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THE EFFECT OF CHATBOT USABILITY ON CUSTOMER LOYALTY

Majda MOHAMDI

Master Thesis

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Master's Thesis

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ACCEPTANCE AND APPROVAL

The study titled " The Effect of Chatbot Usabılity on Customer Loyalty" prepared by Majda MOHAMDI, has been accepted by our jury as a Master's Thesis, following a successful defense examination conducted on January 27, 2025.

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Majda MOHAMDI

ÖZET

Majda MOHAMDI

Chatbot Kullanılabilirliğinin Müşteri Sadakati Üzerindeki Etkisi

Yüksek Lisans Tezi

Istanbul, 2025

Günümüzde teknolojinin gelişmesiyle birlikte işletmeler müşteri hizmetlerini geliştirmek ve müşteri deneyimini iyileştirmek için giderek daha fazla yapay zeka (AI) teknolojilerini benimsemektedir. Bu teknolojik değişimler çerçevesinde, metin veya ses etkileşimleri yoluyla insan konuşmasını simüle etmek için tasarlanmış bir yazılım uygulaması olan chatbotlar, farklı sektörlerdeki müşterilerle etkileşim kurmak için önemli bir araç olarak ortaya çıkmıştır. Ancak müşteri deneyimini iyileştirerek müşteri memnuniyetini en üst düzeye çıkarmak isteyen kuruluşlar tarafından kullanılan chatbot uygulamaları, chatbotların kullanılabilirlik performansına bağlı olarak hayal kırıklığı ve memnuniyetsizlik yaratarak müşteri memnuniyetsizliğine neden olabilmektedir. Günümüzün rekabetçi ortamında kurumlar için önemli olan sadakat yaratma bağlamında chatbot kullanılabilirliği değerlendirildiğinde, bu çalışmada chatbot işlevlerine algılanan erişilebilirlik, chatbot işlevlerinin algılanan kalitesi, algılanan konuşma ve bilgi kalitesi ve algılanan gizlilik ve güvenlik boyutlarını içeren chatbot kullanılabilirliğinin marka sadakati üzerindeki etkileri araştırılmıştır. Çalışmada, kolayda örneklem yoluyla ulaşılan 434 kişi üzerinde anket yoluyla veri toplanmış ve chatbot kullanılabilirliğinin marka sadakati üzerindeki etkisini ortaya koymak için korelasyon ve regresyon analizleri kullanılmıştır. Bu araştırma, etkili chatbot uygulamalarıyla müşteri etkileşimlerini iyileştirmeyi amaçlayan işletmelere değerli bilgiler sunmaktadır.

Anahtar Kelimeler

Chatbot kullanılabilirliği, müşteri sadakati, dijital müşteri hizmeti, kullanıcı deneyimi, müşteri memnuniyeti

ABSTRACT

Majda MOHAMDI

Chatbot Usability Effect on Customer Loyalty

Master’s Thesis

Istanbul, 2025

In today's world, with the development of technology businesses are increasingly adopting to artificial intelligence (AI) technologies to enhance customer services and improve customer experience. Within the framework of these technological changes chatbot, a software application designed to simulate human conversation through text or voice interactions, have emerged as a prominent tool for engaging with customers in a different sector. However, chatbot applications used by organizations that want to maximize customer satisfaction by improving customer experience can cause customer dissatisfaction by causing disappointment and dissatisfaction depending on the usability performance of the chatbots. When evaluated the chatbot usability in the context of creating loyalty, which is important for institutions in today's competitive environment, this study researched the effects of chatbot usability which includes perceived accessibility to chatbot functions, perceived quality of chatbot functions, perceived quality of conversation and information, and perceived privacy and security dimensions on brand loyalty. In the study, the data was collected through a survey on 434 people who were reached through convenience sampling, and correlation and regression analyses were used to reveal the effect of chatbot usability on brand loyalty. This research offers valuable insights for businesses aiming to improve customer interactions through effective chatbot implementation.

Keywords

Chatbot usability, customer loyalty, digital customer service, user experience, customer satisfaction

