Does a chatbot's location influence consumer attitude and intentions?

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Abstract: Chatbots engage in real-time conversations with customers. Moreover, they can collect data in a digital landscape that is increasingly sensitive to privacy. The objective of this study was to help strategic marketing decision-makers better understand how and where chatbots can be used effectively to gather consumer data. We analyse whether consumers' privacy concerns influence their adoption. Furthermore, we invest if privacy concerns, and subsequently information disclosure, are significantly influenced by the chatbot's location. In an experimental study (N = 398) we compared the (in)direct effects of the same chatbot in two different locations: Facebook and its own retailer's website. Our results show that interacting with a chatbot on Facebook led to significantly lower attitudes towards chatbots and lower intentions to use chatbots. Both relationships are sequentially mediated via higher privacy concerns and less comfort with information disclosure. Companies therefore need to consider where to deploy their chatbots.

Keywords: chatbot; privacy concerns; information disclosure; Facebook; Facebook messenger; retailer website; adoption behaviour; consumer-firm interaction.

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Biographical notes: Irene Roozen holds a PhD in Applied Economics at the University of Antwerp and is an assistant professor at the KU Leuven, Belgium. Her current main research topics focus on the effectiveness of marketing communication with respect to the 'visual' aspects and the 'written' aspects on social media networking sites. Furthermore, her research in marketing communication is focused on different aspects of language on social media and in the AI marketing related domain.

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1 Introduction

Online real-time consumer-firm interactions can be facilitated through chatbots, a piece of software capable of engaging in human-like conversations through the use of artificial intelligence (Davenport et al., 2020; Moriuchi, 2021). Chatbots engage in real-time conversation with (potential) customers. They are increasingly used as a powerful tool for customer relationship management and for providing information as commerce moves to the internet (Steinhoff et al., 2019; Thomaz et al., 2020; Hasan et al., 2021). In the near future real-time online consumer-firm interactions will become the norm (Appel et al., 2020). However, for chatbots to be effective prospective customers need to share (personal) data. Privacy concerns may inhibit customers and, therefore, render chatbots less efficient. It is, therefore, relevant to analyse whether the chatbot's location affects the customers' willingness to share (personal) data. In particular, it is important to analyse if there is a significant difference between the attitude and the intention to use a chatbot on a social media platform (e.g., Facebook) compared to the retailer's website.

In an increasingly privacy-centred online ecosystem where data collection and privacy concerns are heavily scrutinised by consumers (Martin and Murphy, 2017), embracing conversational commerce through chatbot usage has several advantages. Firstly, it bridges the communication gap between customers and firms by providing an effortless instant channel for customers to engage with, fulfilling the behavioural shift from 'clicks' to 'conversations' (Daugherty and Wilson, 2018; Deloitte, 2017; Thomaz et al., 2020). Secondly, it presents an easily scalable channel to provide personalised recommendations to customers (Appel et al., 2020). Finally, engaging in conversational

commerce can also be used as a convenient way to maintain consumer data collection in an increasingly private web ecosystem. Hence, chatbot usage for conversational commerce can be considered as a tool to 'nudge' consumers to voluntarily share personal data with companies (Thomaz et al., 2020). Whereas chatbots are, at least in theory, a promising tool to engage with consumers and collect online consumer data, research has yet to demonstrate whether consumers' privacy concerns influence their adoption of this technology.

Before a chatbot can provide customer-tailored recommendations, customers need to disclose personal information during their interaction with the bot. As a consequence, interacting with a chatbot affects one's privacy concerns as demonstrated by Ischen et al. (2020). Privacy concerns, in turn, can influence consumers' online privacy-related behaviour. Research shows that privacy concerns can negatively influence consumers' willingness to disclose personal information (Martin and Murphy, 2017). Furthermore, Acquisti et al. (2015) indicated that the online location can affect consumers' level of privacy concerns and self-disclosure. Hence, not only customers' privacy concerns but also the online location (a social media platform or a retailer's website) can pose a significant threat to information collection. Therefore, measuring the influence of consumers' privacy concerns and their comfort with information disclosure in interactions with chatbots is necessary to understand the facilitators and barriers for adoption of this type of technology.

The objective of this study was to help strategic marketing decision-makers better understand how and where to effectively deploy conversational agents to collect consumer data. Therefore, we constructed an experimental setting in two online locations i.e., Facebook versus the retailer's own website, where a fictitious brand deploys a chatbot. We selected Facebook because this platform is one of the most popular places for chatbot builders and Facebook is still the most downloaded app of all time (Threlfall, 2021; Kapoor et al., 2020).

To better understand the motivations of consumers to engage with conversational agents and the extent to which they share information about themselves during this interaction, it was crucial to disentangle the interplay between the chatbot's location, users' privacy concerns and their comfort with information disclosure. Therefore, we analysed if privacy concerns, and subsequently information disclosure, are significantly influenced by the chatbot's location and consequently influence consumers' reactions and intentions to adopt chatbots.

