Opt-in or Opt-out? – Effects of Choice Architecture on Chatbot usage and Consumer Attitudes within the E-commerce

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Abstract
Firms are rapidly investing into chatbots to reach higher productivity in sales and service. As first examples exerted positive effects compared to website offers, firms might try to guide customers to this chatbot interaction. Applying “choice architecture”, firms could design an opt-out or opt-in strategy, reflecting presumed consent or actively requested consent. This study investigates differential effects of this strategy on consumer’s choice and attitude towards the firm. Furthermore, the moderating effect of customer ratings is analyzed. Our study demonstrates the multilayered effects of choice architecture, showing the relevance of considering a well-suited chatbot interface design for firm’s success.

Keywords: Chatbots, Choice Architecture, Digital Interaction

1 Introduction

For both practice and research, one of the promising technologies for customer service interaction are digital conversational agents, i.e. software that is designed to communicate in natural language (Gnewuch, Morana, Adam, and Maedche, 2018). In the business context, in particular chatbots have become increasingly popular recently (Følstad and Brandtzæg, 2017; Araujo, 2018). A chatbot is defined as a "text-based agent designed to carry on a conversation" (Schuetzler, 2019, p. 253) and is mainly communicating via messaging applications such as Facebook messenger, or integrated on websites (Følstad and Brandtzæg, 2017). Advancements in natural language processing and the trend of text messaging as dominant interaction form for many consumers are both fueling the setup of these chatbots in manifold settings, including marketing, sales or customer service (Gnewuch *et al.*, 2018; Følstad and Brandtzæg, 2017; Araujo, 2018). As firms begin to realize this potential, they are rapidly investing to incorporate chatbots in customer service and e-commerce sales structures. In 2018, over 300.000 chatbots were registered on Facebook messenger alone - and they are expected to become an integral part of customer-firm interactions in the near future (Nealon, 2018). Chatbots are used to automate processes, aid customers, increase customer experiences and solve requests or complaints instantly (Følstad and Brandtzæg, 2017). Practical examples from different branches showed that when consumers interact with chatbots, compared to interaction with firm websites, both the satisfaction level and the intention to buy or use a company service were positively affected (Liffreing, 2018; Klein *et al.*, 2019). For example, the car producer Kia reported that their chatbot "Kian" raised the conversion rates towards test drive bookings strongly from 6% to 24% (Liffreing, 2018).

To exploit these potentials, firms might actively stimulate chatbot usage on their websites or mobile interfaces to migrate their customers into chatbot interaction. Thus, customers have to make their choice between a website interaction and a chatbot interaction. If a firm favors one particular option, in our case the chatbot use, they could employ different strategies to lead people to their desired option (Krijnen, Tannenbaum and Fox, 2017). The strategic design of presenting different options, often also labeled as "choice architecture", could have a high impact on customers choices but also on their attitudes towards the "architect" as creator of the structures (Thaler, Sunstein and Balz, 2010).

In practice, two common forms of chatbot interaction promotion could be observed – either formulated as a request to enter the chatbot conversation (also labeled as "opt-in" strategy) or as presumed consent to a chatbot interaction as a starting point of the conversation (labeled as "opt-out strategy). To give consumers the freedom of choice, however, the option to leave the chatbot interaction is given in both cases.

So far, research has not addressed effects in the design of the transition from the e-commerce website to a customer-firm chatbot interaction. Related chatbot literature focused mainly on drivers of chatbot adoption, the design of chatbot features (e.g., more human-like features) or interaction effects (e.g., satisfaction) (Schuetzler, Grimes, and Giboney, 2019; Araujo, 2018; Gnewuch *et al.*, 2018). Using a lab experiment, we show that different types of chatbot migration strategies affect customers' perceptions and usage behavior.

Our research offers several contributions to marketing literature and management. First, it demonstrates that firms have to be aware of different impacts depending on their choice architecture when designing the chatbot interface. Being the first to analyze both attitudinal and behavioral effects of migration strategy in this context, extends literature by showing that not only the chatbot quality and design itself is relevant for success. Rather, also how to lead a customer from using a website to interacting with a chatbot needs to be considered carefully, as it is influencing customer perceptions and behavioral outcomes. For management, this

study offers a guideline in chatbot interface design depending on the business and customer relationship targets. Second, we add consumer attitudes as further perspective in the Opt-in/-out literature. Goswami and Urminsky (2016) noted already, that most current research focused solely on the effect of different choice architecture on the choice itself, neglecting influences on the choice makers' attitudes towards the policy maker. As asymmetric effect, consumers might consent to an offer, e.g., to a chatbot use due to the more intrusive or pushy opt-out strategy. At the same time, however, exactly this feeling of being pushed might be, at least sub-consciously, perceived and will affect their attitude towards the firm negatively. Our study includes the consumers' attitude perceptions towards the firm as policy maker, which might create undesired effects on downstream targets such as purchase, customer relationship or loyalty.

