



Full length article

Chatbot advertising effectiveness: When does the message get through?

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ABSTRACT

Chatbots on social networking sites are a recent innovation in computer-mediated marketing communication. In this study, 245 Facebook users between 18 and 35 years of age ($M_{age} = 25.97$, $SD = 4.92$) were asked to order tickets for the movies through Cinebot, a Facebook chatbot specifically built for the study. Afterwards, they were asked to evaluate their experiences via an online survey. The first purpose of this article was to investigate whether and how perceived helpfulness and usefulness of a chatbot consulted on the Facebook Messenger platform affected perceived intrusiveness of chatbot-initiated advertising in a later stage. In a second analysis, the relation between perceived intrusiveness and patronage intentions (i.e. purchase and recommendation intention of the product) was investigated. In addition, the role of message acceptance as a mediator and perceived message relevance as a moderator in this latter model were explored. As, to the best of our knowledge, our study is the first to investigate chatbot advertising, our research findings may hold important managerial implications.

1. Introduction

For the last 20 years, the online media, with social networking sites (SNS) on the forefront, have continuously been innovating the digital advertising landscape. The largest SNS of the world, Facebook, has developed a unique advertising environment that is based on a large database of information on its users. The large database of personal information and behavioural data allows Facebook advertisers to target specific audiences with personalized content (Acquisti, Taylor, & Wagman, 2016; Facebook, 2015). These targeting and personalization mechanics fuel a catalogue of advertising formats on the Facebook desktop website, the mobile website and the Facebook-apps, like Instagram, WhatsApp and Messenger (Facebook, s.d.). Facebook develops new advertising formats regularly. What started with 'simple' image ad formats, evolved into, among others, video ads, full-screen image experiences in 'canvas ads' and a multiple-image format in carousel ads (Facebook, s.d.). One of the latest advertising innovations are chatbot advertisements, the "relevant promotions directly [sent] to the people your business is already talking to in Messenger" (Facebook, 2018, p. 1).

Chatbots are defined as "[...] A computer program, which simulates human language with the aid of a text-based dialogue system" (Zumstein & Hundertmark, 2017, p. 98). Chatbots were introduced to Facebook's Messenger app in 2016 (Constine, 2016), and were meant to

facilitate and speed up companies' customer service. Chatbot as a means for customer communication is a commercial tactic that can be situated among the recent technological innovations in terms of artificial intelligence (Letheren & Glavas, 2017). According to Gartner (2018), by 2020, 25% of customer interactions will be managed without a human, through virtual assistants or chatbots. Through pre-programmed chat dialogue structures, which the customer can navigate by using buttons or natural language, companies can communicate to the individual consumer in a highly personalized and interactive, yet automated way (Kunze, 2016). These personalized communication capabilities are used for providing useful services to the individual customer or helping customers out with issues they might have. Among others, chatbots were built to have tailored customer care conversations, serve personalized information and recommendations as the weather forecast or style advice, or offer convenient purchases by for example helping navigate a movie theatre catalogue (Letheren & Glavas, 2017; Tate, 2016; Zumstein & Hundertmark, 2017). The perceptions of helpfulness and usefulness play a key role in shaping the attitudes of customers towards chatbots (Zarouali, Van den Broeck, Walrave, & Poels, 2018).

Besides these rather informative uses, Facebook includes the possibility for chatbots to send sponsored messages to people that previously contacted a company through a chatbot or via live chat support. Facebook describes this advertising format as 'sponsored messages' (Facebook, 2018). In this paper, this phenomenon is referred to as

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‘chatbot advertising’. The voluntary initial contact of the Facebook user with the company via Facebook Messenger is perceived as a sign of interest in the company. This way, passive consent is given to the company to contact the user in the future with commercial messages (Constine, 2016). Chatbot advertising is thus meant to ‘re-engage’ customers and prospects in a conversational way (Facebook, 2018). Yet, literature indicates that several characteristics that can be related to chatbot advertising, such as the absence of explicit consent, the use of personal communication channels and the referral to personal information in the ad, may potentially lead to chatbot advertising to be perceived as intrusive (Boerman, Kruikemeier, & Borgesius, 2017; Heinonen & Strandvik, 2007; Morris, Choi, & Ju, 2016; Truong & Simmons, 2010). Perceived intrusiveness of chatbot advertising is therefore a crucial aspect to consider when studying chatbot advertising effects.