2 Literature review

2.1 Privacy concerns and online information disclosure

Aiello et al. (2020) define online privacy concerns as consumers' anxiety over the handling of personal information. Ischen et al. (2020) define privacy concerns as the degree to which a consumer is worried about the potential invasion of the right to prevent the disclosure of personal information to others. Privacy concerns, hence, act as a proxy for understanding consumers' feelings, attitudes and perceptions of data privacy (Martin and Murphy, 2017). Online consumers have increasingly become aware of data collection practices. Thomaz et al. (2020) argues that consumers' increased concerns over data privacy will lead to a hyper private web where consumers adopt a 'private-as-default'

behaviour. This change in consumer behaviour poses a significant threat to current digital marketing practices as marketers could see the golden age of open data collection and consumer micro-targeting coming to a halt in the near future (Ferrel, 2017; Martin and Murphy, 2017). Online consumers' emerging privacy concerned behaviour will probably force firms to shake-up their strategy, as open data collection and consumer micro-targeting will become more difficult. Conversational commerce may provide new opportunities (Facebook, 2018; Thomaz et al., 2020).

Conversational commerce refers to the use of natural language interfaces (such as messaging and chats) by consumers to interact in real-time with organisations (Thomaz et al., 2020). Chatbots in particular are a promising new technology capable of facilitating conversational commerce management. In theory, chatbot usage sounds as a promising tool to facilitate consumers' data collection (Thomaz et al., 2020), however, companies should consider a privacy-centred approach to increase customers' intentions to use this technology.

Privacy concerns are closely related to consumers' willingness to disclose personal information online (Martin and Murphy, 2017). According to Melumad and Meyer (2020) self-disclosure can be defined as voluntary communication of thoughts, feelings, and/or other information deemed to be private and that could make the user vulnerable. Research has indicated a negative relationship between privacy concerns and people's willingness to disclose personal data (Dinev and Hart, 2006; Martin and Murphy, 2017): the more concerned individuals are about their privacy, the less likely they are to share or disclose personal information to a third party. Therefore, consumers' privacy concerns can be a barrier for the disclosure of online information. This suggests that it is important to focus on privacy concerns within the scope of chatbot interaction.

Research on the role of privacy concerns on chatbot interactions is scarce due to the relative novelty of this type of AI technology. Brandtzaeg and Folstad (2018) were among the first to investigate the topic of chatbot privacy. Based on exploratory interviews, they found that users are concerned about privacy when interacting with a chatbot. Ischen et al. (2020) investigated the negative impact of privacy concerns on information disclosure in a chatbot experiment. They found that chatbot usage significantly increased privacy concerns and negatively influenced users' comfort regarding information disclosure.

2.2 The influence of chatbots' location on users' privacy concerns

Research showed that the online location can significantly influence users' willingness to disclose personal information (Acquisti et al., 2015). For example, Stutzman et al. (2012) showed how exogenous environmental factors such as the nature of the web interface influenced users' disclosure of personal information. Furthermore, within the scope of chatbot research, Ischen et al. (2020) showed how privacy concerns expressed by users interacting with chatbots varied with the type of chatbot. A human-like chatbot, for example, led to significant lower privacy concerns compared to a machine-like chatbot. Moreover, Ischen et al. (2020) found that compared to an interactive website, a machine-like chatbot induced lower privacy concerns. Nowadays, companies deploy chatbots in two locations: on social media platforms or on their own website. However, it is not clear how these different chatbot locations influence chatbot usage and whether the relationship between chatbot location and chatbot usage is mediated through users' privacy concerns.

Social media platforms have increasingly become an integral part of our daily lives. Facebook is the biggest social network worldwide with around 2.85 billion monthly active users in the first quarter of 2021 (Tankovska, 2021). When Facebook wanted to become profitable, it found a way to make its users earn money by partnering with advertisers. Likewise, brands were keen to sell their products directly to consumers, especially considering the unprecedented quantity/quality of data Facebook could leverage. In fact, social media has become an essential marketing channel to engage with existing and potential consumers. Brands have relied on this consumer data to support their marketing efforts ever since (Petrescu and Krishen, 2018). Although social media can be seen as a stable and mature platform that will continue to grow, the reality shows a more nuanced picture (Wilson, 2020). Recently, there has been a shift in the way users interact with social media having far-reaching implications for social media marketing. Xie et al. (2019) found a significant positive correlation between privacy protection behaviours (PPB) and consumer awareness of data breaches. This is emphasised by Hunter et al. (2020) who found that preference for PPB influences social media usage in general. They also found a significant negative correlation between intimacy (measured as the desire to disclose personal information, but only to intimate and trusted individuals) and social media usage. According to Alkire et al. (2019) consequences of PPB adoption are twofold. Firstly, it impacts users' likelihood to restrain their engagement and, thus, reduce information disclosure on social media (for example, on Facebook). Secondly, it can lead to avoidance of usage of specific functions and/or participation in certain discussions. In this context, research has yet to show whether privacy-related behaviour on social media platforms influences users' intentions to use the chatbot functionality. Moreover, it is unclear whether the level of privacy concerns on social media differs from the one seen on the world wide web. The aim of our study is therefore to close the gap in the chatbot literature regarding the interplay between a chatbot's location, consumers' privacy concerns, and information disclosure.

