Assessing the Influence of Service Quality Factors on Customer Satisfaction and Trust in SMEs

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1 Introduction

In the world of Artificial Intelligence, Chat bots have emerged in the field of business, in particular Small Medium Enterprises. They have provided numerous benefits and drawbacks, such as improved business workflow and also increased customer satisfaction over time. However, this has been met with criticism from both SME's and consumers alike Aivo (2020). This research proposal aims to address multiple viewpoints such as personalisation, perceived waiting times, accuracy, and functionality preferences, influence customer satisfaction, and trust in SME's.

1.1 Research Topic

Evaluating the Effects of Personalisation, Reduced Waiting Times, Accuracy, and Functionality of Chatbots on Customer Satisfaction and Trust in SMEs.

1.1.1 Problem Statement

In today's digital age, customers expect 24/7 support, but traditional customer service, limited to business hours, often fails to meet these expectations, leading to frustration and potential business loss, especially for SMEs with limited resources Harrington (2024). Delays in addressing queries can drive customers away, particularly in competitive markets where immediate responses are valued.

Chatbots offer a solution by providing instant, automated responses around the clock and handling multiple inquiries simultaneously, which is beneficial for SMEs lacking extensive customer service teams. This capability can enhance the customer experience by reducing perceived wait times.

However, the effectiveness of chatbots on customer satisfaction is complex. While some customers appreciate the efficiency of chatbots, others may prefer human interaction and feel dissatisfied with automated responses.

This research will assess the influence of chatbots on response times and customer satisfaction in SMEs, exploring the relationship between chatbots and perceived wait times. It will also compare perceptions of wait times between chatbot users and non-users, and examine customer feedback to understand experiences with chatbots versus human assistance. The study will analyze how consumer attitudes toward chatbots, considering factors like ease of use, perceived helpfulness, and issue resolution affect overall customer satisfaction, and how chatbot design and functionality influence these perceptions.

1.1.2 Research Question

How do various aspects of chatbot interactions, including personalisation, perceived waiting times, accuracy, and functionality preferences, influence customer satisfaction and trust in SMEs?

To provide an answer to this research question, we have come up with the following sub-questions:

- 1. How does the level of personalisation in chatbot interactions (high vs. low) relate to customer satisfaction in SMEs?
- 2. How do chatbots in SMEs contribute to customer satisfaction by reducing perceived waiting times for human assistance?
- 3. How does the accuracy of chatbots in SMEs compare to traditional human assistance in terms of customer trust?
- 4. How do customer preferences for chatbot functionalities affect their overall satisfaction with support services in SMEs?

2 LITERATURE STUDY

2.1 How does the level of personalisation in chatbot interactions (high vs. low) relate to customer satisfaction in SMEs?

The literature study conducted in this area covers a few areas namely perceived usefulness and ease of use communication style, personalisation, service failures and recovery, and lastly the correlation between expectations and actual experience. In the following sections, an overview of the related studies conducted on this subtopics is given below:

2.1.1 Perceived Usefulness and Ease of Use

Perceived usefulness and ease of use are critical factors in determining the effectiveness of chatbot interactions and their influence on customer satisfaction in SMEs. According to the Technology Acceptance Model (TAM), perceived usefulness refers to the degree to which a user believes that using a technology will enhance their job performance, while perceived ease of use refers to how effortless the user expects the interaction to be. A study by Følstad and Skjuve (2019) in the International Journal of Human-Computer Studies highlighted that customers in SMEs perceive personalized chatbots as more useful when they provide relevant and context-specific information. In addition, the study found that ease of use is enhanced when chatbots are designed to be intuitive, with clear language and a minimal learning curve, which in turn increases customer satisfaction.

2.1.2 Communication Style

The communication style of a chatbot, whether formal, casual, or empathetic, significantly influences customer satisfaction in SMEs. Personalized communication styles that reflect human interaction can enhance customer engagement and satisfaction. A study by Seeger and Pfeiffer (2021) in the Journal of Service Management found that a conversational and empathetic communication style, tailored to the customer's preferences, leads to higher levels of satisfaction compared to generic one-size-fits-all communication.

