

# The effect of communication styles on customer attitudes: a comparison of human-chatbot versus human-human interactions

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# **The effect of communication styles on customer attitudes: a comparison of human-chatbot versus human-human interactions**

## **Abstract:**

Numerous companies are implementing chatbots in customer service, computer programs able to conduct conversations thanks to the natural language understanding and machine learning techniques. Therefore, this study aims to investigate the effect of different communication styles of service agents on customer's perceived service quality and attitudes, comparing human-chatbot interactions with human-human interactions. We employ an experimental 2x2 between subject design with two levels of agency (chatbot/human) and two levels of communication styles (social-oriented/task-oriented). If on the one hand results show that a social-oriented style is better perceived than a task-oriented style, on the other hand we haven't found any difference between attitudes towards the chatbot and the human agent. This result suggests that the theory of computer-are-social-actors may be applied also to virtual agents; therefore, as long as the service is well delivered, customers seem to perceive chatbots and human agents in identical ways.

*Keywords: customer service, chatbot, communication styles*

*Track: Digital Marketing & Social Media*

## 1. Introduction

Intelligent customer service agents such as chatbots have become one of the most promising technologies in service sectors (Köhler et al., 2011). Araujo (2018) defines chatbots as disembodied conversational agents designed to interact by mimicking human-to-human communication, which consist of dialog management modules to control the conversation process (Huang et al., 2007). Despite their increasing diffusion, there seems to be some scepticism against them (Araujo, 2018). Thus, exploring how they are perceived by customers is a high priority in order to implement a more efficient artificial intelligence (AI) customer service. In this context, we answer to the following research questions: (1) Do costumers differently perceive the interactions with a human service agent in comparison with a chatbot? 2) How different communication styles affect the Perceived Service Quality (PSQ), trust and attitudes towards the agent?

We employ an experimental 2x2 between subject design with two levels of agency (chatbot vs. human) and two levels of communication styles (social-oriented vs. task-oriented). The study does not show a significant difference between the human-human interaction and the human-chatbot interaction, thus suggesting that the theory of computer-are-social-actors (Nass & Moon, 2000) may be applied also to chatbots. Furthermore social-oriented communication styles are significantly better perceived than a task-oriented style regardless of the service agent.

## 2. Theoretical background and hypotheses development

### 2.1. Perceived service quality according to the communication style of the service agent

Shamekhi, Czerwinski, Mark, Novotny and Bennett (2016) define the conversational style as the manner in which humans perform any conversational task or interaction, from the words they use, to the tone and intonation. Comer (1991) argues that information in an exchange can be broadly characterized as either by technical elements or by social elements (Comer, 1991; Köhler et al., 2011, p.97). The first one is the *task-oriented communication* and is characterized by the functional content which is helpful to increase the performance related to service usage, being more goal orientated and purposeful (Williams & Spiro, 1985; Köhler et al., 2011). The second one, defined as *social-oriented communication*, aims to socialize and establish relationships with customers, enhancing psychological closeness (Williams & Spiro, 1985). In line with research about salesperson–customer interactions (Williams &

Spiro, 1985), the present study aims to investigate how the two different communication styles have an impact on the PSQ. Parasuraman, Zeithaml, & Berry (1985) define the PSQ as the result of the consumer comparison of expected service with the perceived service. We consider two dimensions of the PSQ, the empathy, which refers to the caring, individualized attention that the agent provides to its customers and the reliability which refers to the ability to perform the promised service dependably and accurately (Parasuraman et al., 1985).

Previous researchers have shown that a service employee's communication style affects the PSQ (Webster & Sundaram, 2009): higher levels of social content may foster a feeling of social closeness that can induce higher levels of self-disclosure, engaging more the customer, whilst higher degree of functional content should help customers to better evaluate service offerings, for instance in terms of performance and reliability (Köhler et al., 2011). Thus: H1.a The PSQ related to reliability of the human agent and the chatbot is higher when the communication style is task-oriented.

H1.b The PSQ related to empathy of the human agent and the chatbot is higher when the communication style is social-oriented.

## *2.2. Trust according to the communication style of the service agent*

Rotter (1980) defines trust as a disposition toward the world and the people, thus focusing on the concept of interpersonal trust. Researchers argue that there is a difference between interpersonal trust and trust in automation: whereas the first one is based on the ability, integrity and benevolence of a trustee (Mayer et al., 1995), the second one depends also on the performance, process or purpose of an automated system and on how well it executes a task (Hoff & Bashir, 2015). A social-oriented communication style can be fundamental to establish trust-based relationships (Bickmore & Cassell, 2001). For instance, Moon (2003) argues that a computer which uses a strategy of reciprocal and more open self-disclosure in the conversation, will make the users more incline to divulgate information or to buy (Bickmore & Cassell, 2001). Thus:

H1.c The trust towards the human agent and the chatbot is higher when the communication style is social-oriented.