The literature shows that consumers express privacy concerns when interacting with chatbots. Moreover, research has shown that privacy concerns can be a barrier to information disclosure. However, the influence of the chatbot's location is not clear. As marketing decision-makers wish to embrace chatbots to maintain data collection in an increasingly private ecosystem, it is crucial to understand whether customers' privacy concerns are location dependent (social media versus the retailer's website), and whether their privacy concerns negatively impact their comfort with disclosing personal information. Therefore, the following hypothesis can be formulated:

H1 Interacting with a chatbot on social media leads to less comfort with information disclosure than interacting with the same chatbot on a retailer's website. This effect of the chatbot's usage location on information disclosure is mediated by users' level of privacy concerns.

Furthermore, research reported a negative effect of privacy concerns on users' intentions to use chatbots (Rese et al., 2020) and their attitude toward chatbots (Ischen et al., 2020). However, the question whether consumers' attitude towards chatbots and their intentions to use chatbots depend on the chatbot's location (i.e., the website in which the chatbot is embedded) has, by the best of our knowledge, not been studied yet. Moreover, given the strong relationship between privacy concerns and information disclosure reported in the literature, we can formulate our second hypothesis:

H2 Interacting with a chatbot on a social media platform leads to lower attitudes towards chatbots and lower intentions to use chatbots than interacting with the same chatbot on a retailer's website. This effect of the chatbot's location on users' attitudes and intentions is mediated by privacy concerns and users' comfort with information disclosure.

3 Data and method

3.1 Manipulation material

To test our hypotheses a custom-built chatbot was created based on the conversational agent research toolkit (Araujo, 2020) and the latest version of Google's artificial intelligence technology dialog flow (Dialog Flow, 2021). Dialog Flow features cutting-edge natural language processing (NLP) computational models to respond with human-like live dialogue. The fast-changing nature of this technology required extensive work to reconfigure and integrate compatibility with the cloud-based platform Microsoft Azure. This was essential to facilitate the subsequent integration into the Facebook Messenger interface and our online survey platform Qualtrics.com. Once we had configured and refactored the updated conversational agent toolkit, a realistic user experience within the Qualtrics platform was created. We decided to focus on women and selected beauty products as a widely used consumer product. We used a fictive brand name (The Beauty Co) to rule out negative or positive associations based on familiarity, previous knowledge and previous experience with the brand. In the first condition of our pre-test, we tested the The Beauty Co's fictitious Facebook page and then the aforementioned Facebook Messenger with the chatbot already integrated (see Figure 1). In the second condition, we tested the fictitious retailer's website of The Beauty Co, with the chatbot below the banner (see Figure 2). These designs were created for the purposes of this experiment and had a consistent stylistic theme.

In total 50 participants tested our chatbots for possible bugs. In Figure 3 the operational characteristics of the chatbots in the two conditions are presented.

3.2 Procedure and measurements

The online questionnaire for our experimental research was divided into two sections:

1 a brief introduction on how the chatbot works

2 questions after the interaction with the chatbot.

The participants were primed that the goal of the study was to investigate the quality of customer experience when shopping with *The Beauty Co*.

Figure 1 The Beauty Co's fictitious Facebook page and Messenger with the chatbot (see online version for colours)

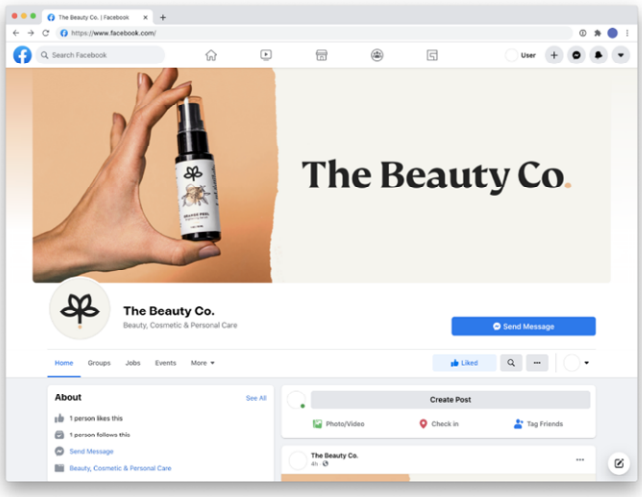
We want to launch a **new beauty brand** under the name **"The Beauty Co."**

The goal is to provide customers with the best experience possible when shopping with The Beauty Co.

We worked on a chatbot to provide you with free personalised tips and tricks through the Messenger platform of The Beauty Co's Facebook page.
Chatbots are a new type of technology driven by artificial intelligence which provide fast and automated responses to our customers.

You are asked to **interact with the chatbot via our Facebook Messenger platform and assess it from the perspective of a consumer of beauty products.**

Please have a **careful look** at the Facebook page of "The Beauty Co" brand:



You are asked to interact with The Beauty Co. by **sending a message via the chat box below.**

- Say "Hi" to the customer service chatbot to initiate the discussion
- Your **USER ID** : 75300
- After your interaction with the chatbot a code will be provided for you to continue with the questionnaire.