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INTRODUCTION

In today's rapidly evolving digital landscape, businesses are increasingly leveraging artificial intelligence (AI) technologies to enhance customer service and improve overall customer experience. Among these technologies, chatbots have emerged as a prominent tool for engaging with customers in a variety of sectors, including retail, banking, healthcare, and telecommunications. A chatbot is a software application designed to simulate human conversation through text or voice interactions. These AI-powered conversational agents can handle a wide array of customer inquiries, providing instant responses, and performing tasks that were traditionally managed by human agents (Gnewuch et al., 2018). The adoption of chatbots in customer service is driven by several factors. Firstly, the demand for instant and efficient customer service has grown significantly. Modern consumers expect quick and accurate responses to their inquiries, and chatbots are designed to meet these expectations by providing 24/7 support (Følstad and Brandtzaeg, 2017). Secondly, the cost advantages associated with deploying chatbots are substantial. Businesses can reduce operational costs by automating routine tasks and inquiries, allowing human agents to focus on more complex and high-value interactions (Huang and Rust, 2018). Finally, advancements in natural language processing (NLP) and machine learning have significantly improved the capabilities of chatbots, making them more sophisticated and capable of handling diverse customer needs (Adam et al., 2020). Despite the widespread adoption of chatbots, their effectiveness in delivering a satisfactory customer experience remains a topic of considerable debate. Usability, defined as the ease of use and efficiency with which users can achieve their goals using a particular tool, is a critical factor in determining the success of chatbot interactions. Poor usability can lead to frustration, dissatisfaction, and ultimately, a decline in customer loyalty. Therefore, understanding the usability of chatbots from the customer's perspective is essential for businesses aiming to leverage this technology effectively (Ciechanowski et al., 2019).

Customer loyalty, defined as a customer's commitment to repurchase or continue using a brand's products or services, is a key driver of business success. Loyal customers not only contribute to a stable revenue stream but also act as brand advocates, promoting the brand through positive word-of-mouth (Oliver, 1999). In the context of chatbot interactions,

customer loyalty can be influenced by several factors, including the quality of the interaction, the responsiveness of the chatbot, and the overall satisfaction with the service provided (Kumar and Pansari, 2016). As businesses strive to enhance customer loyalty in an increasingly competitive market, the role of chatbot usability becomes even more critical. The importance of studying the relationship between chatbot usability and customer loyalty is underscored by the growing reliance on digital interactions. With the proliferation of online shopping, digital banking, and virtual healthcare services, the touchpoints between businesses and customers are increasingly mediated by technology. In this environment, the quality of digital interactions can significantly impact customer perceptions and behaviors. Therefore, businesses must ensure that their digital tools, including chatbots, are designed and deployed in a manner that enhances usability and fosters positive customer experiences (McLean and Osei-Frimpong, 2019). The existing literature on chatbot usability and customer loyalty offers valuable insights but also reveals significant gaps. While several studies have explored the technical aspects of chatbot design, fewer have focused on the user experience and its impact on customer loyalty. Research has shown that factors such as response time, conversational flow, and the chatbot's ability to understand and resolve queries effectively are crucial determinants of user satisfaction (Meyer-Waarden, 2018). However, the direct link between these usability factors and customer loyalty remains underexplored. Additionally, the influence of demographic variables such as age, gender, and prior experience with chatbots on usability perceptions and loyalty is not well understood (Pizzi et al., 2019).

This research aims to fill these gaps by providing a comprehensive analysis of the effect of chatbot usability on customer loyalty. By adopting a user-centered approach, this study will examine how different aspects of chatbot usability influence customer perceptions and behaviours. The findings will offer actionable insights for businesses looking to optimize their chatbot interactions to enhance customer satisfaction and loyalty (Van Esch et al., 2019).

In summary, the rapid adoption of chatbots in customer service underscores the need to understand their impact on customer experience and loyalty. Usability is a critical factor that can determine the success or failure of chatbot interactions. This study seeks to explore the relationship between chatbot usability and customer loyalty, providing valuable insights for businesses aiming to leverage AI technology to enhance customer

engagement and build long-term loyalty. By addressing the gaps in the existing literature and focusing on the user experience, this research will contribute to the growing body of knowledge on digital customer service and offer practical recommendations for improving chatbot design and deployment (Kim et al., 2020).

The study of chatbot usability and its effect on customer loyalty is highly relevant in today's business environment, where technology and customer experience are increasingly intertwined. As businesses strive to meet the ever-growing expectations of customers, the deployment of AI-powered chatbots has become a pivotal strategy in enhancing customer service and engagement. This study aims to provide a comprehensive understanding of how the usability of chatbots influences customer loyalty, offering valuable insights for businesses, researchers, and technology developers. The integration of chatbots into customer service operations has been driven by significant advancements in artificial intelligence, machine learning, and natural language processing (NLP). These technologies have enabled chatbots to handle complex customer inquiries, provide instant responses, and perform tasks traditionally managed by human agents. Chatbots are now widely used across various sectors, including retail, banking, healthcare, and telecommunications, to streamline customer interactions and improve service efficiency (Adam et al., 2021). The ability of chatbots to operate 24/7, handle multiple queries simultaneously, and offer consistent service makes them an attractive option for businesses looking to enhance their customer service capabilities while reducing operational costs (Gnewuch et al., 2018). However, the effectiveness of chatbots in fostering customer loyalty hinges on their usability. Usability encompasses factors such as ease of use, response accuracy, speed, reliability, and the ability to understand and respond to complex queries. These factors are critical in shaping customer perceptions and satisfaction with chatbot interactions (Parasuraman, Zeithaml, and Berry, 1985). Customer loyalty is a cornerstone of business success, as it directly impacts a company's profitability and long-term sustainability. Loyal customers are more likely to make repeat purchases, recommend the brand to others, and exhibit resistance to competitive offers (Oliver, 1999). Therefore, understanding the drivers of customer loyalty is essential for businesses aiming to cultivate and maintain strong relationships with their customers. Several factors influence customer loyalty, including product quality, customer service, price fairness, brand image, convenience, personalization, trust, and customer satisfaction