Several authors indicate a lack of research on reactions towards chatbot communication (Brandtzaeg & Følstad, 2017; Zarouali et al., 2018; Zumstein & Hundertmark, 2017). Moreover, to the best of our knowledge, research on the effectiveness of recent chatbot advertising formats is inexistent. Therefore, the present study will identify predictors of the intention to act upon receiving this unsolicited, ‘re-targeted’ form of advertising. In order to accurately analyse the effectiveness of this novel advertising format, the present study will address chatbot advertising effectiveness in two phases. In a first phase, the influence of the initial chatbot user experience, in terms of perceived helpfulness and perceived usefulness of the chatbot service, on perceived intrusiveness of chatbot advertising will be assessed. In a second phase, this study will further address the effectiveness of chatbot advertising in terms of the commercially-relevant outcome of patronage intentions. ‘Patronage intention’ is defined as the likelihood and willingness to buy the products offered in the chatbot advertisement and recommend it to others (Baker, Parasuraman, Grewal, & Voss, 2002; L. C.; Wang, Baker, Wagner, & Wakefield, 2007). Two influential variables which are firmly established as covariates in social media effectiveness literature (Boerman et al., 2017; Jung, 2017) were added to the research model: ad acceptance and ad relevance. Acceptance of chatbot advertising may potentially be an issue, as chat applications are not a familiar place to serve ads. Moreover, as the information from private chat conversations is used to retarget users with chatbot advertising, the perceived relevance of such ads may be highly influential in determining advertising outcomes (Van den Broeck, Poels, & Walrave, 2017). The relationship of perceived intrusiveness of chatbot advertising on patronage intentions will therefore be explained through a moderated mediation model, which includes message acceptance as a mediator and perceived relevance as a moderator.

The central research question [CRQ] of this study is “How does a chatbot’s perceived helpfulness and perceived usefulness predict perceived intrusiveness of chatbot advertising, and how does the latter, in turn, influence patronage intentions?”

2. Theory

2.1. Chatbot user experience

Since the creation of human-computer interface applications, the use of social cues in computer interaction has been a continuous development (Prendinger & Ishizuka, 2013). Chatbots are created to mimic an interpersonal conversation, characterized by a high degree of personalization, both in the conversation as in potential offers they can present to users (Letheren & Glavas, 2017). Therefore, they can be perceived as one of the most advanced forms of social cues in human-computer interaction. Chatbots were found to be able to enhance online consumer experience through increasing the perception of employee presence and the feeling of being served at the right moment (L. C. Wang et al., 2007). Early chatbots were effectively used to support the user in navigating a company website or making a purchase (Lind &

Salomonson, 2006). A notable and long existing example is Anna, an IKEA ‘virtual servant’ which was represented by an online avatar and a chat module and answered users’ questions about IKEA products and services on their website (Lind & Salomonson, 2006). Since then, chatbots have evolved drastically (Letheren & Glavas, 2017). Among others, chatbots were developed for fun, for example as part of a game or as virtual characters, and for services as survey taker, learning tutor, chatroom host or frequently asked questions guide (Y. F. Wang & Petrina, 2013; Zumstein & Hundertmark, 2017). Most recent chatbots are no longer tied to a specific website, but have entered social media and messaging apps where they are used for even more diverse tasks; for example helping planning a vacation, talking a person to sleep or operating a medical helpline (Letheren & Glavas, 2017).

The importance of quality of the chatbot service was highlighted in literature, as perceived usefulness and perceived helpfulness were found to play a key role in determining the use of chatbots and attitudes towards them (Brandtzaeg & Følstad, 2017; Jenkins, Churchill, Cox, & Smith, 2007; Zarouali et al., 2018). The choice for perceived helpfulness and perceived usefulness as indicators of perceived chatbot quality is based on the study from Zarouali and colleagues (2018) on attitudes towards Facebook chatbots. In their study, based on the Consumer Acceptance of Technology model (Kulviwat, Bruner, Kumar, Nasco, & Clark, 2007) and Technology Acceptance Model (Davis, 1989), the authors found that the attitude towards chatbot communication is determined by two cognitive predictors: perceived helpfulness and perceived usefulness.

Perceived usefulness of the chatbot is defined as the perceived likelihood that the chatbot will enhance a consumer’s productivity or job performance (Davis, 1989). Moreover, perceived usefulness was found to be a main determinant of attitudes towards a technology or brand and the intention to use a technology or brand (Kulviwat et al., 2007; H.-H.; Lee & Chang, 2011; Morgan-Thomas & Veloutsou, 2013; Nysveen, Pedersen, & Thorbjørnsen, 2005). The perception of usefulness of chatbots, whether compared to human interaction or not, has been studied as a key concept in determining chatbot user experience (Jenkins et al., 2007; Shawar & Atwell, 2007).

Perceived helpfulness is a term that is closely related to perceived usefulness. In the context of chatbots, it is defined as the degree to which the chatbot’s responses are perceived as relevant for resolving the need for information (Johnson, Bruner II, & Kumar, 2006). Perceived helpfulness has been identified as a crucial aspect of online customer assistance (Coyle, Smith, & Platt, 2012), which is often the purpose of commercial chatbots. Perceived helpfulness of online services was found to lead to more positive attitudes towards those services (Coyle et al., 2012; Walther, Liang, Ganster, Wohn, & Emington, 2012). People appreciate it highly when chatbots help them save time or make it easier to obtain information (Brandtzaeg & Følstad, 2017). The ease of obtaining help and information were found to be the main motivation for using chatbots (Brandtzaeg & Følstad, 2017; Zarouali et al., 2018).