## *2.3. PSQ according to the interaction with humans versus interaction with chatbot*

Customers have different expectations towards a service provided by a human or a machine (Hill et al., 2015). In this light, we investigate the way the PSQ varies according to

the fact that the service is delivered by a human agent or a chatbot. In particular, drawing from the similarity-attraction theory (Byrne, 1971), which argues that people are attracted to and prefer relationships with similar others, we assume that costumers will perceive the human agent as more similar than the chatbot. Thus, the PSQ related to the empathy should be higher when the customer interacts with another human. On the other hand, we assume that the reliability of the PSQ should be perceived as higher when the costumer interacts with the chatbot which, being programmed to do that specific task should be more reliable in its performance. Prahl and Swol (2017) argue that, if on the one hand users generally expect automated advisors to be perfect and error-free, on the other hand they expect more mistakes from humans. Thus:

H2a. The PSQ related to empathy is higher when the user interacts with a human agent than with a chatbot.

H2b. The reliability of PSQ is perceived as higher when the user interacts with a chatbot than with a human agent.

#### *2.4. The effect of PSQ on trust and attitudes towards the service agent*

Previous literature shows how service quality has a positive effect on attitudes, being fundamental in the buying decision process (Boulding et al., 1993). De Ruyter, Wetzels, & Bloemer, (1998) argue that a higher PSQ strengthens the customer-organization relationships, namely commitment, customer value and trust. Wu and Lu (2013) argue that the most salient determinants of attitudes towards technology differ from utilitarian, hedonic, or dual-purposed factors. Therefore, we investigate how the two dimensions of the PSQ (empathy and reliability) affect trust and attitudes towards the service agent. In particular, we investigate hedonic attitudes, defined as the sensations derived from the experience of using a product/service (Voss et al., 2003); utilitarian attitudes, defined as the sensation derived from functions performed by products/services (Voss et al., 2003); and attitudes related to safety, defined as the degree to which a person believes that privacy and financial transactions are adequately protected (Wolfenbarger & Gilly, 2003). Thus:

H3.a The perceived reliability of PSQ has a positive effect on the trust toward the agent.

H3.b The perceived empathy of PSQ has a positive effect on the trust toward the agent.

H4.a The perceived empathy of PSQ has a positive effect on the hedonic attitudes toward the agent.

H4.b The perceived reliability of PSQ has a positive effect on the utilitarian attitudes toward the agent.

H4.c The perceived reliability of PSQ has a positive effect on the safety of the interaction with the customer service agent.

H5: Trust has a positive effect on the safety of the interaction with the customer service agent.

### 3. Data and methodology

A 2 by 2 between-subject experiment was conducted with two level of agency (human vs. chatbot) and two level of communication styles (social-oriented vs. task-oriented). In total, 120 respondents participated to the study (53% men; average age of 27, 38 years old; SD = 7,76; 53% master degree; 78% Europeans). Respondents were randomly assigned to one of the four scenarios. The two groups exposed to the interaction with the chatbot were informed they were interacting with a chatbot and got a short article in which it was described how chatbots are used in customer service. During the text-based conversation scenario customers were asked for information to open a bank account. The conversational style was manipulated whilst all the other elements (name of the service, photo profile and task) stayed unchanged. Then, users were asked questions about the PSQ, trust and attitudes. Theoretical constructs were operationalized using validated scales from prior research, measured on a 7-point Likert scale. To measure the PSQ related to the reliability we used the scales of Harris and Goode (2004) and Parasuraman et al., (1985). For the PSQ related to the empathy we used the scale of Hausman (2004). For the construct of trust we used the scales of Bansal et al., (2004) and Verhoef et al., (2002). Hedonic and utilitarian attitudes have been measured with the scales of Voss et al., (2003). Safety has been measured with the scale adapted by Wolfinbarger & Gilly (2003). We also checked the scenarios' validity.

