intended to purchase the product.

Variable	Mean (U.S.)	Mean (India)	SD (U.S.)	SD (India)	1	2	3	4	5	6
1. PU	5.23	5.18	1.42	1.38	-0.84					
2. PEOU	5.45	5.38	1.38	1.35	.52**	-0.82				
3. SP	4.23	5.12	1.51	1.34	.38**	.42**	-0.88			
4. PA	3.76	4.89	1.58	1.42	.31**	.35**	.68**	-0.86		
5. Trust	4.65	5.34	1.48	1.29	.48**	.45**	.62**	.58**	-0.91	
6. PI	4.12	4.89	1.62	1.45	.42**	.38**	.55**	.52**	.68**	-0.89

Table 1 presents the descriptive statistics, reliability coefficients, and inter-construct correlations for the full sample.

4.3 Hypothesis Testing

The majority of hypothesized relationships were confirmed by the results of the structural equation modelling (see Figure 1 and Table 2). Perceived usefulness ($\beta = .32$, $p < .001$) and perceived ease of use ($\beta = .18$, $p < .01$) were significant predictors of consumer trust, which supported H1 and H2. H3 was supported with the results of social presence, in which it showed that there was a strong positive effect on trust ($\beta = .28$, $p < .001$). Trust was also positively predicted by anthropomorphism ($\beta = .24$, $p < .001$), thus supporting H4. Consumer trust was found to be a significant predictor of purchase intentions ($\beta = .45$, $p < .001$) and thus supported H5.

Hypothesis	Path	U.S. Sample	Indian Sample	$\Delta\chi^2$	Supported
H1	PU → Trust	.35***	.29***	1.23	Yes
H2	PEOU → Trust	.21**	.15**	1.89	Yes
H3	SP → Trust	.19**	.35***	6.87**	Yes
H4	PA → Trust	.14*	.34***	8.42**	Yes
H5	Trust → PI	.42***	.48***	1.56	Yes
H6	PA × Culture → Trust	—	—	8.42**	Yes
H7	SP × Culture → Trust	—	—	6.87**	Yes

Table 2summarized, Structural equation modeling results, supported the majority of hypothesized relationships.

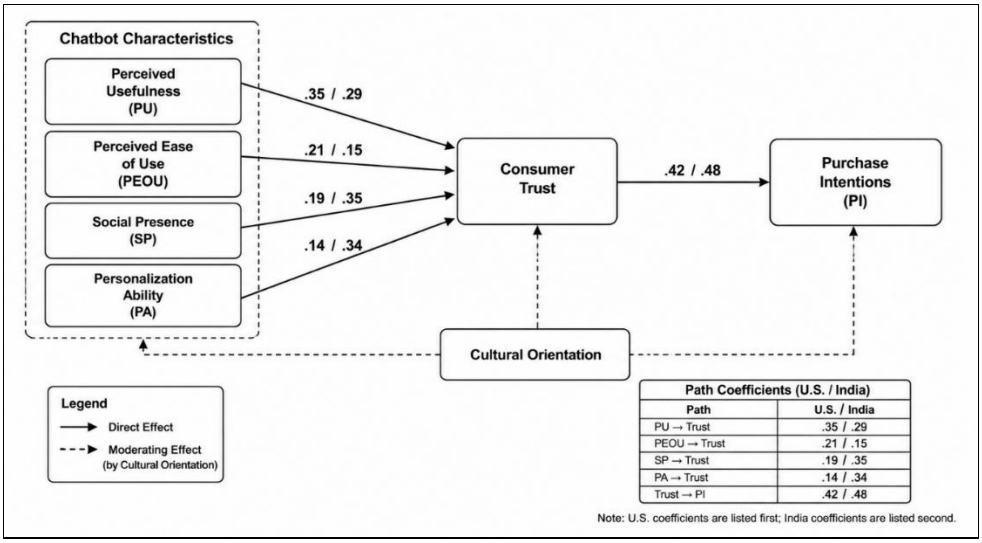

Figure 1. Structural model and path coefficients comparing the effects of chatbot characteristics on consumer trust and purchase intentions across U.S. and Indian consumers. Cultural orientation is examined as a moderating variable.

4.4 Cross-Cultural Moderation Effects

The results of multi-group SEM showed that there were significant cross-cultural differences in path coefficients. H6 was supported by a significant difference between the Indian sample ($\beta = .34$, $p < .001$) and the U.S. sample ($\beta = .14$, $p < .05$; $\Delta\chi^2 = 8.42$, $p < .01$). Similarly, the effect of social presence on trust was stronger in India ($\beta = .35$, $p < .001$) than in the U.S. ($\beta = .19$, $p < .01$; $\Delta\chi^2 = 6.87$, $p < .01$), supporting H7.

