



Rapport with a chatbot? The underlying role of anthropomorphism in socio-cognitive perceptions of rapport and e-word of mouth

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ABSTRACT

This study examines the impact of rapport with chatbots on electronic word of mouth (e-WOM), in the first phase, by considering several antecedents including anthropomorphism. In the second phase, deeper insights are provided into the moderated mediation role of rapport and the moderated moderation effect of value creation and hedonic motivation on e-WOM engagement. With tourism services as the research context, a survey was conducted among 257 visitors from three countries (China, India and New Zealand), selected due to their diverse cultural backgrounds and higher number of inbound visitors to Australia. The partial least squares method was used for data analysis along with multi-group analysis. Findings report the positive role of anthropomorphism in developing rapport with chatbots in digital interactions. Interestingly, rapport had the highest moderated mediation impact in the data from China followed by the data from India. The moderated moderation impact of hedonic motivation was only significant in the data from China, whereas value creation was a significant moderator in the data from both China and New Zealand. The study extends social exchange theory in a human–chatbot or artificial intelligence (AI) interaction context with cultural implications. The findings are useful for organizations relying on customer rapport with AI-based chatbots to ensure long-term customer service through digital interactions.

1. Introduction

In the world of retail, artificial intelligence (AI)-based chatbots are becoming increasingly influential in consumers' everyday lives; for example, chatbots offer services to nearly 35% of all consumers (Chong et al., 2021) in home care, groceries, and clothing products. Around US \$439 billion could be saved by the end of 2023 using automated customer interactions (AI-based chatbots) for interactions currently handled by human customer service representatives (Chong et al., 2021). If so, then traditional relational constructs (e.g., rapport, trust building, etc.) need to be re-visited from an AI-based chatbot context as frontline relationships are the key to ensuring long-term success for any service organization (Tojib et al., 2023; Wirtz et al., 2018).

Drawing from social exchange theory (Homans, 1958), it is assumed that, as with interactions between humans, consumers' interactions with chatbots will be subject to different levels of social influence, quality of conversation, and interaction. While studies claim that relational states, such as rapport and trust, have an impact on human–robot interaction

(Kim et al., 2022), the inter-relationships between these relational constructs are not yet fully explored; thus, the knowledge is lacking. To address this gap, the current study considers rapport and anthropomorphism through the lenses of social influence, and conversational and interaction qualities to examine the effect on electronic word of mouth (e-WOM). Anthropomorphism is defined as the act of attributing human-like characteristics to non-human objects (Epley, 2018; Tojib et al., 2023). In this study, AI-based chatbots are considered to have the attribute of intelligence and to demonstrate human-like emotions (Kim et al., 2022). Given the narrowness of the field of research on rapport with chatbots, the role of anthropomorphism remains a vague area in the extant literature.

In relational studies, rapport is considered to be a crucial interpersonal construct, attracting much attention among scholars on relationships (Delcourt et al., 2013; Fatima et al., 2020; Hwang and Lee, 2019; Macintosh, 2009) for its unique dimensions of enjoyable interactions and personal connections (Gremmler and Gwinner, 2000). It is often the 'social glue' between consumers and service providers (De Witt and

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Brady, 2003; Fatima et al., 2020). While rapport with frontline employees (Fatima et al., 2020; Gremler and Gwinner, 2000; Hwang and Lee, 2019; Macintosh, 2009) or with frontline machines (Kim et al., 2022; Tojib et al., 2023) are examined in past studies, little is known on how consumers build perceived rapport with chatbots during their interactions, in particular, whether anthropomorphism plays a role in developing rapport.

Interestingly, the influence of rapport and anthropomorphism may often be subject to variation due to cultural nuances (Miles and Ibrahim, 2013; Sresnewsky et al., 2020); therefore, a separate culture-specific investigation is required. Furthermore, culture may shape the perceptions of individuals from their psycho-cognitive aspects, such as their approach to value creation and hedonic motivation. In the series of studies on Hofstede’s cultural dimensions theory (Hofstede, 1984, 2001, 2011; Hofstede Insights [n.d.]), masculinity/femininity, individualism/collectivism, and indulgence/restraint are among the most widely used cultural indicators. Femininity refers to a society’s tenderness and quality of life; individualism means integration into the individual’s primary groups; while indulgence represents enjoyment of life (Hofstede, 2011). Considering these indicators, the current study in Phase 2 examined the moderated moderation role of value creation and hedonic motivation using country-specific data (see Figs. 1 and 2).

Thus, the aim of this study is twofold. Firstly, Phase 1 investigates the role of anthropomorphism and rapport in e-WOM in the human–chatbot relationship. Secondly, Phase 2 examines the moderated mediation role

of rapport in the relationship between anthropomorphism and e-WOM and its moderated moderation role in the relationship between value creation and hedonic motivation.

2. Phase 1: study of the role of anthropomorphism and rapport

2.1. Anthropomorphism

Anthropomorphism has received attention in recent studies on automated services (Blut et al., 2021; Letheren et al., 2021; Tojib et al., 2023) due to the amplification of AI-based technologies. Continuously improving the level of intelligence and exhibiting a larger set of social cues, AI technologies are making chatbot interactions more anthropomorphized and humanized, while making social interactions ‘warmer’ and more trustworthy (Tojib et al., 2023). Anthropomorphism is now starting to play a key role, influencing conversational quality and people’s interactions with chatbots, taking greater space in social influence, and, finally, creating positive impressions for building good rapport with consumers. Therefore, this study hypothesizes that:

H1. Anthropomorphism positively impacts: (a) conversational quality; (b) social influence; (c) AI-supported interaction quality; and (d) rapport.