2 Conceptual Framework

2.1 Choice architecture

As reaction to a firm's offer of a chatbot, customers have to make the decision whether to engage in the offered chatbot interaction or not. In a more abstract sense, this is their first choice regarding the customer-chatbot interaction process. As firms create the chatbot and decide about the design and integration within their website, they could decide between many different ways to present the choice options to their customers. Many studies showed, that different forms of presenting choice options could have a strong effect on the decision of the targeted person (Krijnen *et al.*, 2017; Young, Monin, and Owens, 2009; Goswami and Urminsky, 2016). In their book "Nudge", Thaler and Sunstein (2009) coined the term "Choice architecture" to describe these strategic designs of favored options attempting to influence decisions of a target without eliminating their freedom of choice. It is important to note, that a "neutral" architecture is not possible, as any kind of presentation form is influencing the decision somehow. Thus, choice architecture is pervasive, unavoidable and could be done in many ways, by e.g., changing order attributes, setting defaults or by varying the number or ranking of choices (Thaler and Sunstein, 2009; Krijnen *et al.*, 2017; Johnson *et al.*, 2012).

Among these different possibilities to design options, in particular the nomination of a favored option as default was identified as one of the most powerful methods (Krijnen *et al.*, 2017). Positive effects of default setting on choice was shown in various fields such as economics, public policy, psychology, medicine or ethics, among others. Most related research determined that a default strategy takes advantage of consumer inertia, laziness, processing limitations or their strivings for effort reduction (Madrian and Shea, 2000; Young *et al.*, 2009; Brown and Krishna, 2004; Johnson, Bellman, and Lohse, 2002). Usually, defaults are presented in a rather implicit way (vs. explicitly mentioning them); e.g., via automatic enrollments or presumed consent (Krijnen *et al.*, 2017).

If consumers have to decide between consenting or refusing an offer, two distinct strategies could be distinguished: opt-in and opt-out. The opt-in strategy requests an explicit consent for the desired option, whereas the opt-out strategy presumes a consent from the decision makers, i.e., that they would choose this option unless voting for another option. Switching from an opt-in to an opt-out strategy revealed in several contexts a strong shift of consumer choices. For example, in some countries the citizens are presumed to consent to organ donation unless they register actively to not donate (opt-out case), whereas in others they have to register actively to be a donor. The opt-out strategy strongly increased donation rates across countries (Johnson and Goldstein, 2003). Likewise, if consumers are automatically enrolled in periodic payment plans, they are more likely to save for their retirement (Madrian and Shea, 2000). Most related studies analyzed situations where an inactive state (i.e. not making a decision) is

leading automatically to the selected default option (Johnson and Goldstein, 2003; Brown and Krishna, 2004).

However, in many situations in service or sales, this automatic process is not suitable, as consumers could not be compelled to act - e.g., to purchase items. Thus, following Goswami and Urminsky (2016), the decision to engage in a chatbot conversation is a choice-option default and requires active endorsement. This means, firms could not create a situation where consumers automatically are in a dyadic interaction (e.g., texting with the chatbot), but they could create a "presumed consent" by designing an already started conversation. In practical terms, they could start asking consumers a first question (opt-out strategy) instead of requesting consent for chatting first (opt-in strategy). This means, firms could alter choices by varying the presumed choice consent status of consumers.

2.2 Moderating effect of trust cues

When individuals are confronted with such an influenced choice option, they might perceive the default option as implicit endorsement and are, in turn, trying to interpret the possible intentions of the "choice architect" – i.e. the firm as creator of the options (Thaler and Sunstein, 2009). In general, consumers might have two distinct motives readily apparent: they presume that firms design choices either to help customers (i.e., customer oriented attribution) or to help themselves (i.e., egoistic, self-oriented attribution) (Thaler *et al.*, 2010). Obviously, the subjective interpretation result is strongly influencing consumers' attitude towards the firm and their subsequent behaviors. An inference of firm's egoistic motives is leading, in general, to negative impacts in both dimensions (DeCarlo, 2005; Thaler *et al.*, 2010).