Variables	N of items	Mean	SD	Cronbach's alpha	Mean of loadings	KMO Test
Ecological Validity	3	5.20	1,11	.70	0.79	.611*
PSQ Empathy	6	4.93	1.23	.88	0.79	.858*
PSQ Reliability	8	5.07	1,19	.93	0.822	.916*
Trust	5	4.49	1.32	.91	0.853	.808*
Hedonic Attitudes	5	3,63	1.53	.94	0.892	.837*
Utilitarian Attitudes	5	5.20	1.6	.82	0.773	.822*
Safety	6	4.11	1.43	.90	0.822	.833*

\*p<0.001

Table 1. Descriptive statistics and reliability of scales

## 4. Results

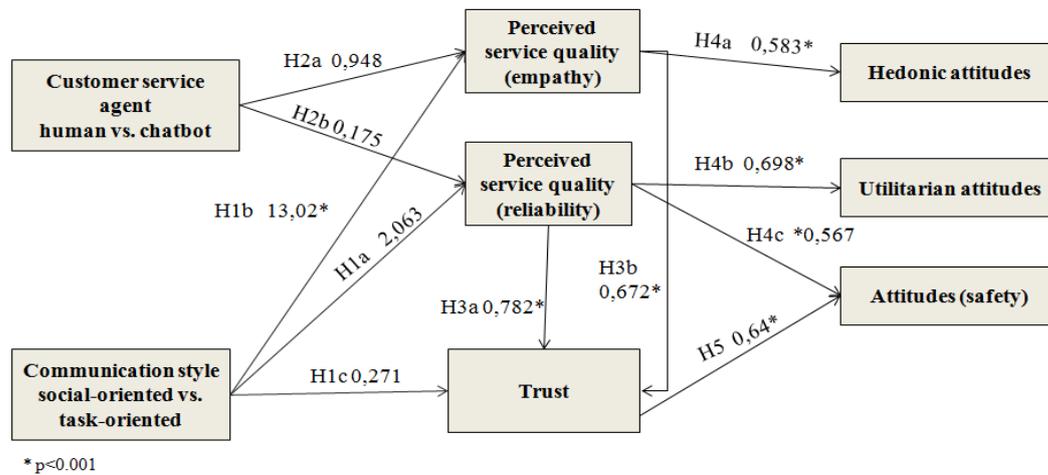


Figure 1. Conceptual model and results

A one-way between subjects ANOVA is conducted to test H1a, H1b, H1c, H2a, H2b. PSQ related to reliability is not significantly higher when the communication style is task-oriented ( $F(1,118) = 2,63$ ;  $M = 4,92; 5,23$ ;  $p = 0,154$ ). Thus, we reject H1a. Instead, H1b is supported, showing that the PSQ related to empathy is significantly higher when the agent is socially-oriented ( $F(1,118) = 13,01$ ;  $M = 5,31; 4,54$ ;  $p < 0,001$ ). The trust towards the agent is not higher when the communication style is social-oriented, thus rejecting H1.c ( $F(1,118) = 0,271$ ;  $M = 4,43; 4,55$ ;  $p = 0,604$ ). Moreover, there is no significant difference between the human agent and the chatbot. In fact, the PSQ related to empathy is not higher when the user interacts with a human agent ( $F(1,118) = 0,948$ ;  $M = 5,04; 4,82$ ;  $p = 0,332$ ), thus rejecting H2a. PSQ related to reliability is not higher when the user interacts with a chatbot ( $F(1,118) = 0,175$ ;  $M = 5,12; 5,03$ ;  $p = 0,677$ ) thus rejecting H2.b. A linear regression analysis is used to test H3a, H3b, H4a, H4b, H4c and H5. All the hypotheses have been supported. In particular, the PSQ related to the reliability significantly increases the trust toward the agent ( $\beta = .782$ ,  $p < .001$ ), thus supporting H3a, explaining the 61.1% of the variance ( $R^2 = .611$ ,  $F(1,118) = 185.38$ ;  $p < .001$ ). Also the perceived empathy of the agent has a positive effect on trust ( $\beta = .672$ ,  $p < .001$ ) explaining the 45, 2% of the variance ( $R^2 = .452$ ,  $F(1,118) = 97.285$ ;  $p < .001$ ). Thus, H3b is supported. The empathy has a significant positive effect also on the hedonic attitudes ( $\beta = .583$ ,  $p < .001$ ), explaining the 34% of the variance ( $R^2 = .334$ ,  $F(1,118) = 60.731$ ;  $p < .001$ ); thus H4a is supported. Also H4b is supported. In fact, the PSQ related to the reliability has a significant positive effect on the utilitarian attitudes towards the agent ( $\beta = .698$ ,  $p < .001$ ) explaining 48,7% of the variance ( $R^2 = .487$ ,  $F(1,118) = 111,942$ ;

$p < .001$ ) and on the attitudes related to safety ( $\beta = .567$ ,  $p < .001$ ), thus supporting H4c. Trust has also a significant effect on safety ( $\beta = 0,64$ ,  $p < .001$ ), explaining the 41% of the variance ( $R^2 = .410$ ,  $F(1,118) = 82,006$ ;  $p < .001$ ).