2.1.3 Personalisation

Personalisation in chatbot interactions involves tailoring responses based on customer data, preferences, and behavior, and it has been widely studied for its positive influence on customer satisfaction in SMEs. A study by Trivedi (2019) in the **Journal of Retailing and Consumer Services** showed that customers are more satisfied with chatbots that provide personalized product recommendations, greetings and follow-up messages. This personalisation creates a sense of care and attention, leading to improved customer loyalty and satisfaction.

2.2 How do chatbots in SMEs contribute to customer satisfaction by reducing perceived waiting times for human assistance?

2.2.1 Perceived Waiting Time

One of the primary benefits of chatbots is their ability to provide immediate responses, thereby reducing the perceived waiting time for customers. Research suggests that customers highly value prompt responses, and perceived delays in communication often lead to frustration and dissatisfaction. According to a study by Gnewuch et al. (2017), chatbots that engage customers immediately upon contact create a sense of continuous engagement, even if the ultimate solution requires human intervention. Customers who experience reduced waiting times tend to report higher satisfaction levels, as they perceive their concerns are being addressed faster than traditional methods. (IBM (nd))

2.2.2 Research Implications

While chatbots can significantly improve customer satisfaction, particularly through reduced waiting times and personalised interactions, their success depends on several key factors, including their capabilities, design, and alignment with customer expectations. For SMEs, the strategic implementation of chatbots can lead to increased efficiency and customer satisfaction, but businesses must ensure that their chatbot systems are advanced enough to handle common customer needs while seamlessly integrating with human support when necessary. (Xu et al. (2022))

2.3 How does the accuracy of chatbots in SMEs compare to traditional human assistance in terms of customer trust?

2.3.1 The Importance of Accuracy in Chatbots for SMEs

Chatbots are very useful for small and medium-sized enterprises (SMEs) that want to improve customer service. One significant factor that affects how much customers trust these chatbots is their accuracy in providing correct and relevant answers. According to Araujo (2018), if a chatbot can answer customer questions well, it directly boosts the trust customers have in both the chatbot and the business. When chatbots give correct information, they can build up trust and make users happy. On the flip side, if they make mistakes, it can cause frustration and lower trust Hill et al. (2015).

2.3.2 Comparing Chatbots to Human Agents in Customer Service

Customers often compare using chatbots to chatting with human agents. Human agents can handle complex questions better and give personalized answers, which helps customers feel more trust and satisfaction Verhagen et al. (2014). But chatbots sometimes find it tough to understand tricky language and context. This can lead to less satisfactory interactions Lankton et al. (2015). Because of this difference, customers often see chatbots as less reliable than human help.

2.3.3 The Role of Chatbot Design and Functionality in Building Trust

How chatbots are designed and how well they function also matter a lot in building trust. Go and Sundar (2019) found that when chatbots act a bit like humans and give accurate responses, it positively affects how customers see them. However, if a chatbot does not understand context or show empathy well enough, it can hurt the development of trust Diederich et al. (2019). As more SMEs start using chatbots, it is important to understand how accuracy plays into customer trust to maintain positive relationships.

2.3.4 Error Handling and Human Support in Maintaining Customer Trust

Additionally, how chatbots deal with errors and pass on problems they cannot fix to human agents is crucial. If a chatbot cannot resolve an issue but quickly connects the customer to a human agent, this can help prevent trust from droppingShahid et al. (2020). Therefore, the balance between how accurate a chatbot is and having human help available is key for customer trust.

2.4 How do customer preferences for chatbot functionalities affect their overall satisfaction with support services in SMEs?

2.4.1 Multilingual Support and Accessibility

The ability of chatbots to provide support in multiple languages is crucial for SMEs operating in diverse markets. Research by Lee et al. (2022) indicates that multilingual chatbots can bridge communication gaps and cater to a broader customer base. This functionality is particularly important for SMEs looking to expand their reach and improve customer satisfaction across different regions. By offering support in various languages, chatbots can ensure that all customers receive accurate and relevant assistance.