To reach a more reliable evaluation, consumers search for any cues or hints that might guide their decision, such as signals, related experiences or personal heuristics (Brown and Krishna, 2004). The drawn inferences depend highly on the availability of these cues, such as former contact with a service provider, recommendations, ratings, brand image, or alike. Primarily, these cues should signal the trustworthiness or credibility of the sender (Mackiewicz, 2010). In turn, consumers take these signals then as basis for their beliefs about the sender's intentions behind the choice architecture (Krijnen *et al.*, 2017; Brown and Krishna, 2004). If consumers conclude that a firm is primarily designing the choice driven by egoistic motives, they are less willing to consent to the offer and their attitude towards the firm is turned negatively (Krijnen *et al.*, 2017). Within the e-commerce context, a common form of trust cues are customer ratings. In many cases, they are shown as a 5-star rating reflecting others' experiences. Since social ties or face-to-face contacts are missing in an online business, recipients have only limited abilities to assess the firm, and the evaluation of others should offer a useful cue for trusting beliefs (Mackiewicz, 2010).

3 Hypotheses

Regarding the differential effects of both Opt-in vs. Opt-out strategies on consumer choices, a clear trend could be identified. In most of the cases analyzed and across contexts, the presumed consumer consent in the Opt-out default setting increases the real consent of consumers – be it a product purchase, contract approval, or organ donation (e.g., (Johnson and Goldstein, 2003; Thaler and Sunstein, 2009). Thus, we hypothesize:

H1: Implementing an opt-out strategy will result in higher usage compared to the opt-in strategy.

In several studies comparing both choice strategies, the opt-out version offered higher levels of the desired choice, but is at the same time perceived to be more intrusive and could even lead to strong backlashes (Krijnen *et al.*, 2017). In contrast, and congruent with our pre-study

(focus group), the opt-in strategy is mainly perceived as gentle and polite invitation from the policy maker (Goswami and Urminsky, 2016). Therefore, we formulate:

H2: An opt-out (vs. opt-in) strategy will result in less positive attitude towards the firm.

Customers rely on available trust cues, as they try to evaluate the trustworthiness and in turn, the most likely firm intent behind the choice design. Foremost, consumers want to sort out whether a firm acts customer-oriented or self-oriented (i.e., egoistic), in order to react accordingly to the choice (DeCarlo, 2005). Ratings of other customers could serve as available trust cues, and are moderating if consumers are attributing egoistic or customer-oriented motives to the firm (see. Fig. 1). As observed in other studies, obviously low (high) ratings will result in negative (positive) inferences about the trustworthiness of the firm, and in turn, increasing attributions of egoistic (customer oriented) motives (Packard, Gershoff, and Wooten., 2016). Thus, we propose:

H3: Low trust cues will activate consumer's attributions of firm's egoistic motives.

H4: High trust cues will activate consumer's attributions of firm's customer-oriented motives.

Depending on the inferences activated in the consumers mind, they express different attitudes and behaviors. If consumers attribute egoistic motives behind the choice strategy, they expect that the firm will put their own interests before the customer interests, and might even try to deceive the customer. To cope with that, consumers should be more reluctant to use the endorsed chatbot (DeCarlo, 2005; Packard *et al.*, 2016). Furthermore, the concerns about possible negative impacts, such as manipulations, will affect consumers' attitudes negatively. We conclude:

H5: Higher levels of consumer's attributions of firm's egoistic motives will lead to (a) lower chatbot usage and (b) lower attitudes towards the firm.

In contrast, if consumers infer that firms designed the choice to help, these assumed good intentions lead into another mindset. In this case, the "absence of motivational concerns" (Packard *et al.*, 2016) and assumed supportive motive is leading to more positive attitudes and higher chatbot usage. We propose:

H6: Higher levels of consumer's attributions of firm's customer-oriented motives will lead to (a) higher chatbot usage and (b) higher attitudes towards the firm.

