BUSINESS BENEFITS AND CUSTOMER PERCEPTIONS IN CUSTOMER SERVICE CHATBOTS

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The implementation of chatbots offers benefits but also causes risks, making it important for companies to understand their customers' perceptions. Benefits and risks were previously researched, but were often limited to specific features. The focus of this research paper is to determine whether businesses have a comprehensive understanding of potential dangers, benefits, and consumer perceptions regarding customer service chatbots. The objectives are to find and understand the relationship between company expectations and customer perceptions, and to describe the risks and benefits associated with customer service chatbots. The conducted thematic analysis on interviews with companies and customers showed that the expectations and customer perceptions align. This analysis describes how overall chatbot implementation and quality of interactions can positively and negatively influence customer loyalty, interest, and experience. In conclusion, companies seem to comprehend the perspectives of their customers and are prepared for the benefits and risks regarding chatbots in customer service.

1   Introduction

In recent years, Artificial Intelligence (AI) has influenced various factors in our daily lives. AI is implemented in various systems and programs, including chatbots. Chatbots are programs that often use Natural Language Processing for communication in comprehensible human language, but they can also work through keywords. Their use has become more widespread, especially in business settings like customer service, entertainment, and e-commerce (Hasal et al., 2021).

Businesses can benefit from chatbots by providing continuous customer service, personalizing interactions, reducing costs, automating routine tasks, improving customer interaction, personalization, and enhancing data utilization (Hasal et al., 2021; Kedi et al., 2024). This may even provide automation of repeated tasks, thus ensuring less need for hiring additional staff. These benefits might increase customer engagement, service, satisfaction, and loyalty. While chatbots provide benefits for companies, they also introduce new risks. Chatbots often learn from user data, which can create security risks. The study of Hasal et al. (2021) on security, privacy, data protection, and social aspects reveals that great responsibility is involved with chatbot implementation.

The use of chatbots may also bring positive and negative outcomes in interactions. Chatbots may reduce stress, improve tasks, and increase trust, but can also reduce trust, frustrate users, or provide overall unpleasant interaction (Ranieri et al., 2024). Negative outcomes might occur when the chatbot doesn't fit in its own context, which might cause unsatisfied expectations (Gnewuch et al., 2017). To ensure positive outcomes, evaluating company comprehension of the benefits, risks and overall company perceptions is important, which is the objective of the current research. This involves comparing the expected advantages, risks, and perceptions of chatbot implementation from the perspectives of companies with those of the customers. Customer loyalty can also be impacted by chatbot benefits (Kedi et al., 2024).

This study's research question is the following: 'Is there a relationship between the company expectations regarding the benefits of customer service chatbots and the customer perceptions of their experiences?' By comparing perspectives, this study aims to provide insights into how well companies comprehend chatbot risks and

benefits. A hypothesis indicating a relationship between interaction and loyalty will also be conducted to provide further insights into the research question.

2   Literature Review

Selamat and Windasari (2021) found that customers value chatbot features like responsiveness, personalization, and human-like interaction. They narrowly focused on conversations where human conversation styles are mimicked, leaving other important features unexplored. In contrast, Johari and Nohuddin (2021) identified seven features preferred by users for good quality chatbots, including functionality, efficiency, humanity, effectiveness, technical satisfaction, and ethics. The study was only limited to vital features and left the eventual benefits unexplored. Similar findings were concluded in the study by Jenneboer et al. (2022), which indicated that customer satisfaction and loyalty could be raised through optimization of the customer experience. This optimization could best be done through offering quick and relevant information and ensuring system, information, and service quality. These results might indicate that there is a possible connection between chatbot interaction and customer loyalty. In the study, there are some limitations regarding a lack of focus on age demographics and functions and contexts of a chatbot. The current study aims to address these limitations by ensuring deeper investigation into customer preferences and perceptions, company expectations, and business benefits regarding customer service chatbots.

Gümüş and Çark (2021) conducted a study on the effects of chatbots on customer satisfaction, where results indicated that perceived ease of use, usefulness, and enjoyment positively influenced customer experience and behavior. A study on chatbot security by Hasal et al. (2021) revealed other impacts on customer attitudes. That study reveals that security practices should be implemented with chatbot usage within a company. Communication with chatbots can raise security issues, which might cause concern among customers and negatively influence a company. The study by Tran et al. (2021) found topics unexplored by the previous two studies, revealing that a user's attitude towards chatbots is more positive than towards human assistants after chatbot implementation. Chatbot implementation might possibly lead to dissatisfaction when customers must wait to receive support. However, it is also indicated that the difference of products and services also impacts this attitude.