(Anderson and Srinivasan, 2003). Each of these factors contributes to the overall perception of a brand and plays a significant role in shaping customer behaviour and loyalty. In the context of chatbots, these factors are intertwined with the usability of the chatbot, as it directly affects the customer experience. The usability of chatbots is a critical determinant of their effectiveness in enhancing customer loyalty. A chatbot that provides accurate, timely, and relevant responses can significantly improve the customer experience, leading to higher levels of satisfaction and loyalty (Zeithaml, 1987). Conversely, a chatbot that fails to meet customer expectations can result in frustration and dissatisfaction, negatively impacting customer loyalty. Research has shown that the usability of chatbots influences various aspects of the customer experience. For instance, Moon (1999) demonstrated that medium response times lead to higher persuasiveness compared to instant and long response times. Gnewuch et al. (2018) found that dynamically delayed responses increase perceived humanness, social presence, and satisfaction. These findings suggest that the way chatbots interact with customers can significantly impact their perceptions and loyalty. Moreover, the personalization capabilities of chatbots, which allow them to tailor responses based on individual customer preferences and behaviours, can enhance the user experience and foster loyalty (Sidershmukh, Singh, and Sabol, 2002). Personalized interactions make customers feel valued and understood, increasing their likelihood of returning to the brand for future purchases. Despite the growing prevalence of chatbots in customer service, there is a notable gap in research regarding the specific impact of chatbot usability on customer loyalty. Existing studies have primarily focused on the technological aspects of chatbots, such as their design, implementation, and performance metrics (Sundar and Kim, 2019). However, there is limited empirical evidence on how these factors translate into customer perceptions and behaviours, particularly in terms of loyalty. This study seeks to address this gap by exploring the relationship between chatbot usability and customer loyalty. By conducting a survey to gather primary data from customers who have interacted with chatbots, this research aims to provide insights into how different aspects of usability, such as response accuracy, speed, personalization, and overall user experience, influence customer loyalty. The findings of this study will offer valuable guidance for businesses looking to optimize their chatbot strategies and enhance customer loyalty through improved usability. Understanding the impact of chatbot

usability on customer loyalty has significant practical implications for businesses. As competition intensifies across various industries, providing exceptional customer service has become a key differentiator. Chatbots, when used effectively, can play a crucial role in achieving this differentiation by offering efficient, reliable, and personalized customer interactions (Gretzel, 2011). For businesses, investing in the development and optimization of chatbot usability can lead to several benefits. Firstly, it can enhance customer satisfaction by ensuring that chatbots meet or exceed customer expectations in terms of response quality and speed. Secondly, it can reduce operational costs by minimizing the need for human agents and improving the efficiency of customer service operations. Thirdly, it can foster customer loyalty by creating positive and memorable interactions that encourage repeat business and word-of-mouth recommendations (Hess and Story, 2005). Additionally, the insights gained from this study can inform the development of more sophisticated chatbot technologies that better understand and respond to customer needs. This includes advancements in NLP, machine learning algorithms, and user interface design that enhance the chatbot's ability to provide accurate, relevant, and contextually appropriate responses. By continuously improving chatbot usability, businesses can stay ahead of the competition and maintain strong customer relationships in an increasingly digital world. This study also contributes to the academic literature on customer service and technology adoption by providing empirical evidence on the impact of chatbot usability on customer loyalty. It builds on existing theories of service quality, customer satisfaction, and loyalty by applying them to the context of AI-powered chatbots (Zeithaml and Bitner, 2008). The findings of this study will add to the growing body of knowledge on the role of AI in customer service and provide a basis for future research in this area. Moreover, this research highlights the importance of considering both technological and human factors in the design and implementation of chatbots. While technological advancements are crucial for improving chatbot capabilities, understanding customer perceptions and behaviours is equally important for ensuring their success. By integrating insights from both domains, this study offers a holistic perspective on the factors that drive customer loyalty in the context of chatbot interactions. The relevance of studying the effect of chatbot usability on customer loyalty cannot be overstated. As businesses increasingly rely on AI-powered chatbots to enhance customer service, understanding the factors that influence their usability and

effectiveness is crucial for achieving long-term success. This study aims to fill the gap in existing research by providing empirical evidence on the relationship between chatbot usability and customer loyalty, offering valuable insights for businesses, researchers, and technology developers. By optimizing chatbot usability, businesses can enhance customer satisfaction, foster loyalty, and maintain a competitive edge in the marketplace. The goal of this research is to understand the effect of chatbots on customer loyalty and to determine whether they are useful and need more development or if they have a negative effect.