2.4.2 Integration with Other Systems

Integrating chatbots with other business systems, such as CRM and ERP, can enhance their effectiveness and customer satisfaction. A study by Martinez and Garcia (2021) found that chatbots integrated with these systems can access real-time data, providing more accurate and timely responses to customer inquiries. This seamless integration ensures that customers receive consistent and efficient support, which is essential for maintaining high levels of satisfaction in SMEs.

2.4.3 Functionalities and Customer Satisfaction

Chatbots are increasingly being adopted by small and medium-sized enterprises (SMEs) to enhance customer service. One significant factor that affects customer satisfaction is the range of functionalities offered by chatbots. According to a study by Chatling (2024), chatbots that provide immediate, personalized, and consistent engagement across digital platforms can substantially improve customer experience. This highlights the importance of understanding customer preferences to optimize chatbot functionalities in SMEs.

2.4.4 Personalisation and Customer Engagement

Personalisation is a key factor in enhancing customer engagement and satisfaction with chatbot services. A study by Smith and Johnson (2023) found that chatbots capable of tailoring responses based on customer data and previous interactions significantly improve the user experience. This personalized approach not only makes customers feel valued but also increases their likelihood of returning to the service. SMEs can leverage this by implementing chatbots that remember customer preferences and provide customized support.

3 QUANTITATIVE METHODOLOGY

3.1 How does the level of personalisation in chatbot interactions (high vs. low) relate to customer satisfaction in SMEs?

3.1.1 Research Design

The objective of this research is to conduct a quantitative, cross-sectional study aimed at examining the influence of different levels of personalisation (High vs. Low) in chatbot interactions on customer satisfaction. In this design, the level of personalisation serves as the independent variable, while customer satisfaction acts as the dependent variable. The main goal of this research is to assess how varying degrees of personalisation in chatbot communication affect customer satisfaction levels in SMEs.

3.1.2 Participants and Sampling

The target population consists of customers of Small and Medium Enterprises (SMEs) who have recently interacted with a chatbot. Based on a power analysis, with an effect size of 0.5 and a power of 0.8, a sample size of 200 to 300 participants is required to achieve robust results. The sampling method employed is stratified random sampling, where stratification is based on customer demographics (e.g., age, gender, and frequency of chatbot use). This approach ensures efficient use of resources and increases precision by reducing variability within each stratum, leading to more accurate estimates of the population parameters.

3.1.3 Data Collection

For the collection of data, a qualatrics survey will be created to collect data about satisfaction, personalisation perception, ease of use, and lastly, problem resolution. We will use likert scale questions to measure all these variables, with response options 1 up to 5, with 1 being: Not at all personalised; 5 being: Highly personalised, for example. Followed by this, pre-survey testing, through the use of a pilot test, will be conducted to evaluate question clarity and reliability, of which questions will be revised as needed based on pilot feedback. For collecting data, the qualatrics platform will be used to obtain responses, over a duration of 1 week to ensure a sufficient sample size.

3.1.4 Data Analysis

To prepare the data for analysis, it will be cleaned by removing inconsistent or incomplete responses as well as duplicate values. We intend on using an independent samples T-Test, provided the data meets the assumptions of normality, Central limit Theorem and spread of variances compare mean satisfaction scores between high and low personalisation groups. Normality will be tested for using the Shapiro-Wilk test and check for homogeneity using Levene's Test. However if data fails to meet normality assumptions, as a non-parametric alternative, We will use the Mann-Whitney U Test to compare satisfaction scores between the two groups. Lastly, a test will be performed to obtain the p-value and compare it to the alpha level (At 0.05) to determine statistical significance. An interpretation of the following hypotheses can be found:

3.1.5 Interpretation

Null Hypothesis (**H0**): No meaningful difference in customer satisfaction between high and low personalisation chatbots. **Alternative Hypothesis** (**HA**): High personalisation chatbots result in noticeably higher customer satisfaction than low personalisation chatbots.

