

What kind of Chatbot do Millennials prefer to interact with? The role of Communication Style and Avatar in predicting Millennials' Intention to use Chatbots.

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ABSTRACT

Being a relatively new digital platform, perfectly meshing with the way in which young consumers socially interact with the world, chatbots' perceptions knowledge turns out to be a key factor to address business efforts in enhancing young customers experience with companies' technologies. This study applies a between-participants factorial design to explore the extent to which the conversational style (social-oriented vs task-oriented) and the visual cue (avatar presence vs avatar absence), influence perceived social presence of the interaction with the chatbot and how this perception, in turn, influences the Millennials' intention to adopt them. To conduct the study, a survey method was employed, and data were collected from a snowball sample of 193 Millennials. Findings from the study reveal that a social-oriented communication style increases users' perception of social presence, which in turn predicts the intention to use it via perceived enjoyment and attitude toward the chatbot.

Keywords: Chatbot, Communication style, Avatar, Digital marketing, Social Presence, Consumers' Attitude, Intention to use.

INTRODUCTION

With the aim of enhancing the customer service with actual or potential customers, over the last years, many companies have started to enrich their marketing strategy by adding an additional and innovative conversational touchpoint, that is chatbots (Gentsch 2019). Both recent technological advancements and the shift towards messaging as a primary channel for personal and professional communication, have contributed to the increase in popularity of chatbots (Gnewuch et al. 2018). Over hundred thousand chatbots were created in less than one year on Facebook Messenger alone with the aim of facilitating users in their transactions, from finding information about products and services, to carrying out basic tasks to facilitate transactions (Johnson, 2017). The recent worldwide spread of chatbots originates in the important role chat services in general are playing for younger consumers. Thanks to the real-time nature which allow consumers to get instant informal responses to their queries (Mero 2018), chats have become youngsters' preferred choice to obtain customer support.

Besides companies' excitement and optimism toward this new channel, practitioners need to keep in mind the mediator role users' evaluations play for the technology adoption and use. It is important to underline that such evaluations do not only affect online channel adoption but also overall retailer or alternative channels adoption decisions (Herhausen et al. 2015).

Chatbots, being software applications that interact with users using natural language, represent a perfect example of the implementation of state-of-the-art consumer-oriented artificial intelligence that simulates human behaviour (Ciechanowski et al. 2019). In recent years, the interest towards this technology has been witnessed by an increasing number of studies addressing their attention on chatbots and potential role in enhancing customer experience (Araujo 2018; Chung, Joung and Kim 2018; Gnewuch et al. 2018; Hill, Ford, and Farreras 2015).

The present research is the first one to provide results from an experimental study in which both conversational style and avatar presence were manipulated through a full functional chatbot designed to offer virtual food purchases on Facebook Messenger.

1. HYPOTHESES

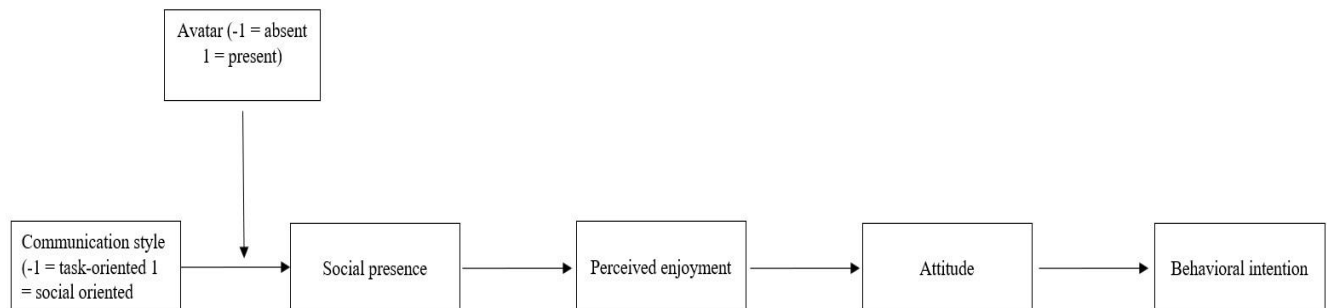
The present study focuses on the information richness capability of chatbots' interaction through a comparison between two distinct communication styles: task-oriented versus social-oriented. According to the empirical research, suggesting that a social-oriented communication style facilitates a feeling of physical and emotional presence (i.e. social presence) for the user, we hypothesise that the chatbot set up using a social-oriented communication style will increase the level of social presence compared to the chatbot set up with a task-oriented communication style.