Data collection for this research involved a meticulously designed survey aimed at understanding the effect of chatbot usability on customer loyalty. The survey consisted of 25 questions that targeted various aspects of chatbot interactions, including usability, perceived quality, response time, personalization, and overall satisfaction. Respondents were asked to rate their experiences and provide feedback on how these interactions influenced their loyalty to the brand. The survey was distributed online to a diverse group of participants who had prior experience using chatbots in different contexts. The data collected from the survey provided both quantitative and qualitative insights, forming the basis for a comprehensive analysis of the study's hypotheses.

The structure of this thesis is carefully organized to provide a thorough exploration of the relationship between chatbot usability and customer loyalty. The initial chapters are dedicated to a theoretical study, offering a detailed understanding of what chatbots are, their history, and their evolving role in customer service. This section traces the development of chatbots from their early iterations to the sophisticated AI-powered systems used today. It also explores the various functionalities of chatbots, highlighting their capacity to handle customer inquiries, provide information, and support transactions.

Following this, the thesis delves into the concept of customer loyalty, a critical factor for business success. This section examines the different types of loyalty—cognitive, affective, conative, and action—and their respective measurements. It discusses how customer satisfaction, influenced by various elements such as product quality, customer service, price fairness, brand image, convenience, personalization, and trust, plays a pivotal role in fostering loyalty. The aim is to provide a comprehensive understanding of the factors that drive customer loyalty and how they can be measured effectively.

Subsequently, the thesis explores the specific relationship between chatbots and customer loyalty. This part of the study investigates how different aspects of chatbot usability, such as response accuracy, speed, personalization, and overall user experience, impact customer perceptions and behaviours. It draws on existing literature to highlight the potential benefits and challenges of using chatbots for customer engagement, offering insights into how businesses can leverage this technology to enhance customer loyalty.

The final chapter presents the empirical research conducted to test the study's hypotheses. A survey with 25 carefully crafted questions was administered to gather primary data on customer experiences with chatbots. This chapter provides a detailed analysis of the survey results, employing various statistical methods to examine the relationships between chatbot usability and customer loyalty. The findings are discussed in the context of the study's hypotheses, offering evidence on whether chatbots positively influence customer loyalty and identifying areas where improvements might be needed.

Overall, this thesis aims to provide a comprehensive understanding of the impact of chatbot usability on customer loyalty, combining theoretical insights with empirical research to offer valuable recommendations for businesses looking to optimize their use of chatbots. Through a thorough analysis of survey data and a detailed exploration of relevant literature, this study seeks to answer critical questions about the effectiveness of chatbots in enhancing customer loyalty and to suggest directions for future research and development in this field.

CHAPTER 1: CHATBOTS

In this chapter, we explore the fundamental components and historical history of chatbots, offering a thorough grasp of their growth, significance, and impact on customer interactions. We will begin by exploring the early conceptualization and technical advancements that have shaped the current state of chatbot technology. This exploration includes seminal works and pivotal milestones that have paved the way for modern chatbots. Following this historical context, we will examine the different types of chatbots, including rule-based and AI-powered variants, highlighting their respective functionalities and applications. Subsequently, the chapter will cover the growing significance of voice chatbots, a critical development in interactive technology, detailing their role in enhancing user experience through hands-free communication and real-time response capabilities. We will also discuss the essential components and architecture of chatbots, elucidating the underlying technologies such as Natural Language Processing (NLP) and Machine Learning (ML) that enable their operation.

Furthermore, the chapter will address the practical applications of chatbots across various industries, demonstrating how these digital agents are transforming customer service, healthcare, finance, and more. By providing a detailed analysis of chatbot integration in these sectors, we aim to underscore the broad impact and potential of chatbots in improving efficiency and customer satisfaction.

Finally, we will explore the challenges and ethical considerations associated with the deployment of chatbots, including issues related to data privacy, security, and the user experience. This discussion will set the stage for understanding the broader implications of chatbot technology in contemporary digital interactions.

In summary, Chapter 1 provides a thorough introduction to the world of chatbots, covering their history, types, technical components, practical applications, and the challenges they present. This foundational knowledge is crucial for appreciating the subsequent analysis of chatbot usability and its effects on customer loyalty, which will be discussed in later chapters. Definitions of Chatbots

Chatbots, or conversational agents, are computer programs designed to interact with users through natural language dialogue, simulating human-like conversations. The concept of

chatbots stems from the field of artificial intelligence (AI) and natural language processing (NLP), aiming to create systems capable of understanding, interpreting, and responding to human language in a way that is both meaningful and contextually relevant.