## **5. Discussion of the results**

The main goal of the study was to investigate if and how attitudes towards a customer service agent differ when the user interacts with a chatbot as opposed to a human agent and the role of the communication style in the interaction. The results show that a social-oriented communication style is better perceived than a task-oriented style, even in a context characterized by financial risk such as in the banking services. The study confirms some results already found in the literature: higher levels of social content lead the customer to engage more in the interaction, increasing the PSQ (Holzwarth et al., 2006; Köhler et al., 2011). This could also explain why the task-oriented style didn't have a significant effect. As supported by the literature (Eisingerich & Bell, 2008), we found that a better perception of the PSQ significantly increases trust towards the agent. In particular, the present study shows that the PSQ related to the reliability has a higher effect on trust than the PSQ related to the empathy, being significantly important in order to make the consumer feel safer during the interaction. The study doesn't show a significant difference between the human-human and the human-chatbot interactions. This result suggests that the theory of computer-are-social-actors (CASA; Nass & Moon, 2000) may be applicable also to chatbots and intelligent agents. According to this theory, people automatically and unconsciously react towards computers in the same way as they do towards humans. They apply the same social rules to human-computer interactions due to the perceived functional similarity between humans and computers, which include the use of the natural language, the interactivity and the accomplishment of social roles traditionally realised by humans (Nass & Moon, 2000). This could have led the participants to not differently perceive the interactions with the chatbot from the ones with the human agent. It suggests that, as long as the service is well delivered, customers may not wonder whom they interact with, and thus not have any "prejudices" about the nature of the agent.

## **6. Managerial implications**

The research aims to offer interesting insights to managers who want to implement a chatbot in order to provide a better AI-empowered customer service experience. We show that

consumers prefer to interact with an agent whose communication style is more social-oriented. Managers should try to define the conversation style in a more friendly, warm and dynamic way, in order to reduce the psychological distance with clients. The study doesn't show differences between consumers' attitudes toward the chatbot and the human agent, suggesting that as long as the service is well delivered without problems, chatbots can be implemented without being differently perceived from the human agent. Nevertheless, it is very important that the agent shows its ability to perform the promised service dependably and accurately, giving specific and reliable information to consumers.

## 7. Limitations and future research directions

The main limit is the scenario based methodology which didn't allow a real-time conversation with the customer. Further research should therefore test the perceived differences between chatbots and human agents in a real context with an existing chatbot. The results of the study open new research questions, for instance regarding customer attitudes towards chatbots versus human agents in service failure contexts and in service recovery. Moreover, the different attributions of blame and credit towards the agents (chatbot vs. human) should be investigated and the effect on PSQ, trust and satisfaction.

## References

- Araujo, T. (2018). Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions. *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2018.03.051>
- Bansal, H. S., Irving, P. G., & Taylor, S. F. (2004). A three-component model of customer commitment to service providers. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1177/0092070304263332>
- Bickmore, T., & Cassell, J. (2001). Relational Agents : A Model and Implementation of Building User Trust. *CHI*. <https://doi.org/10.1145/365024.365304>
- Boulding, W., Kalra, A., Staelin, R., & Zeithaml, V. A. (1993). A Dynamic Process Model of Service Quality: From Expectations to Behavioral Intentions. *Journal of Marketing Research*. <https://doi.org/10.2307/3172510>
- Byrne, D. (1971). The attraction paradigm. *Personality and Social Psychology Bulletin*. <https://doi.org/10.1177/0146167209334782>