Figure 1 The Beauty Co's fictitious Facebook page and Messenger with the chatbot (see online version for colours) (continued)

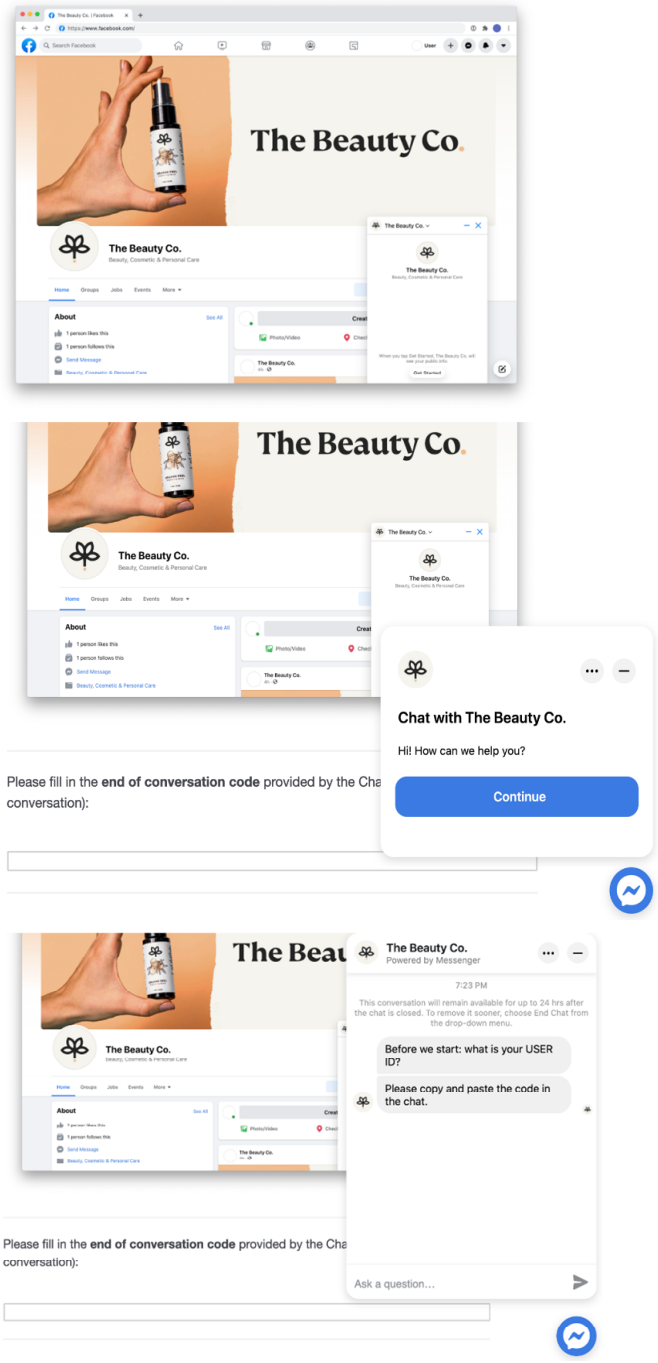


Figure 2 The fictitious retailer's web design for The Beauty Co, with the chatbot imbedded below the banner (see online version for colours)

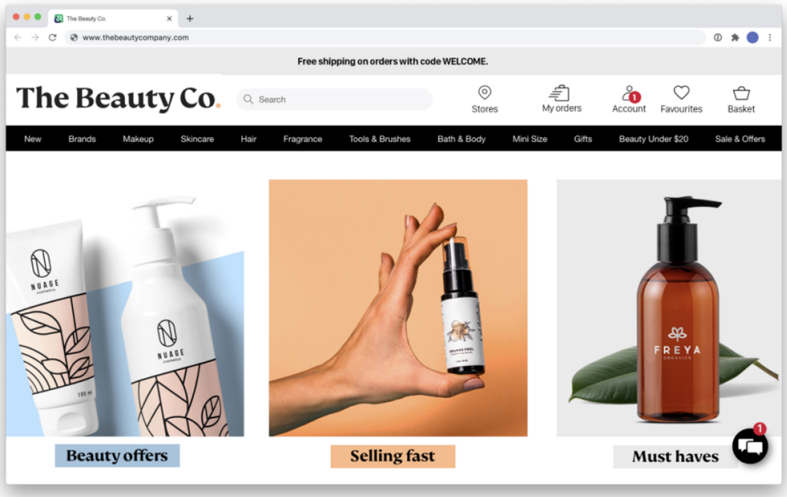
We want to launch a **new beauty brand** under the name **"The Beauty Co."**

The goal is to provide customers with the best experience possible when shopping with The Beauty Co.

We worked on a chatbot to provide you with free personalised tips and tricks through our website.
Chatbots are a new type of technology driven by artificial intelligence which provide fast and automated responses to our customers.