The evolution of chatbots can be traced back to the early days of computing, with the development of ELIZA by Joseph Weizenbaum in 1966, which is often considered the first chatbot (Weizenbaum, 1966) [13]. ELIZA was designed to mimic the responses of a psychotherapist, using pattern matching and substitution methodology to generate responses. Following ELIZA, several other chatbots were developed, including PARRY, a simulation of a person with paranoid schizophrenia, and RACTER, an artificial intelligence program that generated English language prose (Colby, 1975; Chamberlain and Etcoff, 1988).

In recent years, the advent of advanced machine learning techniques and the proliferation of large-scale data have significantly enhanced the capabilities of chatbots. Modern chatbots are equipped with sophisticated NLP algorithms, enabling them to parse complex language structures, understand user intent, and maintain context over the course of a conversation. They can be classified into two main types: rule-based chatbots, which follow predefined pathways and responses, and AI-powered chatbots, which use machine learning to adapt and learn from interactions (Shawar and Atwell, 2007).

Chatbots have found applications in various domains, including customer service, e-commerce, healthcare, and entertainment. In customer service, for example, chatbots are used to handle inquiries, provide support, and assist in troubleshooting, offering a cost-effective and scalable solution for businesses (Adamopoulou and Moussiades, 2020). In e- commerce, chatbots can assist customers in product selection, provide personalized recommendations, and facilitate transactions (Dale, 2016).

The effectiveness of chatbots is measured by their ability to accurately understand user queries, provide relevant and coherent responses, and deliver a seamless conversational experience. Challenges in chatbot development include handling ambiguous or complex queries, managing context over extended interactions, and ensuring privacy and security in conversations (McTear, Callejas, and Griol, 2016).

As chatbot technology continues to evolve, it is expected to become more integrated into daily life, with advancements in AI and NLP driving further improvements in their conversational abilities and applications across diverse sectors.

1.1. History of Chatbots

In 1950, Alan Turing asked whether a computer programme could have a conversation with a group of people without their realizing it was a computer. Many individuals think that the generative idea of chatbots originated with the Turing test, which poses this question (Turing, 1950). The first chatbot, named ELIZA, was developed in 1966. ELIZA imitated a psychotherapist's workflow by returning the user's statements in the interrogative form (Weizenbaum, 1966). It was an inspiration for the eventual development of several chatbots, even if it lacked communication abilities. Response selection strategies based on templates and pattern matching were employed by ELIZA. ELIZA's limited competence, however, limits the breadth of topics it can cover, which is a drawback. Additionally, it cannot learn or get context from the topic and cannot carry on long chats.

When PARRY first emerged in 1972, it played a schizophrenic patient. As PARRY is meant to have a "personality" and a superior intelligence compared to ELIZA, it is thought to be more advanced than ELIZA (Colby, Hilf, Weber, and Kraemer, 1972). PARRY's system of assumptions and "emotional responses" were triggered by the shift in weights in the user's utterances, which characterized its responses. In an experiment conducted in 1979, five psychiatrists utilized PARRY to determine whether a patient was a computer program or a genuine person suffering from schizophrenia. Psychiatrists provided ten diagnoses: two correct diagnoses by the first psychiatrist and two incorrect ones by the second. While the other two concluded that the subjects were chatbots, the third believed that the two were actual patients. Because patients with schizophrenia can speak incoherently, the small sample size of five doctors makes it difficult to interpret the results. Typically, PARRY is seen as a chatbot with little capacity for emotional expression and linguistic understanding. Additionally, it cannot learn from the discourse and responds slowly.

Artificial intelligence was first used in the chatbot area when Jabberwacky was created in 1988 (Jabberwacky, 2019). Jabberwacky was created using CleverScript, a

spreadsheet- based language that made it easier to create chatbots. It responded by using contextual pattern matching to go back and review past conversations. Nevertheless, Jabberwacky is unable to process large amounts of data quickly or efficiently (Jwala, 2019). In 1991, the word "chatterbot" was first used.

Its primary function as an artificial TINYMUD (multiplayer real-time virtual world) player was to converse. Many genuine human participants seemed to prefer talking to a chatterbot than a real gamer. It would only raise concerns if it made a serious mistake since players assumed that everyone in the TINYMUD universe was human (Mauldin, 1994). To demonstrate the computerized voices that the sound cards could produce, the chatbot Dr. Sbaitso (Sound Blaster Artificial Intelligent Text to Speech Operator) was created in 1992. It operated as a psychologist without any complex relationships (Zemčík, 2019).