2.2. Chatbot advertising

Chatbot advertising is as a next step in personalized advertising, as advertising blends with assistance, chatbots are ideally fitted to do both (Letheren & Glavas, 2017). Facebook recently started offering chatbot advertising on its Messenger platform and describe it as: “Sponsored messages [which] are for advertisers who have already connected with their customers on Messenger, either through a bot for Messenger or live chat support.” (Facebook, 2018). The voluntary initial contact of the Facebook user with the chatbot via Facebook Messenger is thereby perceived as a sign of interest in the company that published the chatbot. To study the effectiveness of chatbot advertising, we look at well-established indicators of the effectiveness of online and/or personalised advertising on SNS and integrate them in a conceptual model.

2.2.1. Perceived intrusiveness

Perceived intrusiveness is defined as “a psychological reaction to ads that interfere with a consumer's ongoing cognitive processes” (Edwards, Li, & Lee, 2002, p. 39). Perceived intrusiveness has been found to be an important predictor of online advertising effectiveness (Edwards et al., 2002; Truong & Simmons, 2010; van Doorn & Hoekstra, 2013), and consumer purchase behaviour in particular (Gazley, Hunt, & McLaren, 2015). For chatbot advertising, perceived intrusiveness is assumed to be a key influencing variable in determining chatbot advertising effectiveness, as literature connects four characteristics of chatbot advertising to perceived intrusiveness. 1) Mobile phones are a highly personal medium in a marketing context (Bauer, Reichardt, Barnes, & Neumann, 2005; Jarvenpaa, Tractinsky, & Saarinen, 1999). Through phone calls, SMS services and chat applications, users connect and communicate with friends, colleagues and family. The personal nature of mobile devices makes advertising in these chat applications potentially more intrusive than advertising via other channels and media (Haghirián & Madlberger, 2005; Heinonen & Strandvik, 2007; Jelassi & Enders, 2004; Morris et al., 2016). 2) As chatbot advertising is a recent advertising phenomenon, it is assumable that not all Facebook users are familiar with the passive consent that is given to chatbot advertising after first contact with the chatbot. The lack of explicit consent to chatbot advertising, may lead to feelings of intrusiveness (Heinonen & Strandvik, 2007; Truong & Simmons, 2010). 3) Chatbot advertising typically refers to the initial chatbot conversation, by offering complementary products or suggestions (Facebook, 2018). The use of personal information in advertising is related to higher levels of perceived intrusiveness (Boerman et al., 2017; van Doorn & Hoekstra, 2013). 4) Lastly, the use of interruptive push messaging format (Edwards et al., 2002; Unni & Harmon, 2007; Wehmeyer, 2007) was found to trigger perceived intrusiveness (Li, Edwards, & Lee, 2002; Merisavo et al., 2007; Truong & Simmons, 2010). As the sudden appearance diverts the user's attention and interferes with cognitive processes (Edwards et al., 2002). To our knowledge, no earlier studies have been carried out on the perceived intrusiveness of this novel form of chatbot advertising (i.e. chatbot-initiated marketing messages that refer to the initial conversation to offer complementary products).

2.2.2. Perceived usefulness

In the first phase of this study, a link will be sought between the user experience of the chatbot, and the perceptions of subsequent chatbot-initiated advertising in terms of intrusiveness. As perceived usefulness and helpfulness of chatbot communication were found to be two important determinants of chatbot experiences (Brandtzaeg & Følstad, 2017; Jenkins et al., 2007; Zarouali et al., 2018), this study will look into the effect of both characteristics on the perceived intrusiveness of subsequent chatbot advertising. Gao, Rohm, Sultan, and Huang (2012) found that perceived usefulness of mobile phones led to more positive attitudes towards mobile marketing among young consumers. In the same regard, Yang (2007) reported that attitudes towards mobile commerce use were negatively linked with non-intrusiveness of subsequent mobile advertising. Goldfarb and Tucker (2011) linked perceived usefulness to perceived intrusiveness and pointed to a trade-off between both factors in the context of Google's search-based AdSense advertising. A first hypothesis was formulated: “Perceived usefulness of a chatbot is negatively related to perceived intrusiveness of chatbot advertising.” [H1a].