Another variable which the present study hypothesises to convey social cues and enhance social presence, according to past literature, is the presence of an avatar (Blascovich et al. 2002; Slater and Steed, 2002). A fundamental characteristic of avatars in fact, is their potential to situate or embed communication and generate an experience of co-presence in shared virtual environments (Nowak and Biocca 2003; Prasolova-Forland 2002). Researchers investigating physical presence have long found that technologies that afford a strong sense of social presence can provide higher enjoyment and delight to their users (Lombard and Ditton 1997, Qiu and Benbasat 2009). On this premise, we hypothesized that a higher level of social presence will have a positive effect on perceived enjoyment. Moreover, as consumers' perceived enjoyment was found to be a predictor

of attitude toward a technology (Yu et al. 2005; Van der Heijden 2003), we posit that the higher is the level of perceived enjoyment the higher will be the positive impact on the attitude toward the interaction with the chatbot. Attitude theory assumption is grounded on Fishbein and Ajzens' (1975) "Theory of Reasoned Action", which states that a behavioural intent is determined by a person's attitude towards that specific behaviour. According to this theory we hypothesise that a positive attitude toward the interaction with the chatbot will increase the intention to adopt it. The overall research model is displayed in Figure 1.

The higher implementation of chatbots by online businesses raises important research questions about what features could enhance a daily use by consumers. For this reason, in this research, we attempt to address these gaps by proposing and testing a serial mediation model. Our model explicitly disentangles direct versus indirect effects of social-oriented communication style vs the task-oriented communication style on consumer's intention to use the chatbot, via social presence, perceived enjoyment and attitude toward the chatbot. In doing so, this research provides a more comprehensive understanding of the mechanisms that lead from communication style to positive outcomes.

Figure 1. Research model



2. MATERIAL AND METHOD

A between-participants factorial design 2 (communication style: social-oriented or task-oriented) × 2 (avatar: present or absent) was adopted. To implement the treatments, four different chatbots were designed to accomplish the task. A total of 193 Millennials recruited through snowball sampling took part in this study, which corresponds to about 48 participants per group (32 men and 161 women) aged 18–34 years ($M = 21.3$, $SD = 2.4$).

After interacting with the chatbot and having accomplished the task, they answered questions regarding their perceptions about their experience with the chatbot.

The oriented communication style vs the task-oriented communication style conditions were manipulated via two different level of information richness. In the social-oriented communication style condition, the chatbot was set up to interact with the participants using informal language, emoticons and animated images, while for the task-oriented communication style condition the chatbot was set up using formal language, no emoticons and no animated images. Before carrying

out the main experiment, we performed a separate pre-test to confirm the effectiveness of this manipulation.

To ensure that a comprehensive list of measures was included, an extensive body of research was reviewed. Accordingly, the present study adopted validated scales for all dependent variables, with few minor changes on wording. All the measures were recorded on a seven-point Likert scale (1 = “*strongly disagree*”; 7 = “*strongly agree*”).

3. RESULTS

To test the effects of communication style and avatar on social presence, we performed between-participants ANOVAs. The ANOVA revealed a significant main effect of communication style ($F(1, 193) = 29.63, p < .01, \text{partial } \eta^2 = .14$) on social presence, indicating that participants reported higher level of social presence in the social-oriented communication style ($M = 4.29; SD = 1.42$) than in the task-oriented communication style condition ($M = 3.19; SD = 1.39$). Neither the main effect of avatar ($F(1, 193) = .01, p = .91$) nor the two-way interaction were significant ($F(1, 193) = 1.02, p = .31$).