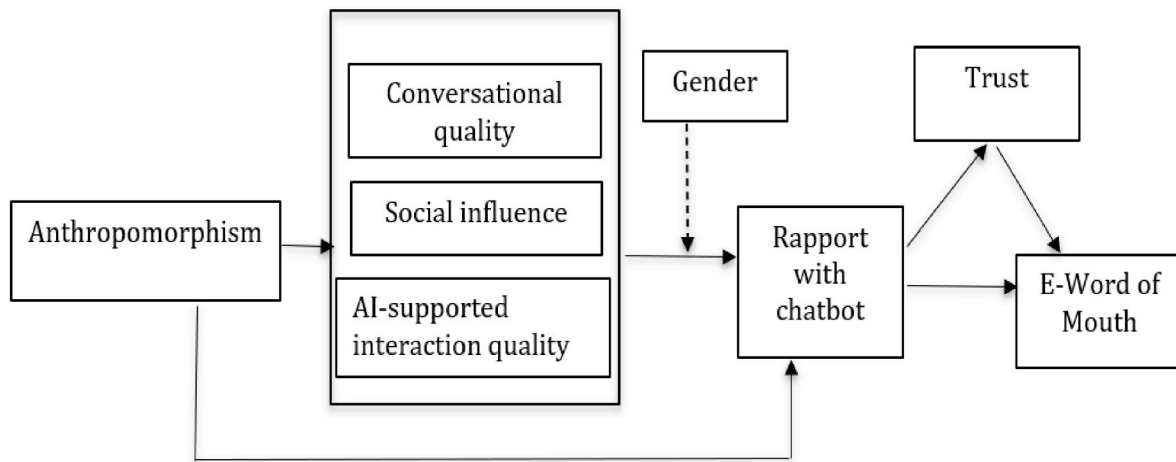


Fig. 1. Conceptual model.

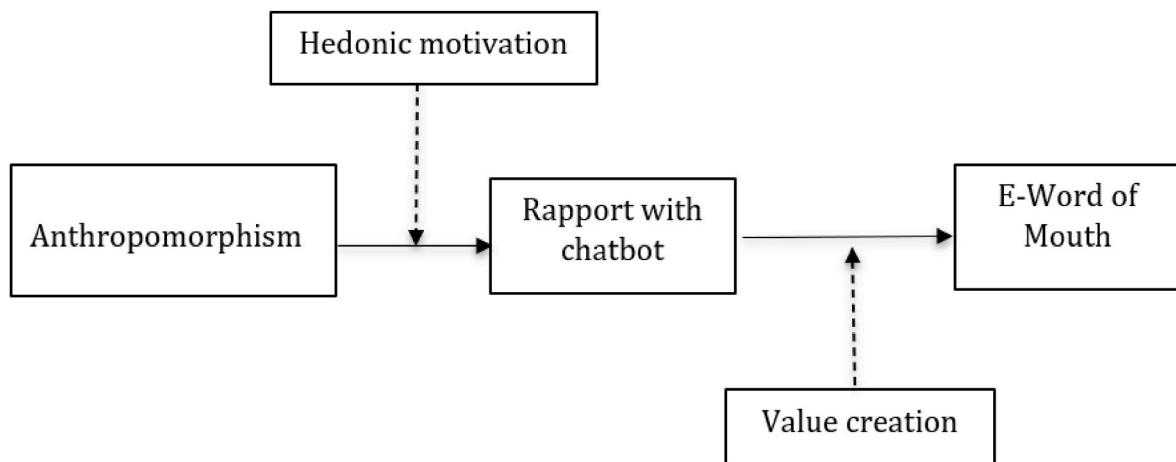


Fig. 2. Moderated mediation and moderated moderation model with country-specific data.

2.2. Rapport with chatbots

With AI-based chatbots employing natural, user-friendly language in conversation (Khatri et al., 2018) and providing a human-like impression in terms of personality and emotion (Hu et al., 2021), these mimicking attributes, similar to the conversational quality between customers and human frontline employees, act as triggers to build rapport between people and chatbots (Hsu and Lin, 2023). It is also claimed that chatbots are now designed with such intricacy that they can enhance interactivity and enjoyment (key aspects of rapport building) when engaging with consumers (Chong et al., 2021). As rapport acts like a facilitator of the alliance between two parties, it is also positively related to social influence (Abbe and Brandon, 2013). Thus, it is assumed that:

H2. Rapport is positively impacted by: (a) conversational quality; (b) social influence; and (c) AI-supported interaction quality.