2.2.3. Perceived helpfulness

No earlier studies have examined the effect of perceived chatbot helpfulness on responses to subsequent chatbot advertising. Yet, similar as in a conversation with real-life sales agents, it can be assumed that one would be less intruded by an attempt to upsell with a commercial offer if the sales agent was helpful before, than when this was not the case (Tafesse & Korneliusson, 2012). Participants of a study into SMS reminders for physical exercise were found to base their evaluations

partially on their perceived helpfulness of earlier experiences with SMS reminders (Kocielnik & Hsieh, 2017). In the same manner, it was found that users may act upon an offer on a website when they perceive an e-commerce avatar as helpful (Wakefield, Wakefield, Baker, & Wang, 2011). Moreover, Siau and Shen (2003) found that the information quality of a company's website was directly related to the perceptions of the company's offered products. Edwards et al., (2002) found that the perceived informativeness of a pop-up ad, of which perceived helpfulness was a dimension, could lower the perceived intrusiveness of said ad. The second hypothesis of this study was formulated: “Perceived helpfulness of a chatbot is negatively related to perceived intrusiveness of chatbot advertising.” [H1b].

2.2.4. Patronage intentions

The second phase of the current study will address the relationship between perceived intrusiveness of the chatbot advertisement and patronage intentions, i.e. the likelihood and willingness to buy the products offered in the chatbot advertisement and recommend it to others (Baker et al., 2002; L. C.; Wang et al., 2007). As perceived intrusiveness was indicated to be an important predictor of online advertising effectiveness (Edwards et al., 2002; Truong & Simmons, 2010; van Doorn & Hoekstra, 2013) it is striking that literature indicates a lack of research into the intrusiveness of conversational agents (Wakefield et al., 2011). van Doorn and Hoekstra (2013) found, with regard to personalized advertising, that perceived intrusiveness negatively affects purchase intention. Moreover, perceived intrusiveness was found to lead to ad avoidance, irritation and negative attitudes towards advertising (Edwards et al., 2002; S.; Lee, Kim, & Sundar, 2015). Based on these findings, a second hypothesis was formulated: “Perceived intrusiveness of chatbot advertising is negatively related to patronage intentions.” [H2].

2.2.5. Message acceptance

Perceived intrusiveness was reported to lead to feelings of irritation, and to be negatively related to message acceptance of social media advertising (Bond, Ferraro, Luxton, & Sands, 2010; Luna-Nevarez & Torres, 2015; Van den Broeck et al., 2017). Message acceptance is defined as the assessment of fairness and appropriateness of the advertisement, and was found to be an important prerequisite of advertising effectiveness (Kelly, Kerr, & Drennan, 2010; Van den Broeck et al., 2017). Moreover, for mobile advertising in specific, Barnes and Scornavacca (2004) found ad acceptance to be a key aspect in determining advertising effectiveness. As chat applications are not the ‘usual’ placement of advertising, users must accept and tolerate the existence of this new ad placement within an environment they deemed to be ad-free. As perceived intrusiveness was found to impact consumer purchase behaviour (Gazley et al., 2015; H.; Xu, Gupta, & Pan, 2009), message acceptance can thus possibly explain part of the relationship between perceived intrusiveness and patronage intentions. This was confirmed by the findings of Gazley et al. (2015). They found with regard to mobile location based advertising, that perceived intrusiveness of the ad had no direct effect on purchase intention. Yet, an indirect effect via consumer attitudes could be observed. These consumer attitudes were defined by perceived control. When users perceive ads as intrusive, this may lead to a breach of what users have come to accept as a fair and appropriate advertising practice, which may lead in turn to lower intentions to act upon the advertised offer. Message acceptance was therefore added as mediator for the relation between perceived intrusiveness of chatbot advertising and patronage intentions. A third hypothesis was formulated: “Message acceptance mediates the effect of perceived intrusiveness of chatbot advertising on patronage intentions.” [H3].

2.2.6. Perceived relevance

Literature in online advertising indicates that the perception of relevance of an advertisement is an important influential variable in

advertising processing and plays an important role in generating cognitive, affective and behavioural advertising outcomes (Jung, 2017; S. Lee et al., 2015; Petty, Cacioppo, & Schumann, 1983). In terms of mobile advertising, ad relevance was found to lead to more favourable attitudes (D. J. Xu, 2006), higher purchase intention (Rettie, Grandcolas, & Deakins, 2005) and lower ad scepticism (Baek & Morimoto, 2012). The relevance of an advertisement was indicated to be one of the key drivers of ad acceptance in mobile advertising (Merisavo et al., 2007) may moderate feelings of ad intrusiveness (Edwards et al., 2002) and mitigate negative effects of higher degrees of personalisation (van Doorn & Hoekstra, 2013). Van den Broeck et al. (2017) indicated with regard to personalized Facebook advertising that the degree to which a person perceives the shown product as relevant influences the process through which message acceptance of Facebook advertising is determined. In their study was found that when an advertised product is perceived as relevant, elaboration likelihood is higher and the influence of peripheral cues as ad placement in the process of determining message acceptance was found to be lower. Self-relevance stimulates people to elaborate advertising messages more intensively (Escalas, 2007). In the same regard, Boerman et al. (2017) conclude in their literature review that acceptance of behavioral advertising only takes place when benefits, such as personal relevance of the ad, are sufficiently high to outweigh perceived risks. Therefore, ad relevance is included as a moderator for the mediated effect of perceived intrusiveness on patronage intentions.

