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Communicating Service Offers in a Conversational User Interface

An Exploratory Study of User Preferences in Chatbot Interaction

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ABSTRACT

The increased interest in chatbots accentuates the importance of conversational design. A key conversational design challenge concerns how to communicate available service offers to users. We present an exploratory study, conducted in the context of financial service provision. Here, we first detailed four alternative approaches to communicate available service offers, reflecting different levels of proactivity. We then gathered feedback on user preference through interviews with 17 users following their interactions with prototypes representing the four approaches. Proactivity in the communication of service offers was found to be potentially valuable, provided that the offer is relevant to the conversation, do not compromise conversational efficiency, and is easy to discard. However, proactive communication of service offers may also entail challenges concerning perceptions of privacy and invasiveness, and, hence, needs to be designed with great care. Based on our findings, we summarize implications for theory and practice and propose directions for future research.

CCS CONCEPTS

• Human-centered computing~Human computer interaction (HCI); User studies;

KEYWORDS

Chatbot, conversational user interfaces, conversational design, user study

1 Introduction

There has recently been a renewed interest in chatbots. Within the field of human-computer interaction, this has strengthened awareness of the importance of conversational design – that is, the design of conversational content and interactions [9]. A striking challenge of conversational design, when contrasted to the design of graphical user interfaces, is that of communicating available service offers to users [16]. In graphical user interfaces such as webpages, multiple service offers may be presented simultaneously through the graphical layout – as content elements available directly on the screen or as menus, banners, or other mechanisms for communicating service offers. Not so in conversational user interfaces. Here, available service offers may need to be requested by users, something that makes it challenging to communicate new offers to users.

Chatbots are conversational user interfaces through which users interact in text or voice [8]. In current chatbots, the challenge of making service offers available to users is typically addressed through two different means: The chatbot may state possible service offers up front – for example as part of the introduction message – or the chatbot may include extra-conversational elements to present service offers – for example menus or carousels [17]. Some providers also sensitize users to available service offers by promoting these outside the chatbot user interface – on the website in which the chatbot is embedded, through newsletters, or through tutorials. However, these approaches are not sufficient. For example, Jain et al. [11] found that users struggle to understand which features, content, and services that are available through current conversational user interfaces.

In this study, we contribute to the existing literature on conversational design by identifying different approaches for service providers to communicate available service offers to users during chatbot dialogue

and user preferences for these approaches. While existing research has surveyed current means of communicating service offers in chatbots [17], there is a need for research exploring alternative approaches of such communication, as well as research gathering insight on users' experiences of these.

We outline four approaches to communicating service offers which differ regarding chatbot proactivity – a key dimension with regard to this challenge [16]. We then present a study where 17 users were exposed to these four approaches by interacting with chatbot prototypes and provided feedback on these. The specific context of the study was financial services and communication pertaining to a service offering on life insurance. Our findings serve to motivate future research and inform future conversational design. We also summarize key theoretical and practical implications.

Our exploration specifically concerns communication of market offerings. Hence, our study contributes to the emerging knowledge on chatbots for commerce- and marketing purposes which is considered an important prospective chatbot application domain [5,18]

2 Background

Conversational design has a long history within the field of informatics; in particular, within the dialogue systems community [14]. However, with the broadening interest in chatbots – following the advances within virtual assistants such as Siri and Alexa, as well as the 2016 launch of the concept conversation as a platform – conversational design has moved from being a discipline for interactions with highly targeted applications to concern interactions for a broader range of purposes. This is reflected in the surge of practitioner and researcher interest in conversational design resulting in textbooks on general principles for chatbot design [16], conversational design [9], and conversational UX [15], as well as research on specific conversational design challenges such as conversational repair [1] and how to represent context in chatbot conversations [11].