Considering the unique and complex nature of AI-based social bots (chatbots), several studies attempt to focus on the interpersonal dimension of trust (e.g., Chi et al., 2023). As trust, in an AI context, is a cognitive belief (Chi et al., 2023; Tussyadiah et al., 2020), with a positive interaction experience with chatbots, rapport may enhance this interaction and experience to build trust. Considering that successful human-machine interactions result in positive consumer evaluation and trustworthiness (Chi et al., 2021; Hyun and Kim, 2014; Kim et al., 2022), rapport becomes an effective antecedent for trust building. Previous studies also claim that the positive influence of rapport on word of mouth (Gremler and Gwinner, 2000; Hwang and Lee, 2019; Macintosh, 2009) has a crucial impact on facilitating consumers' future transactions and enhanced cooperation (Fatima et al., 2020; Tickle-Degnen and Rosenthal, 1990). Therefore, the current study applies the positive influence of rapport on word of mouth in a human-AI-based chatbot relationship and hypothesizes that:

H3. Rapport positively impacts (a) trust and (b) e-word of mouth.

2.3. Trust affecting e-word of mouth (e-WOM)

When individuals feel confident and, from their experience, have built trust in using any website or social media platform, they become more prone to engage in positive e-WOM (Filiari et al., 2015) within their communities, for instance, their friends and family. With e-WOM, as an 'information diagnostic,' being mostly related to consumers' decision making (Filiari et al., 2015; Zhang and Watts, 2008), trust plays a crucial role in consumers' decision making when establishing e-WOM in a positive frame. However, limited research is available on the role of trust in an e-WOM context (Filiari et al., 2015) when interacting with a chatbot. Thus, this study hypothesizes that:

H4. Trust has a positive influence on e-word of mouth.

2.4. Moderating impact of gender

Gender is used as a moderator in many previous relational studies including those examining rapport, social interactions, and interpersonal relationships (Jiang and Zhao, 2017). Gender schema theory (Bem, 1983) is a related theory that depicts the perceptual differences between males and females. As emotion and perception differ in gender stereotypes (Brinbaum et al., 1980), previous studies claim that females are more proactive in social interactions, better at expressing their emotions, and tend to have higher emotional intensity and less control over their emotions (Badgaiyan and Verma, 2015; Fisher and Dubé, 2005). Thus, considering the possibility of females' higher emotional engagement (Jiang and Zhao, 2017), this study assumes that females

will be more likely than males to develop rapport and its antecedents. The hypothesis is formulated as:

H5. Gender moderates the relationships of (a) conversational quality; (b) social influence; and (c) AI-supported interaction quality with rapport in such a way that females are more influenced by rapport than males.

3. Method

3.1. Data

Tourism services were chosen as this study's context. Consumers are increasingly using chatbots for selecting accommodation, transport, and other tourism-related services. As tourists are usually in a place distant from their destination, they heavily rely on websites, apps (applications), and social media with AI-supported services. For this study, China, India, and New Zealand (NZ) were selected based on recent tourism statistics identifying these countries as the top three countries with the highest number of tourists coming to Australia (Wikipedia, 2023). These three countries were also selected for their diverse cultural backgrounds. As suggested by Hofstede (1984, 2001), each of these countries has unique scores on masculinity, individualism, and indulgence dimensions, thus making it interesting to examine the hypotheses in a more generalized context. A reputable research firm in Australia collected data from visitors to Australia from these countries. The firm used a simple random sampling method from its database of visitors' panel data from these three countries to select participants for the study.

3.2. Participants

Two hundred and fifty-seven (257) participants completed an online survey after fulfilling the selection criteria of: (a) having visited or currently visiting Australia and (b) residing in one of the three countries (China, India, or NZ). Thus, the unit of analysis in this study was an individual visitor. Of the total sample of 257 participants, 85 came from each of India and NZ, while 87 came from China (approximately 33% from each country). Details of participants are summarized in Table 1. In the selection criteria, not only did participants need to be either currently visiting or have recently visited Australia, but they also needed to have had experience in interacting with a chatbot or a similar type of AI-supported service. As the online survey was set up in such a way that participants could not progress to the next question until they answered the current one, no missing values occurred.

Table 1
Details of participants.

Details	Percentage of participants N = 257
Age:	
18–30 years	33.10%
31–45 years	40.10%
46–65 years	15.20%
65+ years	11.70%
Gender:	
Male	44.40%
Female	55.60%
Prefer not to say	0%
Length of experience using online tourism platforms:	
0–2 years	27.20%
3–5 years	39.30%
6–10 years	22.20%
10+ years	11.30%

3.3. Measures

All the items used to measure the study’s constructs were taken from existing studies. The survey used items in the questionnaire rated on 5-point Likert-type scales, with 1 = Strongly disagree and 5 = Strongly agree. Demographic questions (e.g., age, gender, location, etc.) were also included in the questionnaire. Appendix A presents the details of construct items, their reliability, and their sources.

3.4. Common method bias

To test common method bias (CMB), partial least squares–common method bias (PLS-CMB) was employed to examine the inner variance inflation factor (VIF) values. No value was above the recommended value of 3.30 (Kock, 2015); therefore, the data set had no CMB contamination (Table 2).

4. Results

The partial least squares (PLS) method was used for data analysis (Sarstedt et al., 2016) with SMART PLS version 4. Suitable for a small sample size with high predictive accuracy, PLS offers reliable statistical power and parameter estimation (Hair et al., 2017; Sarstedt et al., 2016). This method is a widely acceptable as an applied method of analysis technique, as shown by its use in similar previous studies (Bangun et al., 2023; Jadhav et al., 2023). Table 3 shows the reliability and validity indicators which are satisfactory with their values for the square root of average variance extracted (AVE) higher than their correlations (Fatima and Razzaque, 2012; Nunnally, 1978).