Another step in the history of chatbots was the creation of ALICE (Artificial Linguistic Internet Computer Entity), the first online chatbot that was influenced by ELIZA, in 1995 (Wallace, 2009). To join in online debates on any topic and with any degree of longitude, ALICE was built on pattern-matching, without actually understanding the complete speech (Marietto et al., 2013). However, it took years for it to be perfected and win the Loebner Prize for the most human-like computer program (Bradeško and Mladenić, 2012). ALICE and ELIZA differ primarily in that the former was built with Artificial Intelligence Markup Language (AIML), a brand-new language created especially for this use case. There were over 41,000 templates and related patterns in ALICE's knowledge base—a huge amount compared to ELIZA, which had merely 200 rules and keywords (Heller, Procter, Mah, Jewell, and Cheung, 2005). Nevertheless, ALICE lacked intelligence and was unable to produce responses that would have been expected of a human, including attitudes and feelings.

With the creation of SmarterChild, which was accessible on messengers like Microsoft and America Online (AOL), chatbot technology truly advanced in 2001 (Molnár and Zoltán, 2018). While voice communication is made possible by personal voice assistants, misunderstandings frequently arise with users because they are unable to comprehend the specific language used in oral communication or the discourse as a whole. Early in 2016, artificial intelligence technology underwent a significant

transformation that fundamentally altered how consumers and manufacturers interacted with one another. Social media networks enabled programmers to produce chatbots for their products or services to let users complete everyday tasks using their messaging apps. By the end of 2016, 34,000 chatbots were in operation (Wizu, 2018), serving a variety of industries including marketing, education, healthcare, entertainment, and cultural heritage. Thousands of text-based chatbots with functions were created for popular messaging apps, business solutions, and research (Dale, 2016). Furthermore, chatbots helped to enhance communication among connected smart things in a new era brought forth by the Internet of Things (IoT) (Kar and Haldar, 2016). Not to be overlooked is the Microsoft XiaoIce, an AI chatbot designed to fulfil the human desire for social interaction. Its contribution to the creation of chatbots, aside from its personality, is that it possesses an emotional and intellectual quotient (IQ–EQ). It builds enduring emotional bonds with its users while considering ethical and cultural quirks (Zhou, Gao, Li, and Shum, 2019).

Today's chatbots converse completely differently from ELIZA, the chatbot that came before it. Like people, they can be relevant but also misleading, deceive, and communicate personal views and family drama situations (Shah, Warwick, Vallverdú, and Wu, 2016). There has been a noticeable rise in the usage of chatbots. The evolution of chatbots from simple rule-based systems to sophisticated AI-powered conversational agents has significantly impacted how businesses interact with their customers. These advancements have transformed chatbots from basic tools into essential components of customer service strategies.

The recent advancements in AI and machine learning have enabled chatbots to understand and generate human-like responses, making them more effective in handling a wide range of customer inquiries. The integration of natural language processing (NLP) and machine learning algorithms allows chatbots to learn from past interactions and continuously improve their performance. This capability has enhanced the user experience by providing more accurate and relevant responses, thereby increasing customer satisfaction and loyalty (Xu, Liu, Guo, Sinha, and Akkiraju, 2017).

Moreover, the use of chatbots in various industries has expanded beyond customer service. In the healthcare sector, chatbots assist patients by providing medical

information, scheduling appointments, and even offering mental health support. In the financial industry, chatbots help customers manage their accounts, make transactions, and provide financial advice (Bavafa, Hitt, and Terwiesch, 2019). These applications demonstrate the versatility and potential of chatbots in enhancing service delivery across different sectors.

The development of chatbots has also been influenced by advancements in voice recognition technology. Voice-activated assistants like Amazon's Alexa, Apple's Siri, and Google Assistant have become increasingly popular, providing users with a hands-free way to interact with technology. These voice-activated chatbots use advanced speech recognition algorithms to understand and process spoken language, making them convenient and user-friendly (Hoy, 2018). The ability to handle voice commands has opened up new possibilities for chatbots, allowing them to be used in a variety of contexts, from smart home devices to in-car systems.

Despite the significant advancements in chatbot technology, there are still challenges to be addressed. One of the primary issues is the ability of chatbots to understand and generate contextually appropriate responses. While current AI algorithms can handle straightforward queries, they often struggle with complex or ambiguous questions. This limitation can lead to user frustration and negatively impact the perceived effectiveness of chatbots. Additionally, there are concerns about data privacy and security, as chatbots often handle sensitive information. Ensuring that chatbots are secure and compliant with data protection regulations is crucial for maintaining user trust (Sundar, 2020). Furthermore, the personalization of chatbot interactions is becoming increasingly important. Modern chatbots are expected to provide personalized experiences that cater to individual user preferences and needs. This requires sophisticated AI algorithms capable of analysing user data to tailor responses accordingly. The challenge lies in balancing personalization with privacy concerns, as users may be hesitant to share personal information with chatbots. Striking the right balance is key to enhancing user satisfaction while maintaining trust.