All three studies had some limitations, where the study by Gümüş and Çark (2021) had cross-sectional data, a lack of focus on specific sections, and used moderate sample sizes. Meanwhile the study by Hasal et al. (2021) made use of data manipulation, as companies are unable to share security secrets. The study by Tran et al. (2021) contained sampling limitations and a lack of focus on different types of chatbots. This research addresses each of these limitations by ensuring a focus on generative and keyword-based chatbots along with applying multiple research methods.

A study on user experience of ChatGPT by Skjuve et al. (2023) revealed that a chatbot's effectiveness, usefulness, and interactions improve user experience. Meanwhile, user experience is negatively impacted when the chatbot is irrelevant, unresponsive or has poor interactions.

3   Methodology

3.1   Data Collection

3.1.1   Qualitative Approach

Qualitative approaches are used as the main source of data for answering the question. Interviews were conducted with two male and three female customers with previous chatbot experience and four company representatives interested in chatbot implementation. These companies include an instance of homecare, technical, and chatbot focused companies. Two of the companies were selected through personal connections, and the other two were found through networking events. Through the interviews, the perceptions of customers and company expectations regarding customer service chatbots and their benefits were collected through questions focused on a customer's experiences and a company's expectations of benefits and risks of chatbots. Qualitative approaches were selected with the intent to receive a deeper understanding of the reason why companies or customers feel a certain way. Further analysis was provided for customer perceptions by a company that could provide information on how their customers perceived chatbot usage in the past, which was first evaluated for its reliability and then combined with customer perceptions. To ensure reliability and validity, interviews were conducted in a flexible

way so that participants could answer questions based on their knowledge or experiences.

3.1.2 Quantitative Approach

In the current study, a hypothesis suggesting interactions to impact customer loyalty is tested through quantitative research. Interaction quality is measured through likert-scale questions describing a customer's opinion on the statements related to efficiency, conveniency, and quality of interactions. With the survey focused on customers, responses from 200 participants found through Prolific of various ages and with previous chatbot experience were collected. Loyalty was described using the participant's agreements to the following statements: "Chatbots that I previously used have encouraged me to return to the business," "Chatbots have enhanced my overall loyalty and trust in the company's ability to provide good services," and "A chatbot's quality can impact my view on a company". Meanwhile interaction was described using answers on the following statements: "Chatbots have made my interaction with businesses more efficient and convenient," "Chatbots often improve the quality of customer service," "Chatbots provide faster service compared to human customer support," and "Chatbots efficiently resolved my issues without the need of further assistance." These questions help measuring customers' opinions on interaction quality and a chatbot's impact on loyalty. The questions and measures used are self-developed; they are designed to best capture and describe the key components of interaction quality and customer loyalty in chatbot usage. While not drawn from existing literature, the items were aligned with the topics while being easy to understand for participants.

3.2 Data Analysis

First, the interviews were transcribed, and words related to the research objective were highlighted inside the file. Python was used to automate extraction of these highlighted phrases and saving into a comma-separated values (CSV) file, ensuring consistency and efficiency in data processing. Thematic analysis was then performed by assigning themes and keywords and summarizing the main takeaways of the phrase. These themes and keywords were further analyzed, interpreted, and compared. Customer perceptions were collected through interviews with chatbot users and a company's research on customer interactions with chatbots. The

company's findings were shared to support the interviews and must be compared to evaluate reliability and validity.

4   Results

In this section, the results of the qualitative and quantitative analyses will be explored and evaluated. Qualitative results are divided into three groups: customer perception based on previous analysis of a company, actual customer perception, and the expected benefits from companies. Important patterns of this analysis were tested further using a conducted survey on chatbot interactions.

4.1   Topic Distribution

Thematic analysis revealed differences in the distribution of key topics between customer perception and company expectations. Customers frequently mentioned chatbot implementation and service quality as important aspects. Chatbots were often compared to human services, which might indicate that this comparison could play a role in customer experience. Many customers had similar ideas, shortly described by a male interviewee: "The answers are great, but I always have this gnarly feeling when I talk to a chatbot or any AI as it still isn't human so the answers could still be wrong". Overall customer perceptions and loyalty were not mentioned in interviews, but this does not outline its importance.