4.1. Direct effects (H1–H4)

Results of direct effects in Table 4 show that the *p*-values of all the hypotheses are below 0.05 and, therefore, H1–H4 are accepted. In detail, conversational quality has the highest impact from anthropomorphism (*t*-value = 17.81) as well as the largest influence on rapport (*t*-value = 4.99) of the other antecedents, such as social influence and AI-supported interaction quality.

4.2. Moderation impact of gender (H5a, H5b, H5c)

Gender is found to be a significant moderator in the relationships of the three antecedents (conversational quality, social influence, and interaction quality) with rapport (conversational quality: *t*-value difference = 2.147, *p*-value difference = 0.033; social influence: *t*-value difference = 3.258, *p*-value difference = 0.001; AI-supported interaction quality: *t*-value difference = 2.132, *p*-value difference = 0.034). Female participants show a higher moderation impact than male participants for conversational quality (*t*-value for females = 5.69; *t*-value for males = 1.96) and for AI-supported interaction quality (*t*-value for females = 3.77; *t*-value for males = 0.44), thus supporting H5a and H5b. However, male participants show evidence of a higher moderation impact than female participants on the social influence–rapport relationship (*t*-value for females = 1.33; *t*-value for males = 4.55), thus rejecting H5c.

Table 2
Common method bias test (partial least squares–common method bias [PLS-CMB]).

	AI Int. Qual.	Anthro.	Con. Qual.	e-WOM	Rapport	Social Influence	Trust
AI Int. Qual.					2.81		
Anthro	1.00		1.00		2.18	1.00	
Con. Qual.					2.89		
e-WOM							
Rapport				2.24			1.00
Social Influence					2.66		
Trust				2.24			

Notes: AI-Int. Qual. = AI-supported interaction quality; Anthro. = anthropomorphism; Con. Qual. = conversational quality.

5. Phase 2: moderated mediation role of rapport and moderated moderation effect of value creation and hedonic motivation with country-specific data

It is common in early studies in the literature to split the whole data set to capture in-depth moderation effects of a specific variable on each sub-group to conduct additional testing (Sharma and Patterson, 2000) of mediation and moderation effects. In Phase 2, data collected in Phase 1 were split into country-specific data (China, India, and NZ) to examine the moderating impact of culture. The effect of rapport as a mediator in the relationship between anthropomorphism and e-WOM, and the effects of the additional moderators, that is, hedonic motivation and value creation, were accordingly used as part of the moderated mediation and moderated moderation testing.

5.1. Culture as a moderator

Although online environments have no boundary, marketers observe that e-WOM is highly influenced by consumers’ cultural backgrounds, with a consumer’s decision to provide online information (i.e., e-WOM) often influenced by culture (Fong and Burton, 2008). However, previous studies examining cultural differences with Hofstede’s (1984, 2001) cultural dimensions mostly focus on a few specific dimensions, such as individualism/collectivism, ‘low/high context,’ or ‘short-term/long-term orientation’ (Chi et al., 2023; Fong and Burton, 2008; Jin et al., 2008), leaving other dimensions, such as ‘indulgence’ or ‘masculinity/femininity’ virtually unresearched in the literature.

After considering the major sources of inbound visitors to Australia and scores in indulgence and masculinity dimensions, the current study explored the country moderation impact of China, India, and NZ (Appendix B). Indulgence refers to enjoying life and receiving pleasure from basic human desires, whereas masculinity refers to an assertive and competitive culture (Hofstede, 2011). These countries are the top three countries in terms of the number of visitors to Australia, with varied indulgence and masculinity scores. For instance, the indulgence score is only 24 for China but, for NZ, it is 75: on the other hand, China has a higher masculinity score (68) than NZ (58) (Hofstede Insights, n.d.).

5.2. Rapport as a mediator

Rapport is used as a mediator in previous studies (Delcourt et al., 2013; Kim and Ok, 2010; Macintosh, 2009) for a range of relational constructs for its unique characteristics. For instance, the mediating effect of rapport is examined in the relationships between customer orientation and affective commitment (Kim and Ok, 2010) and between familiarity and trust (Macintosh, 2009). However, knowledge remains limited in the literature on the mediation impact of rapport on the anthropomorphism–e-WOM relationship. This is primarily due to the scarcity of research efforts in the early rapport literature to test anthropomorphism as an antecedent of rapport. Thus, the current study hypothesizes that:

H6. Rapport mediates the relationship between anthropomorphism and e-word of mouth among participants from: (a) China; (b) India; and (c) New Zealand (NZ).

Table 3
Reliability and validity measures.

Constructs	Cronbach's alpha	Composite Reliability (rho_c)	Average Variance Extracted (AVE)	Correlations (AVE on diagonal ^a)						
				AI-Int. Qual.	Anthro.	Con. Qual.	e-WOM	Rapport	Soc. Inf.	Trust
AI-supported interaction quality	0.846	0.928	0.866	0.931						
Anthropomorphism	0.837	0.902	0.756	0.599	0.869					
Conversational quality	0.836	0.901	0.752	0.76	0.661	0.867				
e-WOM	0.871	0.921	0.795	0.703	0.503	0.744	0.891			
Rapport	0.908	0.942	0.844	0.741	0.717	0.776	0.676	0.919		
Social influence	0.865	0.917	0.787	0.709	0.69	0.689	0.695	0.755	0.887	
Trust	0.907	0.931	0.728	0.773	0.641	0.784	0.798	0.744	0.741	0.853

Notes: AI-Int. Qual. = AI-supported interaction quality; Anthro. = anthropomorphism; Con. Qual. = conversational quality; Soc. Inf. = social influence.