Communicating service offers is key to conversational design, and substantial progress has been made in this regard. Valério et al. [17] presented an analysis of strategies for presenting features in current chatbots, which closely resembles communication of service offers. Their analysis identified eleven strategies, all of which either relied on presenting offers and features upfront (e.g. as a welcome message or in a tutorial) or by utilizing extra-conversational interaction elements (e.g. menus, carousels, buttons, or quick replies). The identified strategies, hence, mimicked those applied in design of graphical user interfaces.

Communicating service offers, however, still is challenging. Shevat [16] argued that conversational designers all too often fail to communicate the value to the user, and suggested that chatbot designers need to find ways of communicate value to users while making sure this aligns with a pleasant user experience. He outlined how value may be communicated proactively through service offers, either at the onset of the communication or at a later point to revive user engagement. However, while proactive chatbot communication may be valuable to guide users, it may also be counterproductive if experienced as irrelevant or untimely [16]. Hence, chatbot designers need to strike a balance between communication of service offers that are sufficiently proactive to capture users' attention, while avoiding the risk of disturbing or annoying users. This balancing act is also well known from the service research literature, where studies on the one hand show the benefit of proactive service offerings while on the other identify challenges associated with overly sales-oriented proactive communication [2].

There is a shortage of research on how users perceive service offers presented in a conversational manner. Studies of user perceptions of chatbot communication of service offers in general are found in the marketing literature. Van den Broek et al. [18] investigated user perceptions of ads in chatbots on Facebook Messenger, finding that the relevance of the ad message moderated the effect of perceived intrusiveness and strengthened acceptance. In a study of user preferences for brand marketing chatbots, Chung et al. [5] found that the perceived accuracy and credibility of chatbot marketing communication positively affected user satisfaction.

There is also a shortage of studies of how users experience chatbot proactivity in communication of service offers, though some studies of chatbot proactivity in general exist. Liao et al. [13] studied user perceptions of

chatbot proactivity in a work context, noting the importance of users' current contexts and personal preferences if chatbots are to proactively engage a non-active user. Research has also been presented on, for example, how proactivity is beneficial for conversational agents in interactive narratives [7], and how proactivity in the chatbot may elicit beneficial explorational behaviour in users and avoid premature terminations of dialogue [4].

Current knowledge clearly suggests the relevance of proactivity in chatbot interaction, while there is only limited knowledge on how such proactivity impacts user perceptions of chatbot communication of service offers.

3 Research Objective

To contribute needed knowledge on how to communicate service offers as part of conversational interaction, and user preference for such service offers, the following research objective was explicated:

> How can service offers be communicated to users during conversational interactions at different levels of proactivity, and how are user preferences for such offers?

When exploring ways to communicate service offers to users, it is important to distinguish between different levels of proactivity in the chatbot. Presentation of service offers not already known to the user will by necessity require some level of proactivity. Furthermore, proactivity in communication may help lead users through different options, trigger desirable user behaviour and help extend fruitful dialogues [4,7] However, overly proactive chatbot behaviour may be interpreted as pushy or spammy [13,16].

To explore variations in the proactivity in how communicating service offers, we chose to specifically explore a small set of chatbot behaviours ranging from highly reactive to highly proactive and have users provide feedback on these.

4 Method

We pursued the research objective in the context of a design science research project [10]. Four approaches to communicating service offers were outlined, reflecting different levels of proactivity. These approaches were then prototyped and made subject of user evaluations where feedback was gathered through interviews. We describe each step of the process in the following.

4.1 Study context

The study was conducted in collaboration between a research organization and a service provider, as part of a broader research project aimed at creating new conversational designs to strengthen user engagement with service providers. The service provider in the study offered financial services, such as pensions savings and life insurance. The service provider already had a chatbot for customer service embedded in their website. The conversational designs developed in the study were to explore possible extensions to this chatbot.

The new conversational designs were to potentially enable the chatbot to serve as a key point of contact between the user and the service provider through the users' explorations of service offers, onboarding as a customer, and maintenance of a customer relationship. Conceptualizing and prototyping different approaches to communicating service offers were part of this overall aim.