3.1.6 Power Analysis

A power analysis for an independent samples t-test, with a medium effect size (Cohen's d = 0.50), a significance level of 0.05, and a desired power of 0.80, suggests a minimum of 126 participants (63 per group). This calculation is based on a z-score of 1.96 for the significance level and 0.84 for the power. To account for potential dropouts, the sample size is increased by approximately 30

3.1.7 Data Management and Ethical Considerations

The data collected is to be stored under restrict access to authorized personnel and to anonymise all responses to maintain confidentiality of participants. All personal data collected will remain anonymous.

3.2 How do chatbots in SMEs contribute to customer satisfaction by reducing perceived waiting times for human assistance?

3.2.1 Research Design

This study will use a quantitative approach to examine how chatbots influence perceived waiting times and their effect on customer satisfaction. The focus is on collecting measurable data through surveys and chatbot interaction logs to analyse the relationship between perceived waiting times and customer experiences in SMEs.

3.2.2 Sampling Strategy

Random sampling will ensure diverse customer profiles, with participants selected from different business sectors such as retail, hospitality, and services.

3.2.3 Data Collection Method

Here's the revised paragraph without referencing participants' prior use of chatbots:

An online survey will be distributed to participants recruited from Prolific. Key survey topics related to perceived waiting time include: the perception of response time, where participants will indicate how quickly they felt their query was addressed; comparison with human agents, where participants will be asked to rate whether the service provided was faster compared to their experiences with human customer support; satisfaction with waiting time, where participants will rate their satisfaction with the response time from 1 (very dissatisfied) to 5 (very satisfied); and escalation to human agents, where, if the issue was escalated, participants will rate how long they waited for assistance and whether they were satisfied with this hand-off process.

3.2.4 Data Analysis: Descriptive Statistics

Descriptive statistics will be used to summarize survey responses regarding perceived waiting times and customer satisfaction. This analysis will include the calculation of means, medians, and standard deviations to describe overall trends in both waiting times and satisfaction levels. Additionally, frequency distribution will be applied to categorical data, such as the number of participants reporting faster responses from chatbots compared to human agents.

3.2.5 Inferential Statistics

Here are the hypotheses for the t-test comparing satisfaction levels between participants who only used the chatbot and those who experienced escalations to human agents:

Null Hypothesis (H0): There is no noticeable relationship between perceived waiting times and customer satisfaction levels in participants interacting with chatbots.

Alternative Hypothesis (HA): There is a noticeable relationship between perceived waiting times and customer satisfaction levels in participants interacting with chatbots.

3.2.6 Power Analysis

A power analysis for this study's **t-test** was also conducted. Assuming a medium effect size (**Cohen's d = 0.50**), with **= 0.05** and **80% power**, around **150 participants** are required. This analysis justifies comparing satisfaction levels between those interacting solely with chatbots and those escalated to human agents. A t-test is appropriate due to the need to compare satisfaction means between these two independent groups.

3.2.7 Reliability

The survey will be pre-tested to ensure consistency, clarity, and to identify any potential issues.

3.2.8 Ethical Considerations

Participants will be fully informed of the study's purpose and their right to withdraw at any time, ensuring informed consent. Additionally, all interaction logs and survey responses will be anonymised to safeguard participant privacy and adhere to data protection standards.

4 QUALITATIVE METHODOLOGY

4.1 How does the accuracy of chatbots in SMEs compare to traditional human assistance in terms of customer trust?

We are going to look into how chatbot accuracy in SMEs shapes customer trust against traditional human help by doing a qualitative study that is all about customer experiences and feelings.

4.1.1 Data Collection Methods

We will grab detailed info through semi-structured interviews. This way allows us to bend our questioning while still touching on key stuff. The chats will focus on personal stories about chatbot accuracy affecting trust levels. Participants will be invited to mention specific times when their interactions with chatbots influenced their trust. Some sample questions might include: "Can you share an experience where a chatbot gave you either correct or incorrect info?", "How did what the chatbot said change your view of the company's service?", and "When the chatbot was wrong, how did that stack up against similar experiences with human agents?".