You are asked to **interact with the chatbot from our website and assess it from the perspective of a consumer of beauty products.**

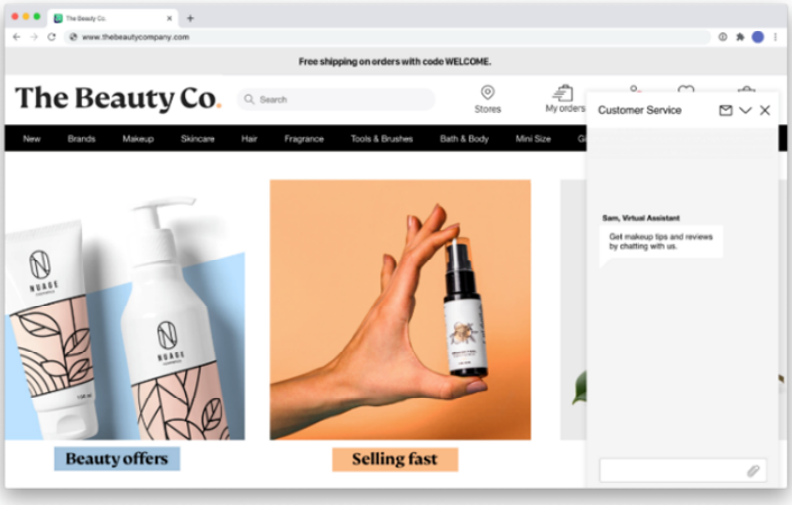
Please have a **careful** look at The Beauty Co's website:

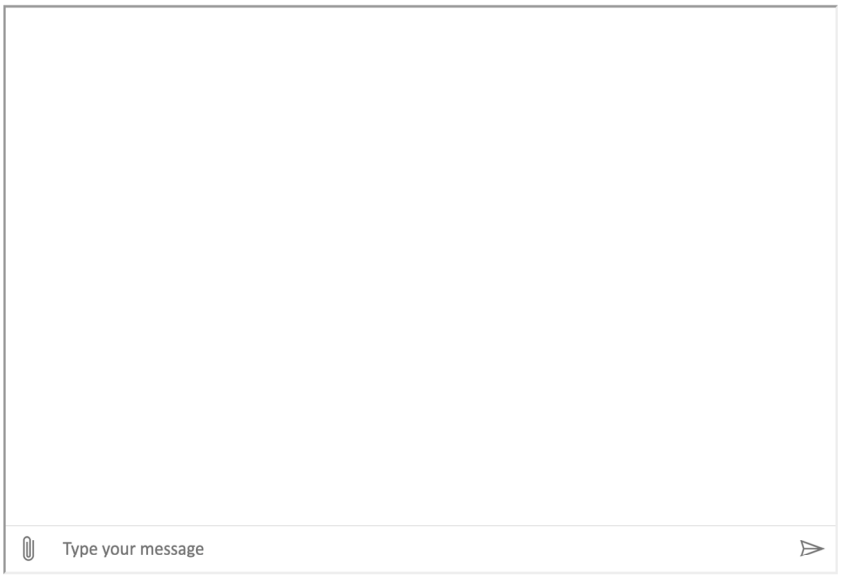


You are asked to interact with The Beauty Co. by **sending a message via the chat box below.**

- Say "Hi" to the customer service chatbot to initiate the discussion
- Your **USER ID** : 75300
- After your interaction with the chatbot a code will be provided for you to continue with the questionnaire.

Figure 2 The fictitious retailer's web design for The Beauty Co, with the chatbot imbedded below the banner (see online version for colours) (continued)





Please fill in the **end of conversation code** provided by the Chatbot (after your conversation):

Figure 3 Chatbot interface across both experimental conditions: Facebook (l) versus retailer's website (r) (see online version for colours)

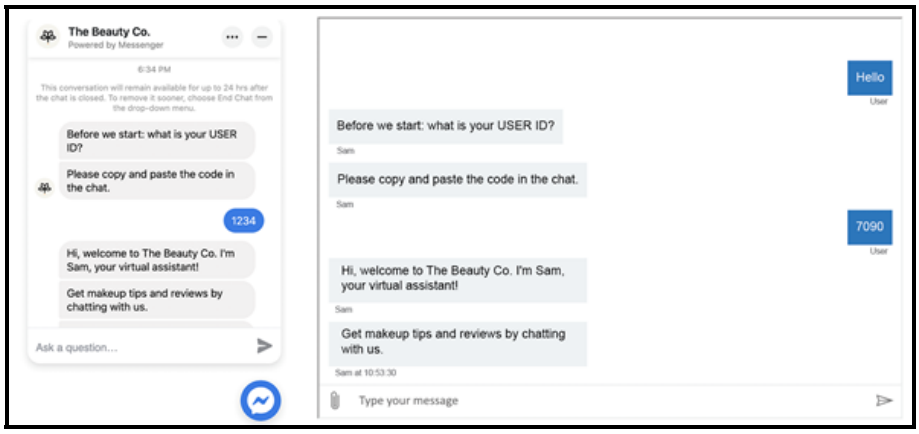
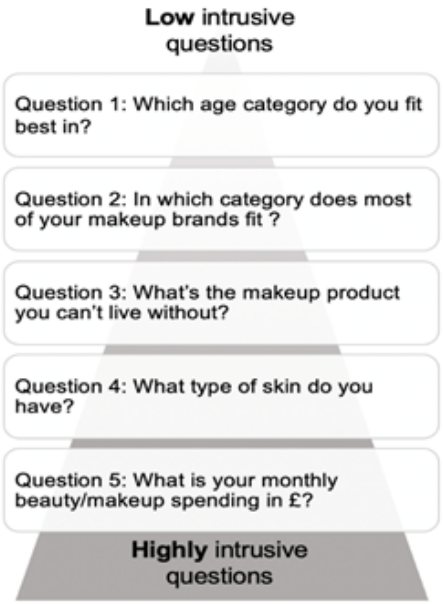