The future of chatbot technology looks promising, with ongoing advancements in AI, machine learning, and NLP expected to further enhance their capabilities. Future chatbots may be able to understand and generate more nuanced and contextually appropriate

responses, making them even more effective in customer service roles. Additionally, the integration of chatbots with other emerging technologies, such as augmented reality (AR) and virtual reality (VR), could open up new possibilities for immersive and interactive user experiences.

The history and development of chatbots highlight their evolution from simple rule-based systems to sophisticated AI-powered conversational agents. The advancements in AI, NLP, and voice recognition technology have significantly enhanced the capabilities of chatbots, making them essential tools in various industries. While there are challenges to be addressed, the future of chatbots looks promising, with the potential to further revolutionize how businesses interact with their customers.

1.2. Types of Chatbots

Before the current technological era began, manual work was essential to every aspect of the industry. The development of chatbots in this contemporary era has proven beneficial in industries such as customer service. But not every chatbot fits into a single category. Chatbots are categorized according to their underlying technology, algorithms, and user interface simplicity of use. This research suggests that there are five primary categories into which chatbots can be divided.

1.2.1. Menu/Button-Based Chatbots

Menu/button-based chatbots provide a structured method of interaction by guiding users through a series of predefined options or buttons, contrasting with more complex AI-driven or natural language processing (NLP) chatbots that require sophisticated interpretations of user inputs. These types of chatbots offer a streamlined user experience by presenting fixed choices from which users can select, significantly reducing the possibility of misunderstandings inherent in free text communication. The nature of these chatbots ensures that user responses are confined to pre-set options, which simplifies the interaction process but also limits how expressively users can communicate their needs and queries. This design is particularly advantageous for users who may not be technologically adept, enabling them to navigate the system with ease and reducing the likelihood of errors in user-chatbot communication. The control over user journeys

provided by menu/button-based chatbots is a critical feature, allowing developers to guide users through a predictable set of interactions, which is essential in environments where customer support or information retrieval needs to be quick and straightforward.

Despite these advantages, menu/button-based chatbots come with limitations, notably in their functionality when dealing with complex or nuanced user inquiries. The interaction can often feel impersonal or mechanical, which may not be suitable in contexts where empathy or detailed understanding is required. Additionally, as the scope of the chatbot's services expands, the menu system can become cumbersome and overwhelming for users, potentially complicating the user experience rather than simplifying it. These chatbots are most effective in scenarios where customer interactions are highly standardized, such as in customer support environments where users frequently have similar queries, or in informational contexts where quick access to specific data is needed. They are also commonly employed in structured survey settings, where standardization of responses is crucial for effective data collection and analysis.

In summary, while menu/button-based chatbots excel in environments requiring straightforward, predictable interactions, their application is less ideal for situations demanding in-depth personalization or handling of complex decision-making processes. Their development is typically quicker and less resource-intensive than that of more advanced chatbots, which, along with their ease of use, makes them a practical solution for many businesses looking to implement efficient customer interaction tools without the need for deep AI capabilities.

1.2.2. Rules Based Chatbots

Rules-based chatbots, constructed on a framework of predefined paths and responses, are particularly adept at navigating through a fixed set of interaction patterns that anticipate specific user inputs. This structured approach is rooted in the use of a decision tree or a flowchart-like model where each user input leads to a predetermined node in the system, ensuring that the chatbot's responses are consistent and predictable (Vogels, 2020; Lee, 2022). This method not only enhances the bot's reliability in specific scenarios but also simplifies the backend logic, making it easier for developers to implement and maintain these systems.

One of the key strengths of rules-based chatbots lies in their ability to efficiently handle standard queries without deviations, which is why they are commonly employed in customer service settings where requests can be easily anticipated and categorized (Smith, 2019). For instance, a chatbot in a retail context might be programmed to respond to frequent customer inquiries about store hours, return policies, or product availability. By automating responses to these common questions, businesses can significantly reduce the workload on human customer service representatives and ensure that customers receive instant answers at any time of day (Martin, 2020).

However, the rigid nature of rules-based chatbots also introduces notable limitations. Since these bots operate strictly within the confines of their predefined rules, they lack the ability to process ambiguous or unexpected user inputs creatively (Chen, 2018). This can lead to situations where the chatbot fails to understand the intent behind a user's question, resulting in a loop of ineffective responses or the defaulting to a standard reply that directs the user to contact a human for more complex issues (Jones, 2021).

