What kind of Chatbot do Millennials prefer to interact with?

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ABSTRACT

Meshing with the way in which young consumers socially interact, chatbots represent a key factor to address business efforts in enhancing the effectiveness of digital strategies. The conversational aspect of the human-chatbot interaction increases the necessity for this technology to present social behaviours typical of human-human conversations. This calls for a better knowledge of the social factors that enhance young consumers' use of chatbots. From this perspective, the present study aims at understanding the impact of chatbots' social characteristics. Through a between-participants factorial design we explore the extent to which the communication style and the visual cue influence perceived social presence and how this in turn, influences Millennials' intention to adopt chatbots. Findings from 193 Millennials show that a social-oriented communication style increases social presence, which in turn enhances the intention to use the chatbot via perceived enjoyment and attitude.

Keywords: Chatbot, Communication style, Avatar

Track: Digital Marketing & Social Media

1. 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 (Chung, Joung and Kim 2018). 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 (Araujo, 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 (Araujo, 2018). 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, chats have become young consumers' preferred choice to interact with companies and obtain customer support. According to a report of the U.S. Census Bureau (2018), among these young consumers, Millennials (people born between 1981 and 1996) represent the largest living generation that is set to take over 75 percent of the workforce and thus become the main businesses' customers. This highlights the importance for companies to know how this specific cohort perceive chatbots and what are the characteristics they value more when interacting with such technologies. So, besides the overall excitement and optimism toward this new channel, companies need to carefully consider the central role played by young users' perceptions and evaluations of chatbots. Indeed, such evaluations do not only affect this online channel but also the 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 satisfaction (Chung, Joung and Kim, 2018) and company perceptions (Araujo, 2018). The present research aims at extending previous research on social features applied to chatbots (Chattaraman, 2019) by providing results from an experimental study in which both communication style (social-oriented vs. task-oriented

and visual cue (avatar presence vs. avatar absence) were manipulated through a fully functional chatbot in order to investigate how such features affect Millennials' intention to use this technology for online purchases.

2. Theoretical framework and hypotheses

The present study focuses on the information richness of chatbots through a comparison between two distinct communication styles: task-oriented versus social-oriented. Much of information richness theory (Daft et al., 1987) is built on the presumption that increased richness, in terms of increased ability of the communication to convey personal feelings and emotions, is linked to higher perception of social presence, generally defined as the extent to which a medium allows a user to experience others as being psychologically present (Short, Williams and Christie 1976). Previous research has been drawn on the concept of social presence to explore the lack of human warmth in the online environment (Shen, 2012). Hassanein and Head (2005) proved how an increased sense of social presence can be achieved by stimulating the imagination of interaction with other humans (e.g. through socially rich text and picture content) or by providing means for actual interaction with the other (e.g. personalized greetings). Thus, according to the empirical research suggesting that systems that convey feelings of sociable and sensitive human contact elicit higher level of social presence (Verhagen et al. 2014), 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. Overall scholars agree that another feature that helps generating an experience of co-presence in shared virtual environments is the presence of an avatar, that is a visual cue representing a real or synthetic person (Blascovich et al. 2002). Avatars are growing in popularity in many interfaces used for computer-mediated communication (CMC) including e-commerce (Nowak and Fox, 2018). So, in order to see if the presence of a visual cue (i.e. avatar) may compensate for the lack of social conversational cues in human-chatbot interaction, we hypothesize the effect of the avatar to be different depending on the level of the communication style. Specifically, we expect the level of perceived social present to be significantly higher for the chatbot displaying the avatar in the task-oriented communications style.

As the higher implementation of chatbots raises important research questions about what features could enhance a daily use by consumers, according to the abovementioned literature we attempt to address these issues by proposing and testing a mediation model where the effect of the communication style on intention to sue the chatbot is serially mediated by social presence, perceived enjoyment and attitude. In doing so, this research provides a more comprehensive understanding of the mechanisms that lead from communication style to positive outcomes. As a matter of fact, although, the idea of the customer as a solely rational and cognitive being can be viewed as incomplete (Zarouali et al., 2018), research about the ability chatbots have in making people perceive emotions, and how such emotions enhance affective perceptions is still limited. Lombard and Ditton (1997) were among the first to suggest that a prominent psychological consequence of social presence is enjoyment or fun. Researchers investigating physical presence have long found that technologies that afford a strong sense of social presence can provide higher enjoyment that is a significant experiential aspect in offline and online shopping (Hassanein and Head 2005) to their users (Qiu and Benbasat 2009). The role of social presence in enhancing perceived enjoyment was also confirmed in the online shopping context where Shen (2012) provided support for the role social presence plays in predicting enjoyment of using social shopping websites. Perceived enjoyment is defined as "the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis, et al., 1992, p. 1113.). Many studies found perceived enjoyment to be positively related to attitude toward a technology, especially in the context of the world wide web (Van der Heijden 2003). Moreover, in line with the attitude theory assumption grounded on Fishbein and Ajzens' (1975) "Theory of Reasoned Action", we expect intention to use to be strongly determined by the person's attitude towards that specific behaviour. Indeed, if people evaluate the suggested behavior (use) as positive (attitude), this results in a higher intention to adopt or reuse a technology. This relation was confirmed in studies that have long found that attitudes toward a technology is an antecedent to intention (Lee and Chang 2011). Moreover, Zarouali and colleagus (2018) in a study applying Consumer Acceptance of Technology (CAT) model already established this relation to be true for chatbots.

3. 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 with the Chatfuel online platform to accomplish the task. A total of 193 Millennials 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). Participants gave their explicit consent to GDPR and to voluntary take part in the study. They were instructed to interact with the chatbot with the aim of purchasing any food it presented. After interacting with the chatbot and having accomplished the task, they firstly answered demographic questions and then questions regarding their perceptions about their experience with the chatbot. The communication style was manipulated via two different levels of information richness. In the social-oriented communication style condition, the chatbot was set up to interact 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 and all the measures were recorded on a seven-point Likert scale.