Figure 4 Structure of the interaction for both chatbot locations



Participants were randomly assigned to one of the two experimental conditions: interaction with a chatbot embedded within the Facebook Messenger interface versus interaction with a chatbot embedded within the retailer's website. The operational characteristics of the chatbot (i.e., the content of the dialog across both chatbots) were held constant between both conditions. The chatbot introduced itself as 'Sam', a gender-neutral name. Then the chatbot asked participants if they were willing to answer a few questions in order to receive personalised beauty product recommendations. This format

was derived by a popular beauty retailer, Sephora, based on Arthur (2016). The chatbot started with general questions about participants' age and what make-up brands they shop for. The questions then became increasingly personal and intrusive (see Figure 4): asking participants about their skin type and how much money they monthly spend on makeup. At the end of the interaction, the chatbot sent a standardised message that the personalised make-up recommendations would be sent to them. Finally, participants were given an 'end of interaction code' when they had completed this part of the experiment. This code was necessary to start the questionnaire.

As a manipulation check, we asked participants directly after the interaction with the chatbot what their 'look and feel' experience was of the 'chatbot ('*The application had the look and feel of 'real' Facebook Messenger/a retailer's website chatbot*'). We also measured participants' familiarity with chatbots with 3 items based on Zhou et al. (2010) scale: '*Interacting with a chatbot is very familiar to me, I know relatively well how to interact with a chatbot, I have a lot of experience with a chatbot*'. Next the intention to use chatbots was measured with 3-items based on Davis et al. (1989): '*I intend to use chatbots in the near future, I think my interest in chatbots will increase in the future, I will recommend using a chatbot to interact with a company/organisation to others*'. On the next online page participants' attitude towards chatbots was measured using the following 4 items based on Elias et al. (2012) and Venkatesh et al. (2003): '*Using chatbots is a good idea, Chatbots make interacting with a company/organisation more interesting, interacting with a business through chatbots is fun and, I like using chatbots to interact with a company/organisation*'. On the next page, the variable comfort with information disclosure was measured (i.e., participants' experiences and feelings about sharing personal information with the chatbot). The items were based on Altman and Taylor (1973) and Ledbetter (2009): '*It was easy to disclose personal information in the interaction with the chatbot, I felt comfortable disclosing personal information during the interaction with the chatbot, I felt like I could be personal during the interaction and, I felt like I could be open during the interaction with the chatbot*'. On the next page of the questionnaire, we measured participants' privacy concerns using 5 items based on Ischen et al. (2020) and Xu et al. (2008): '*I was concerned … that the chatbot was collecting too much personal information about me, that unauthorised people may access my personal information in a non-accurate manner, about submitting information to this chatbot, that the chatbot may keep my personal information in a non-accurate manner, when the chatbot asked me for personal information*'). All items in the questionnaire were measured on 7-point Likert scales. The average total time to fill out the questionnaire was 7:56 minutes.

4 Results

4.1 Sample description and measurements

We ran this study among female respondents between 18–70 years old (M = 33.76, SD = 11.81, min. 18, max. 70). They all lived in the United-Kingdom and their mother tongue was English. In total 398 participants from the Prolific database completed the questionnaire: i.e., inserted the right final code after the chatbot interaction. 193 participants in the Facebook condition and 205 in the condition with the chatbot on the retailer's website. Based on the results of the reliability analyses average scores for the

constructs were calculated for: familiarity with chatbots (Cronbach's α = .911, M = 5.148, SD = 1.347), intention to use chatbots (α = .924, M = 4.820, SD = 1.476), attitude towards chatbots (α = .923, M = 4.925, SD = 1.358), comfort with information disclosure (α = 0.877, M = 4.570, SD = 1.254) and privacy concerns (α = 0.943, M = 2.615, SD = 1.387). No significant differences were found across both conditions for age (t [286] = 0.654, p = 0.514) and familiarity with chatbots (t [396]= 1.113, p = 0.266).

4.2 Manipulation check

In both conditions the interactions with the chatbot scored relatively high on 'look and feel' (M Facebook chatbot = 6.20, SD = 1.073; M retailer's website = 5.93, SD = 1.163), which suggest that the effectiveness of the situational context manipulation intended by this study was sufficient. However, the Facebook chatbot scored significantly higher on the look and feel rating scale (t [396] = 2.450, p = 0.015).

4.3 Main findings

To test H1 and H2, we conducted a serial multiple mediation analysis (model 6) using the logistic regression path analysis modelling tool PROCESS v3.5.3 for SPSS (Hayes, 2017). We used 5000 bootstraps samples to produce 95% confidence intervals for the effects of type of chatbot on users' attitudes towards chatbots and their intentions to use chatbots, sequentially mediated through users' privacy concerns and comfort with information disclosure. Participants' familiarity with chatbots was added to the models as a covariate. In Table 1 an overview of the results is given.