- Comer, D. R. (1991). Organizational Newcomers' Acquisition of Information from Peers. *Management Communication Quarterly*, 5(1), 64–89.  
<https://doi.org/10.1177/0893318991005001004>
- de Ruyter, K., Wetzels, M., & Bloemer, J. (1998). On the relationship between perceived service quality, service loyalty and switching costs. *International Journal of Service Industry Management*. <https://doi.org/10.1108/09564239810238848>
- Eisingerich, A. B., & Bell, S. J. (2008). Perceived service quality and customer trust: Does enhancing customers' service knowledge matter? *Journal of Service Research*, 10(3), 256–268. <https://doi.org/10.1177/1094670507310769>
- Harris, L. C., & Goode, M. M. H. (2004). The four levels of loyalty and the pivotal role of trust: A study of online service dynamics. *Journal of Retailing*.  
<https://doi.org/10.1016/j.jretai.2004.04.002>
- Hausman, A. (2004). Modeling the patient-physician service encounter: Improving patient outcomes. *Journal of the Academy of Marketing Science*.  
<https://doi.org/10.1177/0092070304265627>
- Hill, J., Randolph Ford, W., & Farreras, I. G. (2015). Real conversations with artificial intelligence: A comparison between human-human online conversations and human-chatbot conversations. *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2015.02.026>
- Hoff, K. A., & Bashir, M. (2015). Trust in Automation: Integrating Empirical Evidence on Factors That Influence Trust. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 57(3), 407–434. <https://doi.org/10.1177/0018720814547570>
- Holzwarth, M., Janiszewski, C., & Neumann, M. M. (2006). The Influence of Avatars on Online Consumer Shopping Behavior. *Journal of Marketing*.  
<https://doi.org/10.1509/jmkg.70.4.19>
- Huang, J., Zhou, M., & Yang, D. (2007). Extracting chatbot knowledge from online discussion forums. *IJCAI International Joint Conference on Artificial Intelligence*, 423–428.  
<https://doi.org/10.1016/j.tins.2003.11.005>
- Köhler, C. F., Rohm, A. J., de Ruyter, K., & Wetzels, M. (2011). Return on Interactivity: The Impact of Online Agents on Newcomer Adjustment. *Journal of Marketing*, 75(2), 93–108.  
<https://doi.org/10.1509/jmkg.75.2.93>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, 20(3), 709–734.  
<https://doi.org/10.2307/258792>
- Moon, Y. (2003). Don ' t Blame the Computer : When Self-Disclosure Moderates the Self-

Serving Bias, 13.

Nass, C., Moon, Y. (2000). Machines and Mindlessness : Social Responses to Computers, 56(1), 81–103.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing*, 49(4), 41. <https://doi.org/10.2307/1251430>

Prahl, A., & Swol, L. Van. (2017). Understanding algorithm aversion : When is advice from automation discounted ?, (May 2016), 691–703. <https://doi.org/10.1002/for.2464>

Rotter, J. B. (1980). Interpersonal trust, trustworthiness, and gullibility. *American Psychologist*. <https://doi.org/10.1037/0003-066X.35.1.1>

Shamekhi, A., Czerwinski, M., Mark, G., Novotny, M., & Bennett, G. A. (2016). An Exploratory Study Toward the Preferred Conversational Style for Compatible Virtual Agents. In D. Traum, W. Swartout, P. Khooshabeh, S. Kopp, S. Scherer, & A. Leuski (Eds.), *Intelligent Virtual Agents* (Vol. 10011, pp. 40–50). Cham: Springer International Publishing.

Verhoef, P. C., Hans Franses, P., & Hoekstra, J. C. (2002). The effect of relational constructs on customer referrals and number of services purchased from a multiservice provider: Does age of relationship matter? *Journal of the Academy of Marketing Science*. <https://doi.org/10.1177/00970302030003002>

Voss, K., Spangenberg, E., & Grohmann, B. (2003). Measuring the Hedonic and Utilitarian Dimensions of Consumer Attitude. *Journal of Marketing Research*. <https://doi.org/10.1509/jmkr.40.3.310.19238>

Webster, C., & Sundaram, D. S. (2009). Effect of service provider's communication style on customer satisfaction in professional services setting: The moderating role of criticality and service nature. *Journal of Services Marketing*. <https://doi.org/10.1108/08876040910946369>

Williams, K. C., & Spiro, R. L. (1985). Communication Style in the Salesperson-Customer Dyad. *Journal of Marketing Research*, 22(4), 434–442. <https://doi.org/10.2307/3151588>

Wolfenbarger, M., & Gilly, M. C. (2003). eTailQ: Dimensionalizing, measuring and predicting etail quality. *Journal of Retailing*. [https://doi.org/10.1016/S0022-4359\(03\)00034-4](https://doi.org/10.1016/S0022-4359(03)00034-4)

Wu, J., & Lu, X. (2013). Effects of Extrinsic and Intrinsic Motivators on Using Utilitarian, Hedonic, and Dual-Purposed Information Systems: A Meta-Analysis. *Journal of the Association for Information Systems*, 14(3), 153–191.