The service offer chosen for this study was life insurance, a service offer intended to reduce negative financial impact of severe disease, disability, and death for the insurance holder and family dependents – often acquired when taking on substantial financial obligations, such as mortgage loans. Life insurance was seen as a good example service offer for this study. It is relevant to a broad range of users and entails substantial information needs as its benefits and limitations depend on the specific life situation of the user.

4.2 Concepts and prototyping

Conceptualization of the different approaches to communicating service offers was done on the basis of previous user research concerning the existing chatbot solution as well as workshops with service owner

representatives. The aim of the different approaches, at varying levels of proactivity, was not to be a comprehensive review of possible means of communicating service offers but instead to instantiate approaches for communication at different levels of proactivity that were meaningful to the service provider and reflecting plausible usage situations. Specifically, the approaches should all be adequate responses to the challenge of supporting users' explorations of service offers.

The chatbot prototypes were designed as instantiations of the initial concepts, following feedback from service provider representatives and in response to the gathered user research. The chatbot prototypes were implemented using chatteron.io, a conversational platform allowing for interactions resembling those in the service provider's current chatbot while showcasing new functionality.

4.3 Evaluations for user feedback

The user evaluations were conducted in a usability laboratory setup. All evaluations followed the same predefined protocol. A moderator guided the user through interactions with the prototype and gathered feedback in the form of interview-sessions at predefined points during the evaluation session. As such, the procedure resembled a cooperative evaluation [19] but with user feedback gathered through demarcated interviews at different points in time in the evaluation protocol.

In total, seventeen participants were involved – 6 male and 11 female. The participants were recruited through a survey panel, representing users of financial services. Average age was 38,5 years (range 20–60 years). The evaluation sessions lasted about 1 hour. The first session parts, approximately 30 minutes of each session, concerned the four approaches to communicate service offers.

All participants tried out all four approaches sequentially. Each of the four approaches were presented as alternative ways of communicating information on life insurance, the service offer in question. The order in which each participant tried the four approaches was set up following a Latin square design [12] to counterbalance sequential effects.

For each of the four approaches, the moderator presented a simple scenario where the context of use was exemplified through a persona in a specific situation. One such scenario could be that the persona wanted more information on life insurance, browsed the service provider webpage for such information, and then evoked the chatbot. After the scenario presentation, the moderator observed the participants as they interacted with the chatbot prototype for the specific approach.

Following their trial of an approach, the participants were interviewed. In total, four such interviews were conducted – one for each approach. The procedure for these interviews included four questions concerning (a) the participant's immediate experience of the approach, (b) positive aspects of the approach, (c) negative aspects of the approach, and (d) change suggestions.

The interviews were recorded following participant consent. The interview data was processed through a thematic analysis [6]. To provide a sense of the prevalence of the different identified themes, we report the number of participants mentioning these in brackets along with the theme in the results section.

5 Results

5.1 Different Approaches to Service Offers in Conversational Design

Service offers may be communicated in myriad ways within conversational design. However, given the importance of finding the right level of proactivity in the communication [16], we specifically set out to identify conversational designs that reflect different levels of proactivity in communication of service offers.

On the basis of user research and workshops with the service provider representatives, we conceptualized level of proactivity as a scale going from reactive to proactive. At the end points of this scale we outlined two approaches: (a) Service offer communicated upon request (reactive), and (d) service offer communicated in response to user segmentation without any other relevance (proactive). Between these endpoints, we then outlined two alternatives reflecting intermediate options: (b) Service offer communicated in response to relevant

user behaviour (intermediate-reactive) and (c) service offer communicated in response to a preceding topic in the users' chatbot conversation (intermediate-proactive). The four approaches are outlined in Figure 1.