Based on the conceptual frame and hypotheses, we built our research model (Figure 1):

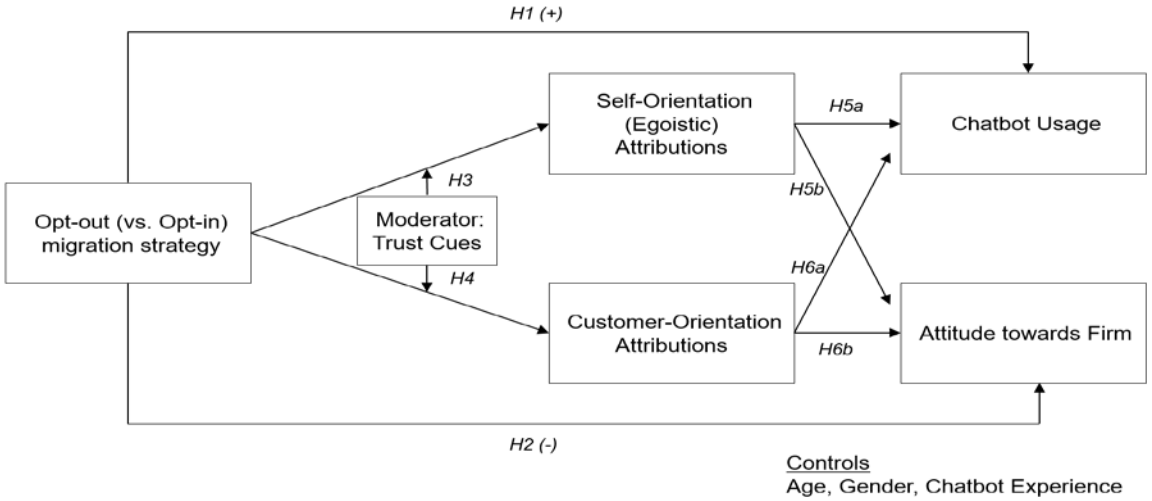

Figure 1: Research Model

4 Method

To analyze the influence of different choice settings (Opt-in vs. Opt-out) on consumers` chatbot usage and their attitudes towards the firm, we conducted an online experiment in an e-commerce context. We chose the insurance industry as study context, because in particular the finance and insurance service firms are searching for solutions to reduce their service costs while preserving to deliver a high level of customer service. Several big firms within the industry started to implement chatbots (e.g., Allianz, Axa) (Bergfeld, 2017) and are using both opt-in or opt-out as starting interface; thus offering a highly realistic case.

We conducted a qualitative pre-study (focus group) to analyze the choice of suitable trust cues as well as the realism level of the cases, including the opt-in vs. opt-out choices. The focus group confirmed that the developed cases reflect the theoretical study framework.

Second, to test the proposed relationships, we conducted a pilot study with a limited set of respondents (n=68), with an average age of 31 and a share of 60 % woman. We set up a web-based experimental scenario study with a 2 (Opt-in vs. Opt-out framing) x 3 (High credibility cue vs. Low credibility cues vs. No cues) design. We recruited students and university staff from a major German university. Participants were randomly assigned to one of the six scenarios, and were asked to imagine that they are interested in buying an insurance for their car, and have opened a website of an insurance company. On this website, a framed box (window) offered an interaction with a chatbot, either with a request to interact (opt-in version) or with a first question (opt-out version), presuming a consent to interact.

Subsequently, participants actively choose their desired activity, by mouse click on text buttons, either consenting to chatbot interaction, refusing it or choosing a button from the main menu. Hereby, a click on the chatbot interaction button is reflecting chatbot use as real behavioral variable. After presenting the manipulation, we will ask participants to rate their beliefs regarding underlying firm intentions.

We used existing reflective multi-item measures for all latent variables from the extant literature and adapted them to the study context. Scales for “Inferences of firm’s self-serving (i.e., egoistic) motives” were used from Habel, Schons, Alavi, and Wieseke (2016) and a “Customer orientation attributions” scale from Alavi, Wieseke and Guba (2016). “Consumers attitude towards the firm” was adapted from Packard and Berger (2017).

In order to keep the real target of the survey as disguised as possible, we conducted the research without a concise manipulation check. However, to integrate a verification of the manipulation to a maximum possible extent, we integrated two questions. First, we asked respondents if they feel that the chatbot “had already been started”. Second, they could rate if they “could decide, whether to start (or not) the chatbot at all”. Both questions were rated on a 7pt Likert scale.

Finally, participants rated the case realism level with two items from Wagner *et al.* (2009) and reported their prior experience with chatbots, insurances and online shopping, as well as their gender and age.