4. Results

Firstly, we run correlational analyses to examine the relationship among the key variables (see Table 1).

	M	SD	α	1	2	3	4
1. Social presence Gefen and Straub, 2003 (4)	3.73	1.50	.92	–			
2. Perceived enjoyment Van der Heijden, 2004 (4)	3.75	1.48	.88	.728	–		
3. Attitude Caprara and Barbaranelli, 2000 (5)	4.73	1.25	.87	.550	624	–	
4. Intention to use Caprara and Barbaranelli, 2000 (1)	5.11	1.70	–	.320	.301	.501	–

All the correlations are significant at level *** p < .001

Table 1. Authors, Mean, Standard Deviation, Cronbach's Alpha and correlations among the key variables (number of items in parentheses).

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 $(F(1, 193) = 29.63, p < .01, \text{partial } \eta2 = .14)$ 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 $(M = 3.19; SD = 1.39)$. The avatar did not have the hypothesized interaction effect $(F(1, 193) = 1.02, p = .31)$ or neither a direct effect $(F(1, 193) = .01, p = .91)$ on social presence. Thus, the effect of the avatar is not statistically different depending on the level of the communication style.

The further mediation analysis confirmed our hypothesis. As avatar failed to significantly predict any effect on social presence it was not consider in mediating analysis for the sake of parsimony. Social presence, perceived enjoyment and attitude toward the chatbot were modelled as sequential mediators through Hayes' Process model, 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 1.
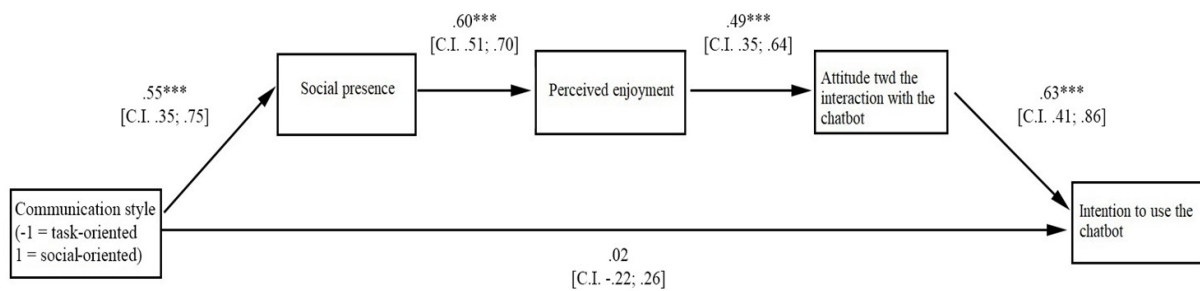
Note: Model with multiple sequential mediators. PROCESS Model number 6; unstandardized regression coefficients are presented in the figure: ***p < 0.001.

The overall equation was significant, $R^2 = 0.26$, $F (4, 188) = 16.96$, $p < .001$. The higher social presence elicited by the social-oriented communication style induced higher perceived enjoyment, which, in turn increased the positive attitude toward the chatbot; this latter, finally enhanced 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.

5. Discussion

Nowadays chatbots easily find their way in the communication strategies of many companies and brands, as marketers have recognized the far-reaching potential of chatbots for their commercial agendas (Zarouali et al., 2018). Although past research shows important insights on users' behavior and experiences with chatbots, little is known about the variables that determine chatbots' effectiveness from a marketing perspective. Hence, a thorough understanding on the psychological determinants of chatbots applied for business purposes is needed. From this perspective, the present research offers interesting insights on a specific cohort, that is Millennials. In, fact if their predominant use of instant text messaging suggests that they are more likely to give chatbot a chance, little is still known however, about the factors influencing Millennials' disposition toward this technology. From this perspective, an important contribution of this work consists in being one of the earliest experimental study to examine how communication with chatbots is perceived Millennials' consumers.

The study indicates that the combination of 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 trigger to strengthen the degree of salience of the other person in the interaction. Thus, 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 highlight that designers should strategically implement conversational cues of chatbots to help mitigate users' prejudgements or negative evaluations due, for example, to high expectations that at the time are not widely fulfilled.

The present study has also important theoretical implications. By showing 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, this study extends social presence research in the online domain, a feature that has currently become an important factor influencing the consumer satisfaction of online services (Verhagen et al. 2014).

Another interesting result comes from the role of the avatar, as, in contrast with past studies

it was not found to enhance the user's perception of social presence (Blascovich et al., 2002). This result, however, could reasonably be ascribed to the role of the hosting platform (Facebook Messenger chat), where the visual aspect of the profile image plays a very marginal role with respect to the conversation flow itself, both in desktop and mobile context. The section for avatars is very small and located in a rather marginal position with respect to the text. Further research will tell us whether these findings are restricted to chat messaging apps or wider contexts (e.g. websites).

The second part of the study confirmed the role of social presence, perceived enjoyment and attitude as antecedents of behavioural intention (in line with Qiu and Benbasat 2009; Van der Heijden 2003; Fishbein and Ajzen 1975). The results of the mediation analysis identified the conditions under which the communication style adopted by the chatbot would predict the intention to use it. In line with such results, social presence, perceived enjoyment and attitude toward the chatbot were found to be crucial mediators between the social-oriented communication style and the intention to use the chatbot. The results of the analysis are consistent with a full mediation, as the communication style turned out not to have a direct impact on the behavioural intention, thus highlighting the importance for marketers to apply chatbots that are able to create enjoyable conversations and that convey delight and positive mental positions toward chatbots.

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