The four approaches resemble current practices for communicating service offers in other online contexts. **The reactive approach (a)** resemble presentation of service offers in response to search queries from users. In our study, this was represented by the user asking the chatbot directly for information on life insurance. The user is in full control and the chatbot provides information only when asked. The service provider ensures that the chatbot is not perceived as pushy but run the risk of users being unaware of relevant service offers. **The intermediate–reactive approach (b)** is similar to content modification in response to users' immediate onsite navigation and clickstreams. In our study, this was represented by the chatbot adapting its content to concern life insurance when evoked by the user from a webpage on this topic. The user is largely in control, as the service offer is communicated only after the user showing initial interest through website behaviour. **The intermediate–proactive approach (c)** is reminiscent of algorithmic filtering in response to website content consumption – such as having new content suggested following reading of news articles or watching topical videos. In our study, this was represented by the chatbot offering information on life insurance at the end of a chatbot conversation concerning mortgage loan – a topic typically related to life insurance. This approach seeks to leverage identified user interest and engagement. Finally, **the proactive approach (d)** resembles algorithmic filtering in response to user profiles established through user registration or prolonged user interaction. In our study, this was represented by the chatbot offering information on life insurance in response to the user being identified as belonging to a relevant customer segment. The four approaches reflect increasing levels of proactivity. The more reactive approaches are triggered more through immediate user behaviour; the more proactive approaches are triggered based on increasingly intimate knowledge of the user and the user interests.

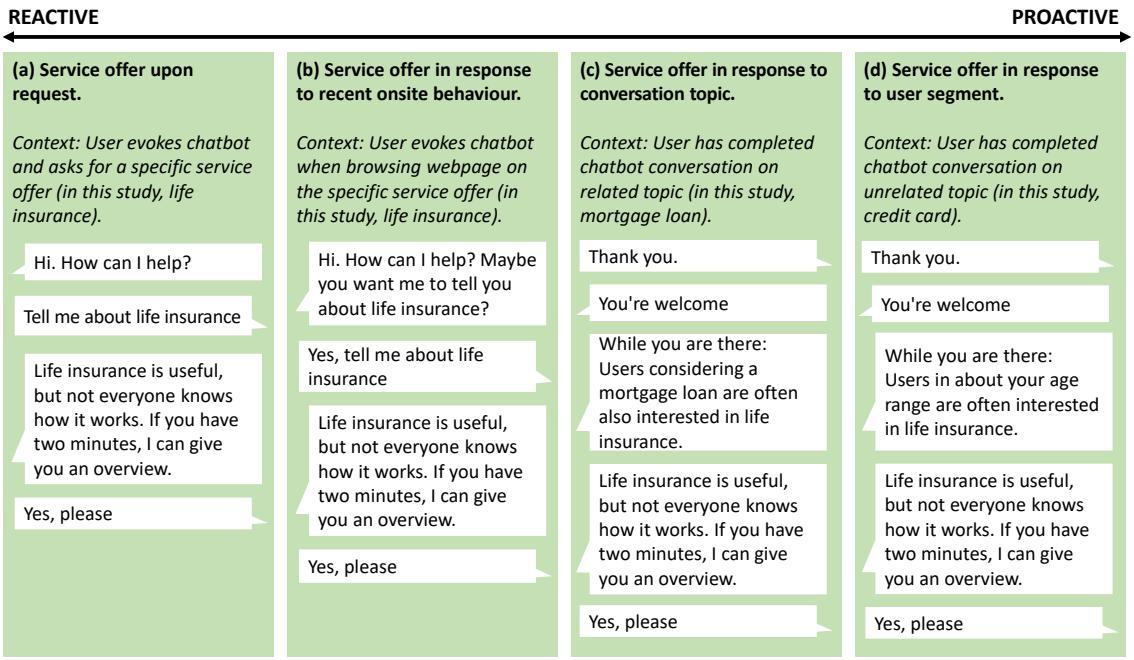

Figure 1: Four approaches to conversational communication of service offers – varying levels of proactivity

5.2 User Perceptions of Chatbots Presenting Service Offers

The 17 participants provided rich feedback on the four alternative approaches to communicate service offers. We first present feedback with relevance for all approaches. Then we detail feedback for each specific approach.