The confirmatory factor analysis results provided strong evidence of the reliability and validity of the used measures. Psychometric properties were all well above the recommended levels. In particular, the respective Cronbach Alpha`s ranked between α: ,76 for the Customer Orientation scale and α: ,921 for the “Attitude towards the Firm” scale.

5 Results

We used IBM SPSS 25 to assess the proposed relationships. The realism of our online scenario was acknowledged. The respondents rated the described scenario as realistic ($M_{\text{Composite score}}$=5.25, SD=1.31), significantly above the scale midpoint ($p < .001$).

Related to the manipulation check questions, respondents from the two scenarios (Opt-in vs. Opt-out) rated their perceptions whether the chatbot interaction has already started or not. Hereby, the different scenarios created different perceptions. As expected, participants in the Opt-Out scenario ($M_{Opt-Out}$= 5.15, SD=2.21) (vs. Opt-In, M_{Opt-In}= 4.15, SD=2.22) agreed more to the statement, that the chatbot has already started to interact with them – with a marginally significant difference (p< 0.1). Furthermore, the Opt-out participants expressed a higher perceived restriction of their free will to choose whether to interact with the chatbot (or not) ($M_{Opt-Out}$= 3.00, SD=2.13 vs. M_{Opt-In}= 5.07, SD 2.22), t(66) = -3.83, p < .001.

Regarding the main effects, Hypothesis 1 relates to the chatbot use as real consumer behavior. A Chi-square test of independence was performed to examine the relation between Opt-In vs. Opt-out design and the use behavior. The relation between the variables was significant, X^2 (1, N = 68) = 6.50, p = .0011. Thus, respondents in the Opt-out groups ($M_{Opt-Out}$=.52, SD=.51), compared to the Opt-in groups (M_{Opt-In}=.22, SD=.42), chose significantly more to interact with the chatbot. That means, that over 50% of the Opt-out group members chose the chatbot to interact with, while only 22% of the Opt-in group members chose alike.

Related to the ratings of consumer attitudes towards the firm, as stated in Hypothesis 2, no significant differences between the Opt-out ($M_{Opt-Out}$=3.97, SD=1.34) and Opt-in (M_{Opt-In}= 4.20, SD=1.17) groups could be found, t(66) = -.48, p =.63). If we compare the scenarios without any star rating, we have despite a very low sample size, an almost marginal significant effect, with t(66) = -1.60, p =.12).

Next, we analyzed the effects of customer ratings on consumers inferences of firm's motives. We could not find significant effects of either low or high customer ratings on customer inferences, be it egoistic motives or customer oriented motives (p >.10).

To test the influence of "egoistic" or "customer oriented" inferences of firm motives on the dependent variables, we applied linear regressions. In particular, the inference egoistic motives had no influence on chatbot use (p >.10). However, consumers who inferred these egoistic motives rated their attitude towards the firm significantly more negative, F(1,67)=17.43, p <.001, R^2=.20). A similar picture is revealed regarding the customer orientation inference. We did not find a significant influence of the "customer orientation" inference on chatbot use (p >.10), but we find a positive influence of this inference on attitudes towards the firm F(1,67)=12.17, p <.005, R^2=.14).
Regarding the control variables, we could not find any influence of gender, age, chatbot experience, insurance experience or online shopping experience on chatbot use or attitude towards the firm.

6 Discussion

Following the notions of Thaler and Sunstein's in their book "Nudge", the design of choices could influence consumer choices considerably (Thaler and Sunstein, 2009). This study analyzed, how website visitors could be lead to a chatbot interaction by strategically designing the starting interface.
In particular, we went deeper into the effects of creating a status of an expected consent and, in comparison, an active request whether to join the chatbot interaction. Therefore, we contribute to the growing literature of choice architecture (e.g., Brown and Krishna, 2004; Johnson *et al.*, 2012; Goswami and Urminsky, 2016; Krijnen *et al.*, 2017) by adding digital

interaction as new research field, analyzing the effects of an invitation to use a chabot, and the effects, when a non-action is not leading to the Opt-out case.
Furthermore, this research adds to the streams of chatbot interaction literature as quite new and upcoming field (e.g., Følstad and Brandtzæg, 2017; Gnewuch *et al.*, 2018; Araujo, 2018), following the strongly increasing relevance for businesses. As firms invest heavily into this field as new communication and service form to satisfy customer needs and save personnel costs at the same time, many questions regarding the effective integration into existing channels and communication tools, such as their existing websites, remain unsolved.