Company expectations on benefits and customer perceptions regarding customer service chatbots are vital for this study. Thematic analysis revealed common company expectations in terms of benefits, risks, or overall customer perceptions. The analysis shows that companies mentioned service and implementation many times in interviews. That could mean that companies expect a chatbot's service and implementation quality to greatly influence risks, benefits, and customer perceptions. Customers are often expected to compare chatbots with human agents. The benefits a chatbot provides to businesses are very important to companies, as it was mentioned frequently in the interviews. Loyalty, security, and overall customer perceptions were not mentioned many times in interviews but might still provide valuable insights.

4.2   Main Takeaways

4.2.1   Customer Perception through Company Analysis

The interview about company-analyzed customer perception has revealed the quality of information and quality of overall implementation to be the most important themes. "People often drop out if the quality of the asked information is not good," said a male participant. "The quality of a conversation is crucial." The participant mentioned many vital subjects related to service, such as correctly answering Frequently Asked Questions (FAQ) having a positive effect on a customer's perceptions. They also mentioned how correct information must be translated correctly.

Participants regularly stated that overall implementation may have a strong impact on customer perceptions. Keyword-based chatbots typically provide incorrect answers and cause negative associations. Common User Interface (UI) decisions are typically perceived as annoying, and people from older generations are more frequently negative about chatbot implementation. Participants describe that bad experiences, interactions, or inaccurate information could harm a company's reputation and reduce interest in its products or services. Fast and accurate information was indicated to provide positive impacts on the view of your company.

4.2.2   Customer Preferences

In addition to interviews related to previous company research, interviews on customer preferences have been personally conducted for comparisons and have indicated many vital details for this research. Their statements indicate that customers prefer to receive short answers to simple questions and long answers to complex questions. Customers commonly believe that chatbots can handle urgent or complex issues with accuracy, but still occasionally become dissatisfied when a chatbot does not provide a full answer, which, along with not understanding questions, causes annoyance.

Many customers have expressed a dislike for keyword-based chatbots due to the lack of a broad selection of responses and choices. Having to go through a chatbot before the ability to talk to a human also causes many negative perceptions. A customer is

satisfied once the answers are accurate, brief, and straight to the point. Customers feel like chatbots are the best fit for simple queries, whereas human services are preferred for more complex questions. The answers of human services are perceived to be more correct than chatbot answers.

4.2.3 Company Expectations

Companies expect that the increase in benefits is caused by a chatbot's speed, ease of use, clarity in response, focus on service, quick solutions, presentation, and ability to answer FAQs. They are expected to solve the problem and find products more easily. Companies expect chatbots to fail more likely on broad and complex questions, and a loss of interest is expected with insufficient implementation. They also stated that poor UI quality might cause aggression or frustration for the customer. Chatbots are anticipated to influence loyalty by ensuring easy contact or increasing interest in products or services. Wrong implementation of chatbots is expected to influence negative characteristics, yet right UI decisions, information selection, or a combination of a chatbot with human agents or AI is expected to bring new benefits. Not all companies might receive advantages for using a chatbot, since company demographics can often differ. Security issues are expected to impact customer perceptions due to possible leakage of data.

4.3 Quantitative Findings

Important patterns were found during qualitative data analysis and were evaluated with quantitative methods to judge reliability. A frequent pattern in qualitative data was good interaction with chatbots causing more loyalty. Survey questions were assigned to a specific theme and further analyzed. The distribution analysis in Figures 1 and 2 show the level of impact and improvement on loyalty and interaction based on the answers of male and female participants, aged between 18 and 71 years. Figure 1 shows a chatbots having a medium to high impact on loyalty, and Figure 2 shows that chatbots cause an improvement on interaction quality.
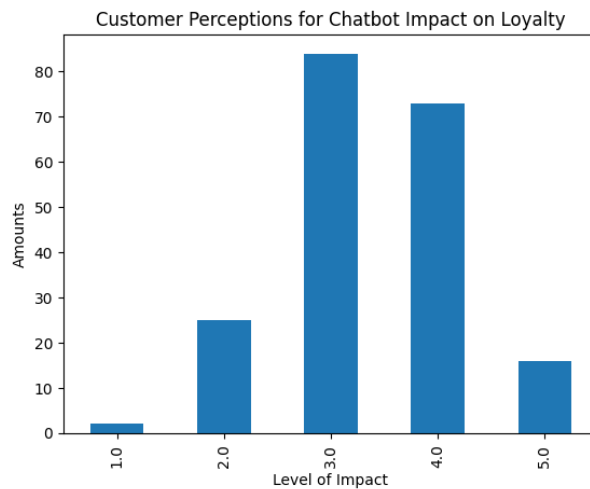
Figure 1: Histogram of customer opinions: chatbot impact on loyalty
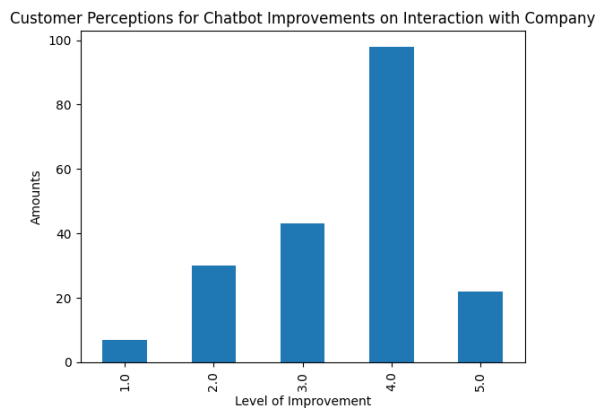Source: Own