*Average variance extracted.

^a Square root of average variance extracted (AVE) on the diagonal.

Table 4
PLS output on direct effects (H1–H4).

Hypotheses	Bootstrapping results (95% bias-corrected and accelerated)		
	Path coefficient	t-value	p-value
H1a: Anthropomorphism → conversational quality	0.661	17.81	0.000
H1b: Anthropomorphism → social influence	0.690	17.21	0.000
H1c: Anthropomorphism → AI-supported interaction quality	0.599	13.49	0.000
H1d: Anthropomorphism → rapport	0.223	3.88	0.000
H2a: Conversational quality → rapport	0.308	4.99	0.000
H2b: Social influence → rapport	0.250	3.91	0.000
H2c: AI-supported interaction quality → rapport	0.195	2.92	0.004
H3a: Rapport → trust	0.744	23.52	0.000
H3b: Rapport → e-WOM	0.184	2.27	0.023
H4: Trust → e-WOM	0.661	8.68	0.000

5.3. Hedonic motivation and value creation as moderators

Past studies claim that individuals perceive artificial intelligence (AI) more positively in hedonic-dominant services contexts (Liu et al., 2022) for its emotive and affective characteristics (Jiang and Wang, 2006). The perceptions of individuals are influenced by hedonic motivation due to its friendliness, and warm and caring nature (Liu et al., 2022) which may help them to perceive AI-powered chatbots in a more anthropomorphized way to build rapport. Thus, it is assumed that the relationship between anthropomorphism and rapport would be more closely aligned for participants with higher hedonic motivation. As hedonic motivation also represents fun and entertainment in service experiences (Chi et al., 2023; Gursoy et al., 2019), it is expected that the level of moderation impact of hedonic motivation may be different for data from China, India, and NZ due to their dissimilar scores in Hofstede's (Hofstede Insights, n.d.) indulgence dimension. Thus, the current study hypothesizes that:

H7. The anthropomorphism–rapport relationship is moderated by hedonic motivation among participants from: (a) China; (b) India; and (c) NZ in such a way that higher hedonic motivation makes the anthropomorphism–rapport relationship stronger.

Value comprises three dimensions, namely, experience, relationship, and personalization (Assiouras et al., 2019; Ranjan and Read, 2016), each of which may influence individuals' motivation to build rapport and spread positive e-word of mouth (e-WOM). In fact, value creation processes require the sharing of knowledge and ideas (Assiouras et al., 2019; Zhang and Chen, 2008) through interactions with others (rapport). Ultimately, effective intangible experiences through successful relationships motivate individuals to engage in the informal

spreading of communication (Taberi et al., 2021) in their communities (e-WOM). Therefore, the study hypothesizes that:

H8. The rapport–e-WOM relationship is moderated by value creation among participants from: (a) China; (b) India; and (c) NZ in such a way that higher value creation makes this relationship stronger.

5.4. Mediating impact

The mediating impact of rapport in the anthropomorphism–e-WOM relationship is examined using data sets from the three countries with the help of the bootstrapping method (Zhan et al., 2020). The mediation results (Table 5) show that rapport is a significant mediator in all three countries; thus, H6 is accepted. However, these countries experience different levels of mediation impact. For instance, the highest mediation influence of rapport is found among participants from China (86.11%), followed by participants from India (32.42%). The least impact of rapport as a mediator is found among participants from NZ (13.48%).

5.5. Moderation impacts

To examine the moderation effects, the study uses multi-group analysis (Di Mascio and Fatima, 2018; Henseler et al., 2016) with SMART PLS version 4 software. Multi-group analysis is a largely acceptable moderation analysis tool owing to its usability in finding meaningful differences of paths for different groups and its suitability for categorical and continuous variables (Cheah et al., 2023; Hair et al., 2017). As shown in Table 6, hedonic motivation significantly moderates the anthropomorphism–rapport relationship for participants from China but not for participants from the other two countries. Value creation is a significant moderator of this relationship in both China and NZ, with this finding leading to the acceptance of H6a, H7a, and H7c.

Table 5
Mediation analysis (H6).

Mediation path	Lower value, Upper value	Significant?	Percentage of mediation effect
Participants from China			
Anthropomorphism → Rapport (mediator) → e-WOM	0.5559, 0.8771	Yes	86.11%
Participants from India			
Anthropomorphism → Rapport (mediator) → e-WOM	0.0965, 0.4567	Yes	32.42%
Participants from NZ			
Anthropomorphism → Rapport (mediator) → e-WOM	0.1019, 0.3854	Yes	13.48%

Table 6
Moderation analysis.

Hedonic motivation as a moderator (H7)			
Anthropomorphism→ Rapport	Participants from China N = 87	Participants from India N = 85	Participants from NZ N = 85
t-value difference	2.93	1.57	0.05
p-value difference	0.004*	0.120	0.958
Note: Participants from China: Low hedonic motivation, t-value = 28.46; high hedonic motivation, t-value = 8.10			
Value creation as a moderator (H8)			
Rapport → e-WOM	Participants from China	Participants from India	Participants from NZ
t-value difference	1.00	0.45	2.43
p-value difference	0.001*	0.654	0.017*
Note: Participants from China: Low value creation, t-value = 37.77; high value creation, t-value = 12.61 Participants from NZ: Low value creation, t-value = 5.30; high value creation, t-value = 0.70			

Note: *One-tailed significance.