We found a significant direct effect of the chatbot's location (Facebook versus the retailer's website) on participants' attitude towards chatbots (β = –0.382, t-value = 3.130, p = 0.002) and their intentions to use chatbots (β = –0.607, t-value = 4.623, p < 0.001). Interacting with the chatbot in Facebook Messenger led to significant lower attitudes towards and intentions to use chatbots. Furthermore, the results showed a significant serial mediation effect. Interacting with the chatbot in Facebook Messenger led to significant higher privacy concerns compared to interacting with the same chatbot on the retailer's website (β = 0.484, t-value = 3.575, p < 0.001). Moreover, privacy concerns were significantly negatively related to information disclosure (β = –0.238, t-value = 5.308, p < .001): an increase in privacy concerns led to lower levels of comfort with disclosing personal information during their interaction with the chatbot. These findings support H1 (interacting with a chatbot on Facebook leads to less comfort with information disclosure than interacting with the same chatbot on a retailer's website, due to higher privacy concerns in the Facebook context).

Furthermore, the results show that the chatbot's location directly and indirectly (via users' privacy concerns and comfort with information disclosure) affected users' attitudes towards chatbots and their intentions to use (other) chatbots. We found a significant effect of interacting with a chatbot on Facebook Messenger on users' privacy concerns. Participants who interacted with the chatbot in Facebook Messenger had higher privacy concerns than participants who interacted with the chatbot on the retailer's website. These negative privacy concerns affected the Facebook chatbot users' comfort with disclosing personal information, resulting in lower attitudes towards (β = -.042, R^2 = 0.234, F= 29.960; confidence interval (CI): [–0.0787, –0.016]) and intentions to use

chatbots (β = –0.043, R^2 = 0.252, F = 33.165; CI: [–0.0783, –0.015]). Based on these research results we can also accept our second hypothesis. In Figure 5 and 6 the direct and indirect effects of chatbot location on users' attitude towards chatbots and their intentions to use chatbots are graphically presented.

Table 1 Results of the serial multiple mediation analyses

Independent variable	⇒	*Dependent variable*	*Coefficient (SE)*	*p*	*t-value*	*LCI*	*UCI*
Chatbot type (Facebook)	⇒	Privacy concerns	0.484 (0.136)	<.001	3.575	0.218	0.751
Chatbot type (Facebook)	⇒	Information disclosure	0.167 (0.122)	NS	1.010	0.174	–0.407
Privacy concerns	⇒	Information disclosure	–0.238 (0.045)	<.001	5.308	–0.325	–0.150
Privacy concerns	⇒	Attitude	0.021 (0.046)	NS	0.452	0.651	0.220
Privacy concerns	⇒	Intention to use	0.032 (0.049)	NS	0.635	0.526	–0.070
Information disclosure	⇒	Attitude	0.369 (0.050)	<.001	7.351	0.270	0.468
Information disclosure	⇒	Intention to use	0.370 (0.054)	<.001	6.856	0.211	0.402
Direct effects			*Coefficient (SE)*	*p*	*t-value*	*LCI*	*UCI*
Chatbot type (Facebook)	⇒	Attitude	–0.383 (0.122)	0.002	3.130	–0.623	–0.142
Chatbot type (Facebook)	⇒	Intention to use	–0.607 (0.131)	<.001	4.623	–0.865	–0.349
Indirect effects through Privacy concerns			*Coefficient (SE)*			*LCI*	*UCI*
Chatbot type (F) ⇒ Privacy concerns ⇒ Attitude			0.010	NS		–0.044	0.064
Chatbot type (F) ⇒Privacy concerns ⇒ Intention to use			0.015	NS		–0.038	0.068
Indirect effects through Information disclosure			*Coefficient (SE)*			*LCI*	*UCI*
Chatbot type (F) ⇒ Information disclosure ⇒ Attitude			–0.062	NS		–0.159	0.026
Chatbot type (F) ⇒ Information disclosure ⇒ Intention to use			–0.062	NS		–0.165	0.026
Indirect effects through privacy concerns and information disclosure			*Coefficient (SE)*	R^2	*F*	*LCI*	*UCI*
Chatbot type (F) ⇒ Privacy concerns ⇒ Information disclosure⇒Attitude			–0.042	0.234	29.960	–0.0787	–0.016
Chatbot type (F) ⇒ Privacy concerns ⇒ Information disclosure ⇒ intention to use			–0.043	0.252	33.165	–0.0783	–0.015

Notes: *p = < 0.05, **p = < 0.01; controlled for familiarity with the interaction medium as covariate.

Figure 5 Indirect and direct effects of the chatbot's location on the attitude towards chatbots

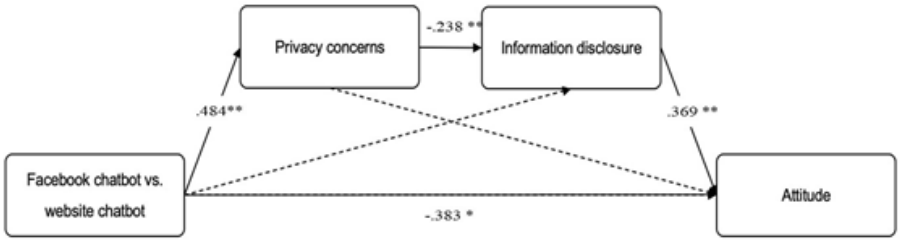
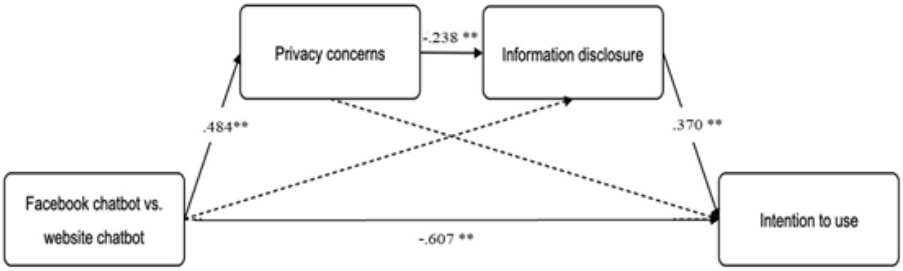