Figure 2: Histogram of customer opinions: chatbots improve interaction
Source: Own

Figure 3 tests a hypothesis indicating a relationship between interaction and loyalty, in which Pearson and Spearman both indicated that a statistically significant positive relationship is found. With a correlation of 0.71, a p-value below 0.001, and a chi-square statistic of 172, a strong correlation and association are indicated.
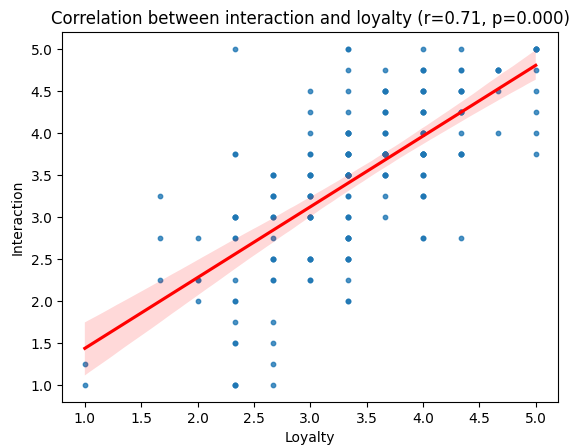
Correlation between interaction and loyalty (r=0.71, p=0.000)

Figure 3: Pearson correlation
Source: Own

5   Discussion

To answer the research question, thematic analysis was performed on the qualitative data. The results of this analysis were then compared with other groups.

5.1   Customer Comparisons

Before comparing company expectations with customer perceptions, it is important to compare results of the customer perceptions according to a company with the preferences according to customers. The results largely aligned, showing customers to be more positive towards chatbots providing high-quality, quick, accurate, and direct answers, increasing loyalty. However, incorrect answers, bad interaction, or poor-quality conversations may lead to a decrease in loyalty and loss of interest for customers. These findings seem to align with the study by Jenneboer et al. (2022), that study mentioned that speed and relevancy of information and service quality can impact the loyalty of the customer. The comparisons also showed that while customers prefer human interaction, demand decreases when chatbots provide high quality service. As stated previously in the results section, keyword-based chatbots cause negative associations among customers, and UI implementation greatly impacts the customer perceptions too. The age demographic of a company should

also be evaluated before implementing a chatbot to ensure that the company benefits from it.

5.2   Final Comparisons

Using the findings of customer perceptions, the comparison between company expectations and the actual customer perception can be evaluated. In this section, comparisons are made between the various results and existing literature. The important comparisons will be made first and afterwards interpreted into the research question.

Regarding chatbot service, both company expectations and customer preferences align well with each other. Both groups expect chatbots to be most effective when providing quick, direct, accurate, and easy-to-access information. This aligns well with the studies from Gümüş & Çark (2021), indicating that the ease of use, usefulness, and enjoyment influence customer experience, and Jenneboer et al. (2022), describing an impact on customer satisfaction through offering quick and relevant information along good quality service. The study by Skjuve et al. (2023) also aligns with the findings, mentioning how a chatbot's efficiency, usefulness, relevancy, accuracy, interaction quality, and intelligence improves user experience. Both groups expect early chatbots to perform poorly due to insufficient data and poor-quality conversations, potentially harming customer interest. Misalignment was also present, where companies expect chatbots to solve customer problems, while customers often experience inaccurate or incomplete answers to their questions. This misalignment might be due to bad experiences with different implementations of chatbots or companies having high expectations for chatbots.