Our research indicates the following main findings on choice architecture effects in chatbot interaction interfaces:
Related to chatbot use as ultimate target of deliberate choice architecture, we found, that Opt-out version is significantly increasing the use rate (vs. Opt-in). Looking at the percentages of use, that the use rate was lifted by 30 percent points, from 22% to 52%. Thus, introducing the chatbot invitation with a question and overtly showing that the consent is presumed, is indeed leading to higher use rates. Members of the Opt-out scenario were aware of this attempt, as they indicated a significantly higher feeling that the chatbot had already started. So, it seems, that they follow the path because the interaction has already begun.

Nonetheless, to create longer lasting business results in today's competitive environments, a long-term customer relationship is highly relevant besides the one-time interaction effects. As one of the first studies in the choice architecture field, we therefore added the effect on customer attitudes towards the chatbot integrating firm as further dependent variable.
Related to this, as stated in Hypothesis 2, we expected the Opt-in design to be more gentle and to create a more positive attitude versus the more intrusive Opt-out version. Yet, in our pilot study, we found no difference of the Opt-in vs. Opt-out groups on their attitude towards the firm as chatbot-implementing counterpart. Though, due to the low sample size and sufficient mean differences (delta: -,23), we expect significant differences in the large-scale study. The non-significance is also interesting, as consumers in the Opt-out group perceived a restricted freedom in choice, as described above. Nonetheless, this perception seems not to lead to threaten the perception of the consumer towards the firm as creator of the chatbot and responsible choice architect – at least for the pilot sample.
Regarding the moderating effect of trust cues, we were surprised about the non-significant effects. Maybe, trust ratings are not considered as valuable cue for such an interaction because people do not fear a loss as in a product purchase or alike. Furthermore, customers might not be able to link the star rating with the categories of egoism or customer orientation, but rather with a feeling of chatbot functionality or not. Other relevant factors should be discovered by further studies.

Managerial implications
Our research offers several implications for firms aiming to integrate a chatbot interaction for customer service and sales.
First, the results suggest to use the Opt-out choice design to lead website visitors to the chatbot interaction. The pilot study exerted no negative effects on the attitude towards the firm. However, a large scale study might reveal, according to Hypothesis2, that attitude is affected negatively. If this is the case, firms have to decide, whether to choose short-term gains and lead users more intrusively with the Opt-out version, or prevent positive user attitudes while accepting lower chatbot usage rates with employing the Opt-in version.
Based on the current data, we conclude that while consumers feel more restricted in their freedom to choose the interaction or not in this Opt-out design scenario, this generally

negative feeling seems not to hurt the use rate or attitude negatively. Furthermore, the introduction of a star rating system seems not to be effective in these cases.

Limitations and future research

As with all research, this study comes with some limitations. Our current status of the study is still nascent, as we just started with a pilot study and limited number of respondents. As mentioned, we will set up a large-scale study to extend the data and reap more robust results. Related to the structure, our experiment used a single case of car insurance as one particular context. Further research with other settings and surroundings, for example with a product-related context would extend the generalizability of the findings. Next, a field study, with an integration into real firm websites, would help to increase the external validity. In particular, it would be interesting to see, how the firm image and perceived innovativeness, trust and their product types would influence the effects of consumer behavior and attitudes towards both the chatbot and the firm itself.

Furthermore, this study focused on a initial chatbot interaction – as consumers did not know the website, the firm and the chatbot interaction to exclude possible confounding effects. However, in real life, consumers are in a continuous exchange with firms. That means, their re-use intention of a chatbot and their loyalty attitudes after a chatbot interaction would be relevant for the firm to be considered as well. And, the business related results of chatbot interaction versus non-chatbot interaction, such as sales, type of items chosen and possibilities of cross-selling are important factors for future chatbot interaction research.

Moreover, our Opt-out scenario was still formulated in a polite way to be as close as possible to the Opt-In scenario, and to avoid confounds. Further research might analyze, if an Opt-out case with a stronger push feeling might create reactant feelings and affect the outcomes negatively.

There seems to be a promising development of chatbots. Currently, the experience with chatbots seems to be quite low, in our experiment it was rated below the mid-point (M=3.47, SD=1,78). The question is, if customers get more accustomed to use a chatbot, if this would serve for a more confident choice, and in turn, if this would affect the Opt-in vs. Opt-out design effects. We hope scholars will take these first findings, and continue to support both theory and practice with insights regarding chatbot design for long-term success.

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