A final hypothesis was formulated: “Perceived relevance of the chatbot advertisement moderates the mediation of message acceptance on the relationship between perceived intrusiveness and patronage intentions.” [H4] (see Fig. 1).

3. Methodology

3.1. Participants & procedure

A total of 245 participants (48% female), aged 18–35 years ($M_{\text{age}} = 25.97$, $SD = 4.92$) were recruited through an online consumer panel. A prerequisite for study participation was having an account on the social networking site Facebook. To participate, the participants had to agree to an online informed consent form, stating that the study aimed at assessing consumer's emotions towards commercial chatbots on Facebook. The informed consent also declared that every reservation or commercial interactions that were made during the study were fictitious. The study took ten minutes to complete. Participants first logged in to the online Qualtrics survey platform and were given a link to start a Facebook messenger chat conversation with Cinebot, a chatbot designed by the researchers for this study using the Chattabot-tool (Chattabot, n.d.). Cinebot was designed to be a chatbot of the fictitious chain of movie theatres ‘Cinelux’. Participants were asked to make a reservation for a movie, next week at a Cinelux movie theatre. After the conversation, Cinebot invited the participants to return to the Qualtrics platform and continue the survey. Moreover, perceived helpfulness and usefulness of the chatbot in making online reservation for movies was assessed. In the second part of the survey, a written-out scenario describing a follow-up conversation initiated by the chatbot, reflecting the chatbot advertising, was presented to the participants. In this scenario, the chatbot presents the participant with an advertisement for a complementary snack for the movies (see Fig. 2).

After the scenario, participants were asked to rate this experience on patronage intentions, acceptance, perceived intrusiveness and perceived relevance (see 3.3 Measures). Based on power analyses in various moderated mediation models, conducted by Preacher, Rucker, and Hayes (2007), we expect the model in this study to have sufficient statistical power.

After the scenario, participants were asked to rate this experience on patronage intentions, acceptance, perceived intrusiveness and perceived relevance.

3.2. Materials

“Cinebot”, a Facebook Messenger chatbot, was created specifically for this study. Cinebot is the chatbot of the fictitious chain of movie theatres “Cinelux”. The chatbot was able to assist users in the making of a reservation for the movies. Cinebot followed a set of pre-programmed rules and a library of questions in order to be able to respond to the most common questions and command regarding the reservation of a movie. The chatbot conversation was inspired by existing movie theatre chatbots (Craftworkz, 2018). The input of the participants was partially natural language and partially predefined buttons. Participants had to login to Facebook messenger with their own Facebook account. The conversation to order tickets for the movies was scripted within the chatbot. Participants could choose between three films playing in theatres at the time of the study: “Logan”, “Manchester by the sea” or “Beauty and the Beast”. The timeslots and choice of movies were presented by buttons in the conversation, so choices were limited. In order to keep the setting controlled, it did not matter which timeslot, date or movie the participant chose, the answers by the chatbot were always the same. The movies were presented with an image of the movie poster and the title. The choice of date was an open question. Table 1.

3.3. Measures

Perceived helpfulness. Respondents had to rate the chatbot on being ‘helpful’, ‘useful’ and ‘informative’ on a seven-point semantic differential scale based on the study of Yin, Bond and Zhang (2014) ($\alpha = 0.91$).

Perceived usefulness. Items based on the scale of Gefen and Straub (Gefen & Straub, 2003) were used (e.g. “Using Cinebot improves my efficiency in searching and ordering tickets for the movies.”). Four items were assessed on a 7-point Likert-scale ranging from “strongly disagree” to “strongly agree” ($\alpha = 0.94$).

Patronage intentions. The scale of Wang and colleagues (2007) was used. The participant had to rate three items on a 7-point Likert scale ranging from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’ ($\alpha = 0.892$) (e.g. “Chances are high that I would buy a snack through Cinebot”).

Message acceptance. The user acceptance scale as described by Van den Broeck et al. (2017) was used. The scale consists of four items (e.g. “I think this advertisement is fair.”), measured on a 7-point Likert scale ranging from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’ ($\alpha = 0.853$).

Perceived intrusiveness. A shortened three-item scale was used, based on Li et al. (2002). Participants had to rate the ad on being ‘distracting’, ‘forced’ and ‘intrusive’ on a 7-point Likert scale ranging from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’ ($\alpha = 0.956$).