5.2.1 General perceptions on presentation of service offers in chatbot

During the interviews for each of the four approaches, the participants provided general details on their preferences for communication of service offers in chatbots.

The importance of efficiency in communication: Most of the participants made a point of being restrictive of their time when using a customer service chatbot, and hence accentuated the importance of efficiency when communicating service offers. Specifically, it was reported as positive that the service offers were communicated in a manner that was simple and easy to process (9). It was also noted that service offers should be presented in a clear and intuitive manner, so that the user knows exactly what to expect (6). The participants strongly discouraged vague and ambiguous communication from the chatbot.

> *I feel it provides information in a simple way. […] there is often too much information.* (P17)

Keep in mind that users may have other immediate preferences: The participants also made note that service offers should be presented in ways that are sensitive to that users may have other priorities. For example, the participants reported it to be useful for the chatbot to communicate that they could get a reminder at a later point in time (7) and that it was important to make it easy to take the conversation in other directions than pursuing the service offer (2).

> *It is important to be able also to get other answers. For example, service terms and conditions.* (P10)

5.2.2 (a) Reactive: Service offer presented upon request

Reactive communication of service offers was in line with participant expectations and preferences for a customer service chatbot. Most participants were generally positive to this approach (10) and some noted that the chatbot adapted its answers to their needs and preferences (5).

> *This was truly useful. Here I get exactly what I need.* (P7)

Some of the participants also noted that the reactive approach increased the efficiency of the interaction, allowing the users to read as little as possible – thereby saving time.

> *I get answers matching my situation, and it is time saving. I do not have to read that much.* (P3)

5.2.3 (b) Intermediate–reactive: Service offer in response to onsite behaviour

Communicating service offers in response to prior website browsing also received mainly positive feedback from the participants (10). Specifically, most of the participants noted that they found this approach to reflect relevant communication (13). They reported to see the chatbot's follow-up of what they recently showed interest in as good customer service – much like when service personnel in a physical shop asks if you need help when you study a particular selection of goods. Also, the participants said that such follow-up from the chatbot may help increase efficiency and may also help the user to focus on the task at hand.

> *It is good that I do not have to ask – that I immediately get information on what I am interested in.* (P6)

Some also pointed to the importance of designing this approach in a way that is seen as reflecting cautiousness in the chatbot approach (4). They noted that they preferred that the chatbot opened only when evoked by the users – not popping up automatically. Some also made a point of noting that the user could be interested in something else than suggested by their onsite behaviour (6). Hence, the service offer should be easy to discard.

> *If you happen to be on the webpage for Service A but have questions about a different service, it may seem weird to get offers about Service A.* (P9)

5.2.4 (c) Intermediate–proactive: Service offer in response to conversational content

Service offers communicated following a conversation on a related topic is an approach of a relatively proactive character. However, most participants responded positively also to this approach (11). Specifically, the participants found it positive given that the chatbot clearly explained the relevance to the preceding conversation (9). That is, it was considered the responsibility of the chatbot – as representative of the service provider – to communicate the relevance of the offer.

This is informative. And it explains why life insurance may be relevant. (P12)

Some of the participants also noted the importance of the chatbot communicating the service offer in a cautious manner also for this approach (5), to make it easy for the user to discard the offer. Also, some of the participants, specifically noted that they did not appreciate this mode of communicating service offers (4) as it was perceived too invasive; they wanted the chatbot to be a channel not suggesting offers proactively (4).

life insurance is maybe something I should know about, but this is not the right time or place. (P7)

5.2.5 (d) Proactive: Service offer in response to user segment

The most proactive approach, having the chatbot present a service offer in response to user segmentation, was less appreciated by the participants. Here, most participants reacted negatively (9), whereas only a few were positive (4). Specifically, the participants did not find this way of communicating a service offer relevant to the conversation. Some also experienced such proactiveness in the communication as invasive and potentially triggering privacy concerns (3).