We then ran the series of simple linear regression analyses. The first regression model showed that the higher level of social presence leads to higher perceived enjoyment of the interaction with the chatbot ($R^2 = 0.53, F(1, 191) = 215.86, \beta = 0.73, 95\% \text{ CI } [0.621, -0.813], p < 0.001$). The second regression showed that perceived enjoyment significantly positively predicted the attitude toward the chatbot, $R^2 = 0.39, F(1, 191) = 121.52, \beta = 0.62, 95\% \text{ CI } [0.433, 0.622], p < 0.001$. Finally, the last regression confirmed that attitude toward the chatbot predicted the intention to use the chatbot ($R^2 = 0.25, F(1, 191) = 63.84, \beta = 0.50, 95\% \text{ CI } [0.510, 0.845], p < 0.001$).

In the mediation model analysis indirect effect of communication style across combined avatar conditions were examined. All the direct and indirect effects of communication style on dependent measures are displayed in Figure 2.

Figure 2. Direct and indirect effects of communication style on dependent measures

Communication style (CS): social-oriented vs. task-oriented

(Combined avatar conditions) N = 193

	<i>b</i> (<i>SE</i>)	Lower 95% BCBCI	Upper 95% BCBCI
<i>Direct effects</i>			
CS → Social presence	.36*** (.10)	.348	.747
CS → Perceived enjoyment	.54*** (.09)	.616	.972
CS → Attitude	.20** (.09)	.071	.421
CS → Intention to use	.01 (.12)	-.219	.264
Social presence → Perceived enjoyment	.73*** (.05)	.621	.813
Social presence → Attitude	.55*** (.05)	.359	.558
Social presence → Intention to use	.32*** (.08)	.208	.513
Perceived enjoyment → Attitude	.62*** (.05)	.433	.622
Perceived enjoyment → Intention to use	.30*** (.08)	.189	.501
<i>Indirect effects</i>			
CS → Social presence → Perceived Enjoyment	.33* (.07)	.2072	.4706
CS → Social presence → Attitude	.25* (.06)	.1506	.3716
CS → Social presence → Intention to use	.22* (.07)	.1116	.3627
CS → Social presence → Perceived Enjoyment → Attitude	.13* (.03)	.0763	.1939
CS → Perceived Enjoyment → Attitude	.49* (.07)	.3555	.6340
CS → Perceived Enjoyment → Intention to use	.38* (.09)	.2165	.5683
CS → Perceived Enjoyment → Attitude → Intention to use	.19* (.05)	.1056	.2867
CS → Attitude → Intention to use	.17* (.07)	.0509	.1819

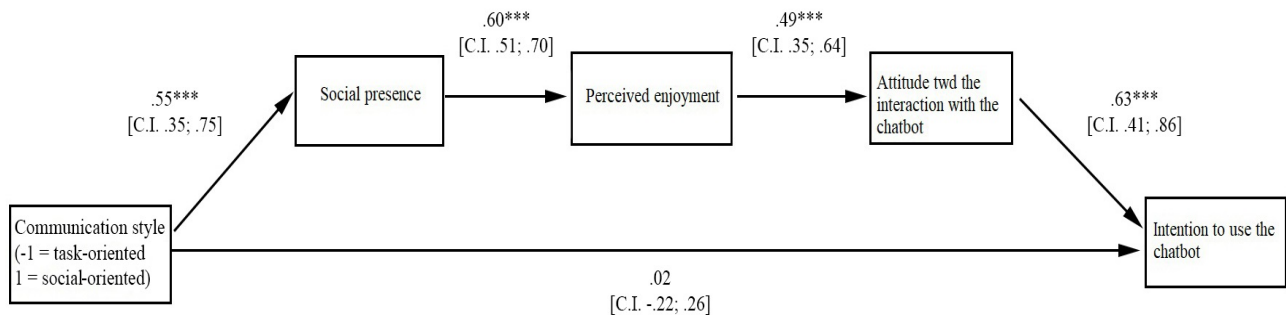
Note. Unstandardized *b* coefficients (with *boot SE* between parentheses). BCBCI = bias corrected 5,000 bootstrap confidence interval.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Social presence, perceived enjoyment and attitude toward the chatbot were modelled as sequential mediators thanks to Hayes' model number 6 (Hayes 2013), reflecting the order in which the constructs were assessed in the questionnaire. We relied on PROCESS, the SPSS macro developed by Hayes and Preacher in 2014, a method that employs observed variable OLS regression path analysis and allows for the estimation of direct and indirect effects of multiple mediators. We used bootstrapping with 5,000 resamples to estimate 95% confidence intervals. The mediation model is depicted in Figure 3.