6. Discussion

This study, using two phases, examines the complex relationships between anthropomorphism, rapport, and e-WOM in the tourism services context in which travelers increasingly engage with AI-powered chatbots during their travel planning (Kim et al., 2022). Following a previous claim that anthropomorphized chatbots can facilitate effective customer interactions (Cai et al., 2022), the current study found a significant relationship between anthropomorphism and conversational quality. Consequently, the significant impact of anthropomorphism on social influence and AI-supported interaction quality re-confirms the crucial role of anthropomorphism as a design element in AI interfaces. The study findings are in line with the previous studies (Chuah and Yu, 2021; Moore et al., 2022) focusing on AI-supported digital interface and human interaction to boost positive customer experience. In this role, it enhances users' interactions and engagement in social contexts, with this supported by prior observations (Schuetzler et al., 2020). Findings of the study also support previous claim that humans requiring more human interactions are adopting higher human human-like anthropomorphized chatbots (Song et al., 2022). Considering that customers tend to favor platforms offering high-quality conversations that mirror human-like interactions (Li et al., 2021), this study also found the significant impact of conversational quality, social influence, and AI-supported interaction quality on rapport. This rapport-building effect significantly impacts travelers' likelihood of spreading positive e-word of mouth (e-WOM) (Hwang and Lee, 2019).

As the moderating effect of gender was found to be significant on rapport in the context of AI-supported interaction quality, it can be concluded that recognition of gender-related differences can facilitate personalized AI interactions, fostering a more engaging customer experience (Lim et al., 2021). This finding is consistent with previous reports of gender as a moderator (Peattie, 2010; Sreen et al., 2018), with these studies considering the unique characteristics of males and females and their different perceptions of the world. In the current study, for example, female participants demonstrated a stronger moderation impact for conversational quality and AI-supported interaction quality, whereas male participants showed a higher moderation value for social influence.

The current study's Phase 2 results support findings of previous studies on the mediation role of rapport (Delcourt et al., 2013; Kim and Ok, 2010; Macintosh, 2009), indicating the significant impact of rapport in mediating the relationship between anthropomorphism and e-WOM among participants from all three countries (China, India, and NZ). However, participants from China demonstrated the highest mediation

effect (86.11%), followed by those from India (32.42%) and those from NZ (13.48%), on the relationship between anthropomorphism and e-word of mouth (e-WOM). As the creation of an emotional connection through personalized communication can foster positive e-WOM (Konya-Baumbach et al., 2023), individuals in a highly collectivist country like China can share their memorable experiences with friends and online communities. This finding is consistent with China's high collectivism indicator (score = 80) (Hofstede Insights, n.d.).

In terms of the moderation effect of hedonic motivation with country-specific data, the current study reveals the significant role of hedonic motivation in the relationship of anthropomorphism with rapport with chatbots. Hedonic motivation represents affection and caring (Liu et al., 2022) with a focus on fun and entertainment (Chi et al., 2023; Gursoy et al., 2019): these results reveal that hedonic motivation's highest moderation impact is experienced by participants from China. However, a deeper look identified that the low hedonic motivation group experienced a higher impact (t-value = 28.46) compared to the high hedonic motivation group (t-value = 8.10). This finding highlights the low indulgence indicator for China (score = 24) in Hofstede Insights (n.d.).

Similarly, value creation is found to be a significant moderator in the relationship between rapport with chatbots and e-word of mouth (e-WOM). Supporting a previous claim that intangible experience encourages informal ways of spreading communication (Taheri et al., 2021), the current study finds a stronger moderation impact on the low value creation group of participants from both China and New Zealand (NZ). Prior findings report that value creation acts like a cultural prism through the lens of the masculinity/femininity indicator (Hofstede Insights, n.d.), with both these countries having a moderate masculinity score (meaning that the cultures of these countries are also femininity motivated).

7. Conclusion

7.1. Theoretical contributions

Following claims from previous studies (Kim et al., 2019; Tojib et al., 2023) that anthropomorphized robots have a strong impact on human perceptions of sociability, interactivity, and trustworthiness, the existing relationship literature has an evident gap on how rapport impacts chatbot-human conversation and, therefore, its impact on consumers' decisions to engage in positive e-word of mouth (e-WOM). While previous studies on rapport (Fatima et al., 2019; Macintosh, 2009) solely focus on human-human rapport, human-chatbot rapport literature, to date, is quite limited. In particular, the use of anthropomorphism as an antecedent of human-chatbot rapport is a vague area in the existing relationship literature that needs more attention. Although anthropomorphism has positive outcomes for the consumer experience, including the development of trust (Yin et al., 2023), its role in spreading e-WOM is not yet fully understood when rapport is involved. The current study used state-of-the-art findings from relevant studies (Cai et al., 2022; Chi et al., 2023) to address these gaps in the literature.