Conversely, the effects of perceived usefulness (U.S.: $\beta = .35$; India: $\beta = .29$; $\Delta\chi^2 = 1.23$, $p = .27$) and perceived ease of use (U.S.: $\beta = .21$; India: $\beta = .15$; $\Delta\chi^2 = 1.89$, $p = .17$) on trust did not differ significantly across cultures.

4.5 Mediation Analysis

The results of the bootstrapped mediation analysis revealed that trust significantly acted as a mediator between all the chatbot characteristics and purchase intention. Results revealed that the indirect influence of perceived usefulness on purchase intention via trust was significant in both cultures (U.S.: $\beta = .16$, 95% CI [.10, .23]; India: $\beta = .13$, 95% CI [.08, .19]). However, the total indirect effect was stronger in the Indian sample ($\beta = .38$, 95% CI [.28, .49]) compared to the U.S. sample ($\beta = .24$, 95% CI [.16, .33]), supporting H8.

5. DISCUSSION

5.1 Theoretical Implications

This study has important implications for consumer research. First, by combining TAM with cultural dimensions theory, we show that technology acceptance models must be "culturally calibrated" to be valid predictors across cultural markets. The results of this study using culturally contingent and universal trust antecedents (usefulness, ease of use vs. anthropomorphism, social presence) provide further insight into the role of cultural schemas in shaping perceptions of technology.

Secondly, our findings shed light on the pathways by which AI chatbots evolve from transactional tools to trusted advisors. The mediation of trust implies that chatbot design needs to prioritize building trust as an intermediate goal and not just optimizing for conversions. This discovery is consistent with the thinking of relationship marketing that regards trust as one of the key factors of the creation of customer value over the long-term.

Third, as this study demonstrates, the anthropomorphic representation of AI in different cultures has varying significance, casting doubt on the notion that promoting human-like interactions with AI will be universally beneficial for the user experience. For collectivistic cultures, our data indicate that anthropomorphism is much more important than is the case in Western cultures, where relational cues indicate benevolence and social commitment.

5.2 Practical Implications

This study provides practical recommendations for culturally responsive deployment of chatbots for global marketers and platform designers. In individualistic markets, investments should be made to optimize functionality - minimize response latency, improve search accuracy, and smoothen transaction completion. In such scenarios, the Chatbot personas can be very simple and efficient, with little relationality.

Relationships are essential in collectivistic markets in the design of chatbots. This involves affective language, culturally acceptable greetings and closings, respect for social status and displays of care and commitment. Emotional expression, personal disclosure and avatar design (anthropomorphic features) are to be highlighted to convey benevolence and relational trust.

Standardized chatbot templates should not be used when venturing into cultural markets by multinational corporations. Localization strategies should be more than simply language translation, however, and should also include interaction style, social signaling, and trust-building mechanisms. The ROI of culturally customized chatbot design is probably going to be significant, as trust plays a key part in purchase intent.

5.3 Limitations and Future Research

Some restrictions should be noted. Firstly, because of the cross-sectional design used, causal relationships can not be established, experimental or longitudinal design would strengthen the conclusions about the direction of the relationships. Secondly, although the U.S. and India were used as examples of individualistic and collectivistic cultures, other cultures (e.g., East Asian, Latin American, Middle Eastern markets) would further increase generalizability. Thirdly, the emphasis on e-commerce chatbots might not apply to other service, healthcare, or financial environments where trust is needed.

Further studies are needed to investigate the interaction between key features of the chatbot design (voice-based vs. text-based, presence of avatar, use of humor) and cultural factors. Further, an exploration into the significance of consumers' chatbot literacy and the generational differences in terms of cross-cultural acceptance would yield valuable segmentation information. With the rise of generative AI and large language models, the study offers a chance to explore how improved conversational abilities might impact the cultural dynamics revealed in the study.

6. Conclusion

With AI chatbots playing a significant role in global digital commerce, it is crucial to grasp the cultural nuances that influence consumer trust in the formation process. This research shows that although functional characteristics of the chatbots positively affect trust in all cultures, the social and anthropomorphic characteristics impact the trust in a culturally differential manner with stronger effects in collectivistic cultures. This mediation mechanism is even stronger in cultures where the concept of relational harmony is paramount, and trust is the key link between perceptions of chatbots and purchase intentions. The results highlight the need for both consumer researchers and practitioners to go beyond culturally neutral models of technology acceptance and incorporate diversity in human values and preferences for

interaction. So while there is a role for tech-centric standardization, the future of AI-powered commerce is rooted in culturally intelligent design that is sensitive to and responsive to the cultural and psychological structures of global markets

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