Perceived relevance. The three-item scale of Williams and Drolet (2005) was implemented. Participants had to rate the information in the ad on personal ‘importance’, ‘meaningfulness’ and ‘relevance to their needs’ on a 7-point Likert scale ranging from 1 = ‘strongly disagree’ to 7 = ‘strongly agree’ ($\alpha = 0.960$).

4. Results

In general, scores on perceived usefulness (range = 1–7, $M = 4.87$, $SD = 1.31$) and perceived helpfulness (range = 1–7, $M = 5.68$, $SD = 1.19$) were relatively high and thus acceptable for a non-existent chatbot in an experimental setup. Moreover, Cinebot's advertising message was perceived as moderately intrusive (range = 1–7, $M = 3.56$, $SD = 1.57$). First, a multiple linear regression was conducted with perceived intrusiveness of chatbot advertising as the dependent variable and perceived helpfulness and perceived usefulness of the chatbot as predictors. The regression model was estimated using the PROCESS macro for SPSS (Hayes, 2017). The model explained 22.1 percent of variance ($F(3, 244) = 24.91$, $p < .001$, $R^2 = 22.1$). It was

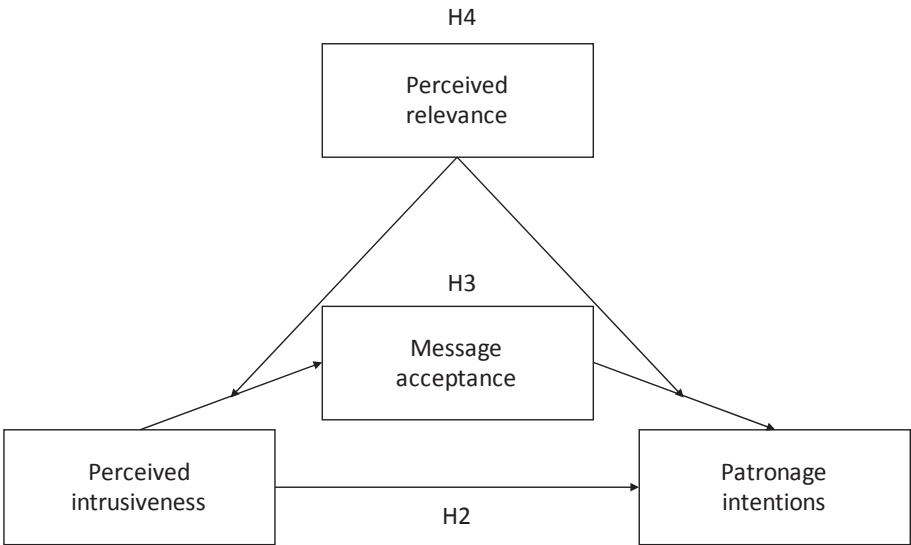


Fig. 1. Hypothesized moderated mediation model.

found that perceived helpfulness of the chatbot significantly predicted perceived intrusiveness of chatbot advertising ($\beta = -0.30, p < .001$), as did perceived usefulness ($\beta = -0.22, p < .01$). When chatbots were perceived as helpful and useful, intrusiveness of chatbot advertising was perceived as lower. Hypotheses H1a and H1b were confirmed.

Second, a moderated mediation analysis was performed to test the relation between perceived intrusiveness and patronage intentions (range = 1–7, $M = 4.22, SD = 1.51$) and both the role of message acceptance (range = 1–7, $M = 4.75, SD = 1.08$) as a mediator and perceived relevance (range = 1–7, $M = 4.09, SD = 1.34$) as a moderator (Fig. 3). Sixty-two percent of the variance in patronage intentions was accounted for by the predictors ($R^2 = 0.618$). The direct effect of perceived intrusiveness on patronage intention was not significant ($b = -0.013, SE = 0.058, p = .821$). Hypothesis H2 was thus rejected. The standardized regression coefficients between perceived intrusiveness and message acceptance were significant ($b = -0.692, SE = 0.080, p < .001$), as was the coefficient between message acceptance and patronage intentions ($b = 0.509, SE = 0.163, p = .002$). Perceived relevance was a significant moderator for the relation between perceived intrusiveness and message acceptance ($b = 0.062, SE = 0.018, p < .001$). The interaction term of perceived relevance and message acceptance had no significant relation with patronage intentions ($b = 0.000, SE = 0.037, p = .985$). The standardized indirect effect was $(-0.69)(0.51) = -0.24$. The significance of this indirect

Table 1
Correlation matrix of study variables.