The study findings extend the boundary of social exchange theory (Homans, 1958) by incorporating the way in which the individual's cognitive mindset works in digital customer interactions with AI-based chatbots. Social exchange theory extensively used in previous research to examine social relationships in the context of human interaction (Fatima et al., 2019), social interaction (Park and Kim, 2023) or social media interaction (Gutierrez et al., 2023; Ferm and Thaichon, 2021). However, the current study advances state of the art in this field of AI research (Khatri et al., 2018) by highlighting the transition of human aspects to chatbot interactions considering chatbot has a social dimension (Pantano and Pizzi, 2020) in addition to its functional benefits. Furthermore, the study investigates this notion in relation to cultural implications using data from participants from three culturally diverse countries to ensure generalizability.

The study's hypothesis related to gender (H5) considers the distinct roles of females and males in developing their humanlike connections with service chatbots. While anthropomorphism theory emphasizes that individuals differ in their likelihood of anthropomorphizing objects (Duffy, 2003), the effects of customers' characteristics on their anthropomorphism perceptions and relational states still lack clarity. The findings on the role of gender in anthropomorphizing service robots are particularly mixed. While most research finds that females anthropomorphize robots more frequently than is the case with males, due to their desire for social interaction and connection (Blut et al., 2021), few studies show the opposite result (De Graaf and Allouch, 2013) or that no differences are found due to gender (Athanasidou et al., 2017). The current study resolves these inconsistent findings by showing that females and males are both receptive to anthropomorphism and develop some level of rapport with chatbots; however, they are influenced by different determinants of anthropomorphism. The finding thus contributes to customer gender research, providing insightful information for the automated service research which is aiming to enhance the implications of AI-based technology in service quality.

Finally, the study's Phase 2 highlights the moderating role of hedonic motivation and value creation across cultures in different countries, providing insights into the subtleties that control service experiences influenced by human-robot interactions in varied cultural environments. The early literature on rapport was mostly conducted in a single cultural context (e.g., Fatima et al., 2020; Macintosh, 2009). The current study develops an understanding of the specific cultural implications of the role of rapport in the human-robot relationship across cultures and sheds light on the role of anthropomorphism and rapport in facilitating positive e-WOM in interactions between chatbots and humans.

7.2. Implications for practitioners

While the assumption is that 95% of online consumer interactions will involve chatbots by 2025 with a potential retail sale of US\$112 billion, approximately 43% of consumers remain confused about using chatbots (Chong et al., 2021). Therefore, practitioners need to undertake proactive initiatives by taking several steps to ensure the long-term success of human-chatbot interactions. For instance, anthropomorphism may be injected into chatbot-consumer conversations with the help of human-like characteristics and behavior to achieve a higher level of social influence, acceptance among customers and to offer greater customer experience (Moore et al., 2022). Businesses can fine-tune AI interfaces to match smoothly with users' cultural dispositions by acknowledging and adjusting to cultural nuances (Schlesinger et al., 2018), increasing rapport-building efforts, and optimizing the value obtained from AI-mediated services. For instance, a specific business strategy could be to use automatic local language translation when interacting with a cohort from a specific country, such as China, or by adopting words and language expressions frequently used by members of the local community when talking with each other.

Introducing 'small talk' in chatbot-consumer conversations (as in the efforts of frontline employees when developing face-to-face rapport) would also be beneficial for building online rapport with chatbots. Building positive rapport is essential as evidence shows that it is key to instilling the trust of a user in chatbots and to the likelihood of a user spreading positive e-WOM, as evidenced by this study's findings. For example, when a traveler uses an AI-powered travel app to help create personalized itineraries; the relationship developed with the app's chatbot could boost the traveler's hedonic motivation, making the travel experience more enjoyable.

In addition, practitioners need to highlight interaction and conversation quality themes in their promotion campaigns when targeting females who tend to be more influenced by conversations with chatbots. On the other hand, organizations can run separate campaigns with male-focused themes, highlighting the social influence aspects of chatbots to

encourage males. For example, businesses could focus on a product's social prestige or role as a status symbol when using chatbots in promotions, with this focus more likely to attract potential male customers.

Practitioners should also be aware that hedonic motivation and value creation are not equally effective tools in every culture, as evidenced in Phase 2 of this study. Using utilitarian motivation can often be helpful in attracting and retaining online retail consumers for their involvement in positive e-WOM after interacting with chatbots. For instance, campaigning in China (a low-indulgence country) needs to show the functionality of using chatbots (e.g., time saving, convenience, cost saving etc.) rather than highlighting luxury. Similarly, comparatively medium-level masculine countries (e.g., China and NZ) could consider other aspects of service interactions for e-WOM than using 'value creation' on its own as a motivation to engage in positive e-word of mouth (e-WOM). A specific example of a business strategy for low to medium-level masculine countries could be to focus on family fun, children's involvement, or community spirit in promotional materials, rather than highlighting material gains, information facts, and time saving.

7.3. Limitations and recommendations for further studies

This study acknowledges its limitations. Firstly, three countries (China, India, and NZ) were chosen based on the historical data of inbound visitors to Australia and the country's cultural diversity. Considering in today's competitive market (Khan, 2008) that culture plays a key role in consumer decision making, it would be of interest to include more culturally diverse countries to get a bigger picture. Secondly, this study uses survey-based data which are often criticized for several types of bias. Although the study attempts to minimize some types of bias, such as common method bias (CMB), it would be beneficial to use multiple sources of data with a variety of analytical tools. Thirdly, anthropomorphism is used as an antecedent in both phases of the current study; however, previous studies often examine its moderation role in various relational aspects (Yin et al., 2023). Therefore, the moderating role of anthropomorphism could be investigated in future studies to receive a deeper understanding of the rapport-e-WOM relationship. Finally, a limitation regarding the participant profile is that most participants (approximately 73%) were aged 18-45 years: a better balance in the sample of participants across various age groups would provide findings with a higher level of validity.