Figure 6 Indirect and direct effects of the chatbot's location on the intention to use chatbots



5 Discussion and conclusions

This study investigated the direct and indirect effects of a beauty store chatbot embedded in two different online locations: Facebook Messenger and the company's own website. Findings show that the chatbot in Facebook Messenger affected users' privacy concerns stronger than the chatbot on the retailer's website. Further, our research results show a significant mediating effect of privacy concerns on users' comfort with information disclosure. Interacting with a chatbot in Facebook Messenger led to a higher level of privacy concerns, which in turn affected users' feelings to disclose personal information through the chatbot. This finding confirms the relationship between privacy concerns and self-disclosure reported in the literature (Ischen et al., 2020; Martin and Murphy, 2017).

Interestingly, despite the negative relationship between privacy concerns and discomfort with disclosing personal information, we noted that all participants disclosed personal information to the chatbots in our experiment. Hence, our participants heightened privacy concerns, did not impede their self-disclosure behaviour. This finding has been previously reported in the literature as the privacy paradox: people argue they are concerned about their privacy, but freely disclose personal information online (Aguirre et al., 2016; Bleier et al., 2020).

Our findings also revealed a direct effect of a chatbot's location on users' attitudes towards chatbots and their intentions to use chatbots. Besides, we found that these effects were partially meditated through users' privacy concerns and their comfort with information disclose. Compared to interacting with a chatbot on the retailer's website interacting with a chatbot on Facebook Messenger led to higher privacy concerns, resulting in higher discomfort with information disclosure, and consequently in lower

attitudes towards chatbots. The same mediating effect of privacy concerns and discomfort with information disclosure was found for users' intentions to use chatbots. Previous studies found privacy concerns to be a direct predictor of people's attitudes towards chatbots and their chatbot usage intentions (Ischen et al., 2020; Rese et al., 2020). Our study found that (dis)comfort with information disclosure mediates this relationship.

Our study does not come without its limitations. First, it should be noted that the research was conducted based on women beauty products only. As a consequence, the results described in this study cannot be generalised to other products. Therefore, further research is needed to examine chatbot usage within the scope of a different sector (e.g., the insurance sector, food products) and gender. Secondly, the study is limited by the chatbot design itself. Hence, given that the developed chatbot acts as our independent variable, it is reasonable to assume that its configuration may be a limiting factor to our results. However, we configured the chatbot on an existing external valid chatbot within the beauty industry. The conversational agent asked a specific set of questions with increasing order of intrusiveness and was configured to follow a predetermined flow. These questions were also restricted to the Facebook GDPR rules. In this regard, future research could determine if our findings hold with a differently configured chatbot on different platforms. For example, the chatbot could ask a different set of questions and users could be granted larger conversational freedom during their interaction with the chatbot.

This research holds several practical implications for marketing decision-makers. Specifically, it provides direction on how to effectively deploy conversational agents with regard to current privacy concerns. As demonstrated by this study, interacting with a chatbot on Facebook resulted in a higher levels of privacy concerns compared to a chatbot on a retailer's website. If brands wish to encourage customers to disclose personal information through the use of chatbots, they should try to reduce the chatbot users' privacy concerns. Martin et al. (2017) demonstrated that the level of transparency (e.g., brands being transparent about the way they use the data they collect) mitigates the feelings of violation and trust (an antecedent to privacy concerns). As such, brands embracing chatbot technology should try to mitigate consumers' privacy concerns by making clear what data they collect and for what purpose. Finally, as Bleier et al. (2020) indicated, companies can aim to alleviate consumer privacy concerns by offering increased 'trade-in value'. This idea takes advantage of the privacy calculus which posits that "consumers weigh the risks associated with the release of personal information to a firm against expected benefits" [Bleier et al. (2020), p.474]. A future research avenue could therefore investigate whether the privacy calculus holds within the scope of chatbot interactions.

From a managerial standpoint, managers should take the level of privacy concerns raised by the Facebook chatbot into account compared to the retailer's website chatbot. In this respect, we argue that privacy concerns should not be regarded as a decisive point when deciding on where to implement the chatbot, but rather as a point to be resolved. Finally, marketing decision-makers should weigh the pros and cons of both customer communication locations. For instance, retailer's website chatbots don't need to be developed as part of Facebook's application user interface (API), which gives developers and companies more freedom for features that they wish to implement. However, this argument can be counterbalanced by the convenience of Facebook, which represents a suitable way for brands to reach customers through a channel they are already familiar with.

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