The overall equation was significant, $R^2 = 0.26$, $F(4, 188) = 16.96$, $p < .001$. As shown in the figure, a social-oriented communication style elicited a higher social presence, which in turn, induced a more positive attitude toward the chatbot; this latter, finally increased the intention to use the chatbot. The hypothesised causal chain was significant ($b = .10$, confidence interval [CI] = [0.0487, .1809]), thus supporting the serial mediation process.

Figure 3. Mediation model in which the effects of Communication style on Intention to use the chatbot are mediated by Social presence, Perceived enjoyment and Attitude toward the interaction with the chatbot.



Note: Model with multiple sequential mediators. PROCESS Model number 6; unstandardized regression coefficients are presented in the figure; $***p < 0.001$.

4. DISCUSSION

The present research offers interesting insights for practitioners and marketers, by investigating what variables play a central role in predicting Millennials' intention to use chatbots.

The study indicates that the combination of structural features like emerging technologies (i.e. chatbots) and social cues, make it possible for online retailers to foster a more satisfying experience for young customers. Specifically, our results indicate that the communication style of the chatbot can be considered a central trigger to strengthen the degree of salience of the other person in the interaction, specifically suggesting that a more social-oriented communication style works to compensate for the impersonal nature often associated with artificial intelligence. Considering the complexity of individuals' psychological and attitudinal responses to this kind of technology, our results suggest that designers should strategically implement conversational cues of chatbots to help mitigate users' prejudgements or negative evaluations due to high expectations.

The present study has also important theoretical implications. From this perspective, it extends social presence research in the online domain, a feature that has currently become an important factor influencing the consumer satisfaction about the service (Verhagen et al. 2014). In so doing, the study detected that a chatbot conveying feelings of sociable and sensitive human contact through a social-oriented communication style elicits higher level of social presence compared to a task-oriented communication style.

The role of Social presence, Perceived enjoyment and Attitude as antecedents of Behavioral Intention was also confirmed (sequentially in line with Lombard and Ditton 1997 and Qiu and Benbasat 2009; Yu et al. 2005 and Van der Heijden 2003; Fishbein and Ajzen 1975) and, in the final step, the results of the mediation analysis identified the conditions under which the conversational style adopted by the chatbot would predict the intention to use it. Social presence, perceived enjoyment and attitude toward the chatbot were found to be crucial mediators of the positive relation between the social-oriented communication style and the intention to use the chatbot.

An important contribution of the study consists in being one of the earliest to examine how communication with chatbots is perceived by specific cohort, that is Millennials customers.

Despite the prior research on chatbots in general, our work is relatively seminal and establishes a basis for further development as empirical studies have rarely examined whether the communication style of agents affected the overall evaluation of the interaction and the intention to interact again. Although companies are seeking out new opportunities by providing chatbot interaction, empirical research has hardly examined if this technology effectively provide positive outcomes.

Chatbots could and should work in synergy with other digital touchpoints to smooth young customer communications with companies. This prospect, though, still reveals a need to develop richer theoretical and practical insights related to the ways in which an appropriate combination of AI technology and human cues in touchpoints affect users' evaluations.

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