4.1.2 Sampling Procedures

For participants in our study who have talked to both chatbots and human agents in SMEs, we are going to use purposive sampling. We want to interview about 8 customers across different industries like retail, tech, & services so we get lots of different experiences. We will reach out through social media platforms, feedback forums from customers, and lists from SME contacts.

4.1.3 Data Management Plan

Every interview will be recorded with the participants' consent and then turned into written notes for analysis. To keep everything private & confidential, we will give participants fake names and remove identifying details from the transcripts. All data will be kept safe on locked-up devices that only our research team can get into.

4.1.4 Data Analysis Techniques

We are doing thematic analysis on interview transcripts to catch common themes about chatbot accuracy & customer trust. First off – we will dive into the transcripts by reading them to really know the data. While coding – we will highlight important phrases and assign codes for key ideas. We will group these codes into bigger themes that represent what the data shows best. Then we will refine those themes, so they really reflect what we have found. Naming and defining themes will help make clear labels for each one of them. Finally writing everything up will combine our themes into a story that answers our research question. We will focus on themes like building trust over time, influences of getting things right or wrong, comparing chats with bots vs humans, plus emotional reactions to how bots work.

4.2 How do customer preferences for chatbot functionalities affect their overall satisfaction with support services in SMEs?

4.2.1 Methodology

This study employs a qualitative research method to explore the relationship between chatbot functionalities and customer satisfaction in small and medium-sized enterprises (SMEs). Rather than tracking participants over time, we take a cross-sectional approach, capturing data at a single point in time.

4.2.2 Data Collection Methods

We will collect data using Semi-structured interviews and observation. We will conduct interviews with selected participants to gain deeper insights into their interactions with the automated systems. These interviews will offer detailed information about the nature of the interactions, including any issues or positive outcomes. During the interviews we will also observe the interviewed person to try and interpret their feeling and emotions towards the topic. The selected sample of participants will be randomly chosen from SME customer databases to ensure diverse perspectives are represented.

4.2.3 Sampling Procedures

Interviews will be conducted with people that had experience with chatbot in SMEs. These interviews will be done with about 8 randomly chosen customers of SMEs. We want to have as much differences between each of the interviewed.

4.2.4 Data Management Plan

Each interview and observation will be recorded and transcribed to keep it for future analysis. Both interview transcripts and observation will be stored in a secure, structured manner. Anonymization processes will be in place to remove any personally identifiable information, ensuring privacy is maintained. Additionally, regular backups will be conducted to prevent data loss and ensure the integrity of the data.

4.2.5 Data Analysis Techniques

To analyze the qualitative data obtained from semi-structured interviews and observations, we will employ **thematic analysis** as the principal methodological approach. This involves transcribing all interviews verbatim and thoroughly immersing ourselves in the data through iterative reading. We will systematically code significant words and phrases related to chatbot functionalities and customer satisfaction, facilitating the identification of patterns and the generation of themes that accurately represent participants' experiences. Non-verbal cues and emotional responses observed during interviews will be incorporated to enrich the analysis.

5 QUANTITATIVE PREDICTED OUTCOMES

5.1 How does the level of personalisation in chatbot interactions (high vs. low) relate to customer satisfaction in SMEs?

In the predicted outcomes for this research topic, the following areas are predicted:

5.1.1 High Personalisation Increases Customer Satisfaction

It is anticipated that customers interacting with highly personalised chatbots will report higher levels of satisfaction compared to those engaging with low-personalisation chatbots. Personalised features, such as specified recommendations and customized responses, are expected to enhance the customer experience and lead to more positive feedback.

5.1.2 Personalisation Enhances Perceived Engagement and Value

Customers who experience personalised interactions are have a higher chance to feel a stronger sense of engagement and value in the interaction. Some features such as contextual responses and adaptive communication styles are expected to foster a perception of care and attention, increasing overall satisfaction.