Variable	1	2	3	4	5	6
1 PEH	1.00					
2 PEU	0.69*	1.00				
3 PEI	-0.45*	-0.43*	1.00			
4 MAC	0.54*	0.51*	-0.75*	1.00		
5 PER	0.37*	0.42*	-0.47*	0.54*	1.00	
6 PAI	0.50*	0.61*	-0.53*	0.66*	0.72*	1.00

PEH, perceived helpfulness; PEU, perceived usefulness; PEI, perceived intrusiveness; MAC, message acceptance; PER, perceived relevance; PAI, patronage intentions. * $p < .001$.

effect was tested using bootstrapping procedures with 5000 estimations. When perceived relevance increased, as shown at values $M \pm 1SD$, the negative effect of perceived intrusiveness on message acceptance decreased significantly. Hypotheses H3 and H4 were accepted.

** $p < .05$. *** $p < .001$.

Conditional indirect effect.

Perceived relevance = $2.745 ab = -0.267, SE = 0.052, 95\% CI [-0.3710, -0.1665]$.

Perceived relevance = $4.089 ab = -0.225, SE = 0.048, 95\% CI$

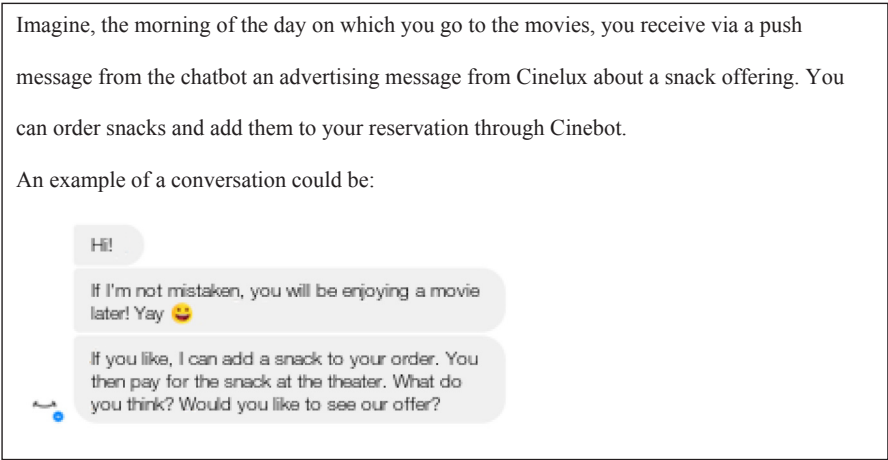


Fig. 2. Scenario of the chatbot-initiated commercial message.

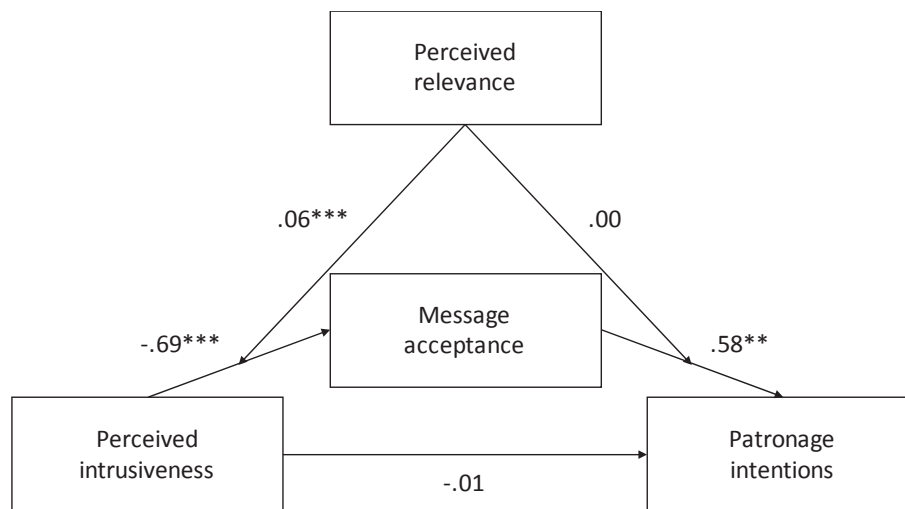


Fig. 3. Moderated mediation model.

[-0.3177, -0.1309].

Perceived relevance = 5.433 *ab* = -0.184, *SE* = 0.049, 95% CI [-0.2838, -0.0904].