This feels like somewhat aggressive marketing, as it is not related to the initial dialogue. (P11)

When this is said, some also noted that they saw potential value also in such proactive communication of service offers (6). In particular, it was noted that this may be an acceptable way to get information about something of benefit to the user, provided it is easy to discard the offer.

I have not thought much about life insurance, and it may be valuable to get a reminder on this. (P12)

6 Discussion

In our study we have outlined four approaches to communicating service offers in conversational design. The four approaches complement what is presented earlier in chatbot practice and research [e.g. 16,17], particularly as the approaches serve to distinguish such communication according to levels of proactiveness.

The study provided rich insight on user preferences toward the four approaches. In line with existing guidelines for conversational design [9] the participants emphasized the importance of designing with user efficiency in mind. A key motivation for users to engage with chatbots is to get easy and accessible help and information [3]. Our findings show that also when communicating service offers it is critical to design for efficiency in conversation.

The study revealed that varying levels of proactiveness in chatbot communication may be in line with user preferences. That is, users see benefits with both reactive and proactive approaches. This resonates the findings of Liao et al. [13], where the benefit of proactiveness in conversational agents for work support was found to depend on the context of use as well as on individual user preferences. In particular, the perceived relevance of a proactive communication by the chatbot was found to be critical for the communication to be considered valuable by the user. Hence, if the perceived relevance of a service offer cannot be determined, proactivity may be a riskier approach.

Reactive approaches leave the user in control and are in line with user expectations. That is, users will likely be satisfied by the customer service chatbot provided they get the needed service offers upon request. However, the participants also noted that reactivity may lead to users remaining unaware of relevant service offers, that is, a lack of proactivity may lead to users potentially missing out on relevant information or opportunities. In consequence, well-crafted proactive approaches may be considered valuable, reflecting good customer service. This complies with previous findings by Chaves and Gerosa [4], suggesting that proactivity in chatbots may lead to beneficial exploration by users, and is also in line with findings from service research where proactivity in relevant service offerings often is appreciated by users [2].

Likely, the key determinant of the benefit of proactive approaches is the perceived relevance of the service offer. Unless the service offer is perceived as relevant to the conversation at hand, it likely will be regarded as unwanted and invasive – as also suggested in the literature [13,16] Also, designers of conversational

interactions need to make note of the individual differences in user tolerance for proactivity in conversational design. Because of this, as suggested by the user participants, it will be important to communicate service offers in a cautious manner and make them easy to discard – so as to be potentially helpful but not to place any undue demand on the user.

Key implications for theory:

- **Proactivity is part of conversational design:** To understand conversational interaction and design for such conversation, knowledge is needed on proactivity. We need theorizing on what proactivity means in conversational design and how proactivity may engage users.
- **User preferences for proactivity have a broad scope:** Users do not hold a specific preference for or against proactivity but may value a range of communication styles. Research is needed to explore this variation in preference further.

Key implications for practice:

- **Proactivity may be beneficial:** Chatbots proactively communicating service offers may be seen as valuable by users, for example being perceived as efficient and reflecting good customer service.
- **Proactivity should be designed with care**: Proactive communication of service offers may backfire if this is not seen as relevant by the user. Furthermore, it is the responsibility of the service provider to make relevance clear to the user. Irrelevant offers may be perceived as invasive and as entailing privacy concerns.

The current study contributes to the emerging body of knowledge on conversational design. At the same time, the study also is limited. Main limitations concern the exploratory character of the study and that it was conducted within a particular design science project for a service provider within a specific domain. Given the current state of the art, an exploratory and case-dependent study is valuable; for example, to drive theory building and help formulate hypotheses for future explanatory studies. Such explorations may also provide valuable guidance for practice though the generality of results across service contexts needs to be validated through future work.

For future research, we envision studies with experimental comparisons of different approaches to communicating service offers. Such studies could be conducted in the context of implemented chatbots, for real-world insights. It would also be valuable to investigate different levels of proactivity in communicating service offers across service providers and domains – to explore differences and similarities. Hopefully, the presented study will motivate needed future research in this important and engaging area of conversational design.

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