5.1.3 Ease of Use Positively Correlates with Personalisation

High-personalisation chatbots are likely to be perceived as easier to use due to intuitive design and context-aware responses. This ease of use is anticipated to lead to higher satisfaction levels, while low-personalisation chatbots may be seen as less user-friendly, reducing customer satisfaction.

5.1.4 Satisfaction Likely to be Higher with High Personalisation

Customers engaging with highly personalised chatbots are expected to rate their satisfaction more positively. In contrast, generic, low-personalisation chatbots may lead to lower satisfaction levels due to a perceived lack of tailored support.

5.2 Impact of Chatbots on Customer Satisfaction in SMEs Through Reducing Perceived Waiting Times for Human Assistance

5.2.1 Reduced Perceived Waiting Time Increases Satisfaction

It is anticipated that customers who report shorter perceived waiting times when interacting with chatbots will show higher levels of satisfaction compared to those who experience longer waits, especially when the chatbot resolves their issues promptly without escalating to human agents.

5.2.2 Chatbots Viewed as Faster than Human Agents

A significant portion of respondents will likely perceive chatbots as offering faster service compared to human customer support, particularly in handling routine inquiries. Customers who appreciate speed and efficiency will be more inclined to rate chatbots positively in terms of satisfaction.

5.2.3 Satisfaction Decreases with Escalation to Human Agents

Customers whose issues require escalation to human agents may perceive an increase in waiting times, leading to a decline in overall satisfaction. This is especially likely if the time between chatbot escalation and human agent response is perceived as too long.

5.2.4 Positive Correlation between Response Accuracy and Perceived Speed

Respondents who believe that the chatbot provided accurate and relevant information are more likely to perceive waiting times as shorter. This is because accurate responses can enhance the feeling of efficiency in interactions.

5.2.5 Demographic Influence

Younger, more digitally literate customers may perceive chatbot interactions as faster and more satisfactory compared to older customers, who might prefer human interaction and have a less favourable view of automated systems.

6 QUALITATIVE PREDICTED OUTCOMES

6.1 How does the accuracy of chatbots in SMEs compare to traditional human assistance in terms of customer trust?

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6.1.6 The Influence of Chatbot Accuracy on Customer Trust in SMEs

We think that how accurate these chatbots are has a big effect on customer trust in SMEs. When chatbots send back right and useful answers — they could build up goodwill like human agents do—especially with simple questions! But if there's confusion or mistakes from a chatbot it might knock down trust faster than when humans mess up since folks might expect tech to get things exactly right Lankton et al. (2015).

6.1.7 The Need for Human Assistance in Complex Situations

The study could show us that while people like how fast chatbots work —they really still want human help when issues get complicated or require a deeper understanding of what is going on. Plus having an easy switch from chatbot help to human assistance could ease some of the issues customers have with bot errors Shahid et al. (2020). These insights could help SMEs tweak their use of chatbots by focusing more on getting things right while also ensuring good human backup when needed!

6.2 How do customer preferences for chatbot functionalities affect their overall satisfaction with support services in SMEs?

6.2.1 Correlation Between Convenience-Enhancing Chatbot Functionalities and Customer Satisfaction

We predict that customer satisfaction will be highly correlated with chatbot functionalities that enhance user convenience, such as rapid response times, ease of navigation, and personalisation of the interaction. Customers are likely to express a preference for chatbots that can understand and address their specific needs, providing tailored solutions rather than generic responses.

6.2.2 Preference for Hybrid Chatbot-Human Interaction Models

We expect customers to prefer chatbots that can seamlessly transition from automated responses to human support when necessary. This hybrid functionality may emerge as a critical factor in overall satisfaction, as users tend to appreciate human empathy and problem-solving abilities when faced with complex or unresolved issues.

6.2.3 Frustration Due to Chatbot Limitations

We anticipate identifying frustration points associated with certain chatbot limitations, such as failure to understand nuanced queries or provide relevant answers. These limitations may negatively influence customer satisfaction, especially if they result in repeated errors or elongated response times. Non-verbal cues and emotional responses during interviews, such as frustration or satisfaction, will provide deeper insight into these issues.

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