Companies and customers seem to have aligned ideas related to loyalty. Both parties expect loyalty to decrease with poor or inaccurate information and to increase with quick and accurate answers and easier contact. The increase in loyalty due to quick and accurate answers is a finding also mentioned in the study of Jenneboer et al. (2022). Companies expect chatbots to have the ability to sell new products to customers, although customers did not mention this. This misalignment could be either due to customers lacking that experience or customers not mentioning this idea.

Ideas about human services compared to chatbots seemed to mostly align. Both parties argue that customers prefer human services over chatbots due to accuracy and better help. Chatbots are preferred for simple questions, and demand for human services will decrease while chatbot quality increases. Some aspects still do not align, like companies expecting chatbot preference for language barriers, the feeling of personal contact reduction, and customers mentioning chatbot preferences when human assistance takes too long. These are not mentioned by opposite groups, likely due to a lack of data or experience. The findings seem to contradict the findings of Tran et al. (2021), describing the attitudes towards chatbots to generally be more positive, while the findings of this analysis indicate a likely more positive attitude towards human assistants.

The findings indicate that most ideas of customers and companies regarding implementation seem to align as well. Both mention the negativity toward keyword-based chatbots, the impact of UI changes, relevancy of information, varied implementation per company, and direct, brief, and accurate answers causing satisfaction. These findings seem to align with the study by Jenneboer et al. (2022), describing how quick and relevant information impacts customer experience. Some statements did not align, such as forcing customers to use a chatbot before offering human services, causing dissatisfaction, an idea also mentioned in the study by Tran et al. (2021). The customers' preferences toward human-like speech, which Selamat and Windasari (2021) also found in their study, was not stated to be expected by the company either, so accurate comparisons can't be made related to that topic.

Opinions on security and business benefits did not align, where companies expect chatbots to cause security risks, causing customer mistrust. However, customers have not mentioned these topics in the interviews, likely showing either a sampling bias or customers overall not thinking about it. The study of Hasal et al. (2021) does mention the importance of security and responsibility with chatbot implementations, indicating that interviewed customers have no previous experience on this topic. Security not being mentioned by customers during interviews does not show the importance of that topic but rather indicates that they don't often think about the topic.

The findings of the quantitative analysis indicate a pattern where chatbot interaction impacts customer loyalty, which was then further evaluated through hypothesis testing using quantitative data. The results of Pearson and Spearman tests indicate a strong positive relationship, and the chi-square test also points towards an association between the values, indicating the relationship between chatbot interaction and loyalty to be statistically significant. This indicates that increasing the chatbot interaction quality should increase the loyalty of the customer, helping a further understanding of how to achieve extra benefit through chatbots.

5.5   Limitations

Some limitations were present in this research, such as sampling limitations within the qualitative methods. These limitations happened due to the difficulty of finding companies interested in participating and strict limitations on time. This has likely influenced some interpretations due to some statements not being addressed by the other party. Second, the research was conducted within the Netherlands, meaning that there could be potential bias in opinions. Future research could expand the sample size and include a more diverse scope.

6   Conclusion

This research paper aims to answer the following research question: "Is there a relationship between company expectations regarding the benefits of customer service chatbots and customer perceptions of their experiences?" Through thematic analysis, a strong alignment between company expectations and customer perceptions is found, indicating a good company comprehension of risks, benefits, and customer's perceptions concerning chatbot implementation. Inconsistencies were still found, where security and business benefits seem to be a bigger concern to companies. Results aligned well with previously conducted studies and ways of improving benefits were also concluded, such as providing quick, accurate, and easy-to-access information increasing loyalty. Quantitative analysis allowed further investigation to strengthen the current research findings, establishing a statistically significant relationship between chatbot interactions and increased loyalty.

The risks of implementing a chatbot were also found in the results, such as customers preferring human agents over chatbots and loyalty decreasing with poor or inaccurate answers. The overall implementation of a chatbot, like UI decisions, information quality, and interaction quality, also impacts the experience of a customer.

This research paper has mentioned important features that can be applied to increase customer service quality. The recommended ways are by optimising the design for increasing loyalty, evaluating the preference of your target audience between humans and chatbots, and ensuring that the chatbot is implemented in the right way. Each of these should be evaluated based on your group demographics, as the design and implementation of a chatbot should reflect the preferences of your own customers.

Future research might analyse the benefits, risks, customer perceptions, and company expectations in different types of environments, such as e-commerce or transactional chatbots. Further insights regarding the best implementation might also be very useful to research in the future. This study contributed to a better understanding of the risks, benefits, customers' perceptions, and the company's knowledge surrounding the implementation of customer service chatbots.

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