5. Discussion & conclusion

This study looked to answer the central research question “How does a chatbot’s perceived helpfulness and perceived usefulness predict perceived intrusiveness of chatbot advertising, and how does the latter, in turn, influence patronage intentions?” As predicted, perceived intrusiveness of chatbot advertising was found to be dependent on perceived helpfulness and perceived usefulness of the chatbot. The higher the perceived helpfulness and usefulness of a commercial chatbot, after a conversation with the chatbot, the lower the intrusiveness of potential subsequent retargeted advertising via the chatbot is perceived. Similar to the relationships described in the Technology Acceptance Model, the affective response towards the new ‘technology’ of chatbot advertising was found to be explained by cognitive predictors (Davis, 1985; Zarouali et al., 2018). In the present study, however, it was found that cognitive evaluations of previous contact with the technology may impact the attitudinal response towards a different, and potentially unknown, use form of this technology. It is key for companies to not look at chatbots solely as a new channel for advertising. They should focus on the service-aspect of chatbot communication. Our results indicate that a good chatbot service, which results in helpful and useful communication, is a prerequisite for effective chatbot advertising since it lowers perceptions of intrusiveness of chatbot-initiated commercial messages. The degree to which perceived intrusiveness, in turn, influenced intentions to convert upon the advertisement and to talk about the offer (patronage intention), was largely dependent on message acceptance. Contrary to our expectations, no direct relation was found between perceptions of intrusiveness of chatbot advertising and patronage intentions. The relation between perceived intrusiveness and patronage intentions was however fully explained by the extent to which the user accepted the message. This finding confirms literature on the importance of perceived intrusiveness in determining advertising outcomes on social media and in a one-to-one channel as Facebook Messenger in particular (Haghirian & Madlberger, 2005; Morris et al., 2016; Van den Broeck et al., 2017). Yet, the fact that the relation of perceived intrusiveness and patronage intentions was fully mediated through message acceptance indicates that the effectiveness of chatbot advertising is not necessarily dependent on perceived intrusiveness. Which is a positive outcome for this type of advertising, since this form of hyper-personalized communication, often received through push notifications, was assumed to be inherently more intrusive or

interrupting. David Marcus, the Facebook vice president of product for Messenger declared with regard to chatbot advertising “The goal is to create a high quality, high signal, low noise experience for everyone” (Constine, 2016). To accomplish this goal, an important prerequisite had to be met, namely providing relevant advertising. Also in line with our predictions, perceived relevance proved to be a moderator of the mediation of message acceptance on the relation between perceived intrusiveness and patronage intentions. In this regard, our findings confirm the indication of Letheren and Glavas (2017) that the strength of chatbots is that they are able to blur boundaries between assistance and advertising. When a chatbot, for example, gives instant, highly-relevant clothing offers, that are tailored to the users’ taste and past shopping behaviour, chances are that users will be more inclined to feel helped than feel being sold to. The role of intrusiveness of the ad message in determining patronage intentions becomes less important when the ad message succeeds in assisting the user. The current study shows preliminary evidence on the determinants of chatbot advertising that is consistent with findings from other types of behavioural advertising (Bond et al., 2010; Merisavo et al., 2007; van Doorn & Hoekstra, 2013). If advertisers want to prevent the negative impact of perceived intrusiveness of chatbot advertising on advertising outcomes such as message acceptance and subsequent patronage intentions, they must make sure to provide highly relevant offers.

5.1. Managerial implications

Voluntary contact of the consumer with the chatbot on Facebook Messenger is recorded as an implicit sign of interest. This way, passive consent is given for (commercial) follow-up messages (Constine, 2016). Ethical questions could be raised towards the use of passive consent, as it can be assumed that most users are not aware of having given consent for chatbot advertising. Our research shows that both the advertisers and the platform should approach this passive consent with care, as perceived intrusiveness and message acceptance were found to play a crucial role in determining positive chatbot advertising outcomes. Moreover, the initial experience with the chatbot was found to be a determining factor in the effectiveness of subsequent chatbot advertising. Chatbot advertising will allow to drastically upscale personal selling (Letheren & Glavas, 2017). Yet, our results indicate that advertisers should first get their basics right, before retargeting their customers with advertising. In order to be successful, advertisers should first provide value within their chatbot, before trying to extract value through advertising.

5.2. Limitations & recommendation for future research

Despite the extensive library of keywords that the chatbot used in this study could access, Cinebot was limited in its recognition and understanding of user-generated cues. Therefore, the conversation with the chatbot had to follow a predefined scenario. Moreover, this study did not use a chatbot in the second phase for reasons of practical feasibility. Yet the use of a realistic chatbot advertisement instead of a scenario-based assessment would have increased internal and ecological validity of the study. The chatbot advertising scenario used in the second phase of the study describes a snack offer. The use of a snack offer in the scenario was motivated by the realistic purchases consumers conduct at movie theatres. Yet, no specific checks were done on the perceived realism of the offer. Future research could use a chatbot that uses more sophisticated artificial intelligence to have a more natural conversation between user and chatbot. In this regard, future studies could consider the perceptions of humanness and emotional connection as predictors of ad intrusiveness and effectiveness. Moreover, the first phase of this study looked at the perceptions of helpfulness and usefulness of the chatbot service on the outcomes in terms chatbot advertising intrusiveness. Future studies into chatbot advertising may look at the broader concept of trust in the chatbot and company, as literature indicates helpfulness and usefulness to be two determinants of trust.

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