CRedit authorship contribution statement

Johra Kayeser Fatima: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Md Irfanuzzaman Khan:** Conceptualization, Data curation, Investigation, Methodology, Resources, Validation, Visualization, Writing – original draft, Writing – review & editing. **Somayeh Bahmannia:** Conceptualization, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing. **Sarvjeet Kaur Chatrath:** Conceptualization, Investigation, Methodology, Resources, Writing – review & editing. **Naomi F. Dale:** Conceptualization, Investigation, Methodology, Writing – review & editing. **Raechel Johns:** Conceptualization, Methodology, Writing – review & editing.

Declaration of competing interest

None. There was no monetary or personal conflict of interest in this study.

Data availability

The authors are unable or have chosen not to specify which data has been used.

Appendix C. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jretconser.2023.103666>.

Appendix A

Anthropomorphism

(Gursoy et al., 2019) $\alpha = 0.838$.

1. Chatbot has a mind of their own
2. Chatbot supported devices have consciousness
3. Chatbot devices will experience emotions

Social influence

(Gursoy et al., 2019) $\alpha = 0.865$.

1. Using chatbot supported service encounter reflects status symbol in my social networks (e.g., friends, family and co-workers)
2. People who are important to me would encourage me to utilize it
3. People in my social networks who would utilize chatbot supported service encounter have more prestige than those who don't

Conversational quality

(Hsu and Lin, 2023) $\alpha = 0.927$.

1. This chatbot always understands what I mean
2. This chatbot will consider my previous series of inquiries and respond to them
3. The responses of the chatbot seem to be interconnected

AI-supported interaction quality

(Pelau et al., 2021) $\alpha = 0.905$.

1. Chatbot has a friendly interface to communicate my needs
2. Chatbot offers high level of service

Rapport

(Gremler and Gwinner, 2000) $\alpha = 0.907$.

1. I would look forward to seeing this chatbot when I will visit tourism site
2. This chatbot would take a personal interest in me
3. I would have a close relationship with this chatbot

Trust

(Agag and El-Masry, 2016; Nasrolahi Vosta and Jalilvand, 2023) $\alpha = 0.906$.

1. I find online platforms trustworthy
2. The online platforms provide accurate and reliable information
3. Tourism websites/social media platforms are reliable
4. I am confident in using online tourism platforms
5. I feel a sense of loyalty towards the online platforms I use

e-Word of mouth (e-WOM)

(Cheung et al., 2009) $\alpha = 0.871$.

1. Information from online review contributed to my knowledge of tourism destinations
2. I read online travel reviews for taking right decision
3. Online reviews and comments make me confident about the travel decision

Appendix B

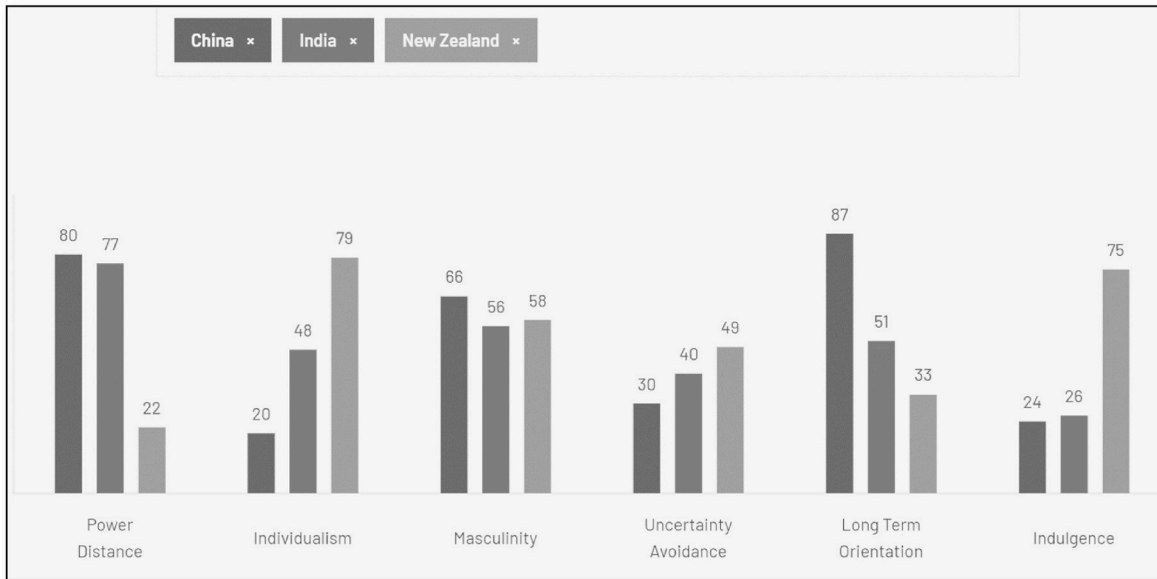


Fig. A1. Cultural data (Hofstede Insights, n.d.)

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