Moreover, the deployment of rules-based chatbots in more dynamic fields such as healthcare or financial services requires a meticulous design to ensure that the bot covers an exhaustive list of potential inquiries and scenarios. This often involves extensive mapping of customer interaction patterns and the integration of comprehensive databases and APIs to fetch relevant data and perform actions like scheduling or transaction processing (Kumar, 2021).

1.2.3. AI Powered Chatbots

Despite these challenges, the appeal of rules-based chatbots remains strong in scenarios where control and simplicity are more critical than flexibility. They serve as a foundational technology in many digital interaction strategies, providing a cost-effective means to enhance customer interaction and operational efficiency, while also setting the stage for more advanced uses of AI in customer service as complementary solutions.

According to Van Esch et al. (2020), artificial intelligence (AI) broadly refers to digital computerized systems that can perform activities typically associated with human beings, including thinking and reasoning processes. AI is a promising emerging technology in business and marketing, offering software for computers and robots that can

independently think in ways that closely resemble human intellect (Visvikis, Le Rest, Jaouen, and Hatt, 2019). Consequently, AI can respond to issues similarly to humans and perform tasks as well as, if not better than, humans. Patrick and Williams (2020) similarly define AI as computers capable of mimicking human cognitive levels and executing tasks that typically require human intelligence. Wirth (2018) emphasizes AI's ability to interact with environments, characterizing it as robots that can perceive their surroundings and react in ways that optimize task completion. Therefore, the consensus in the existing literature defines AI as systems capable of at least human-level cognition and problem-solving abilities. AI enables computers to use their experiences as learning mechanisms, leading to the development of two forms of AI: narrow AI, which is weak, and general AI, which is powerful (Wirth, 2018). Narrow AI systems are designed to complete a single task at a time, continuously improving their performance for a specific function determined by a human operator. This type of AI cannot easily adapt to new applications, focusing solely on one task. It is often referred to as "business automation" because it automates tasks previously performed by humans to maximize efficiency beyond human capabilities (Kaplan and Haenlein, 2019). Examples include requesting smartphones to report the weather or recognizing individuals for more personalized retail experiences. General AI, in contrast, is seen as a more comprehensive form of machine intelligence due to its broad thought process development (Patrick and Williams, 2020). General AI systems are trained to make decisions without relying on prior training and are not confined to specific tasks or problems. While both narrow and broad AI have the potential to surpass human capabilities, general AI is more akin to true human intelligence due to its ability to expand into new areas. The type of AI used can significantly impact the cost and quality of an AI-based service when developing workable solutions. AI has emerged as a prominent domain for technological advancement across various scientific and economic fields. Over the past decade, AI has been integrated into computer systems for large data processing, autonomous driving, and customer support, demonstrating its adaptability and problem-solving capabilities. Current intelligent systems are already more capable than human intelligence in terms of processing and problem-solving, as evidenced by their practical applications. Technology advancements have enabled businesses to provide AI service agent support around the clock, allowing organizations to deliver services with fewer human resources, lower costs, and shorter turnaround times.

For instance, companies can use IBM's Watson to offer chat services, customized responses (including emotions, tone, and personality), and tailored recommendations (Akkiraju, 2017). As a result, many companies are employing AI-based "bots" and service agents to assist with customer inquiries, complaint processes, and other tasks. Additionally, these bots are increasingly present in other ecosystems, such as social media, where they perform complex tasks like social media interactions and autonomous content creation (Varol, Ferrara, Davis, Menczer and Flammini, 2017).

The rapid adoption of AI-based service agents has led to a significant increase in research on this technological advancement and a deeper understanding of its impact on customer attitudes and behaviour. One of the primary objectives of using AI-based service agents is to enhance the user experience and improve information quality. However, research indicates that meeting specific customer demands is not always guaranteed (Yoon, 2010). Numerous complaints have surfaced about negative customer inquiry experiences with AI-powered support representatives. A common grievance among dissatisfied customers is the perceived lack of authenticity in their interactions with AI chatbots, which they feel leads to an unsatisfactory mediated experience (Dwivedi et al., 2019). Additionally, AI-based service bots have been criticized for being "dumb," as they sometimes fail to respond to inquiries that align with their programming. This has raised concerns about their ability to protect personal data, leading to skepticism about their overall reliability and effectiveness.

AI systems are designed to learn from their experiences, enabling them to improve over time. This learning mechanism leads to the development of two forms of AI: narrow AI, which is task-specific and focuses on a single function, and general AI, which has broader capabilities and can handle multiple tasks. Narrow AI, often referred to as "business automation," automates tasks previously performed by humans, enhancing efficiency (Kaplan and Haenlein, 2019). Examples include voice-activated assistants like Siri and customer recognition systems in retail. General AI, on the other hand, is more advanced and can make decisions without relying on prior training, allowing it to adapt to new situations and tasks. This makes general AI more like human intelligence, capable of expanding into new areas and solving a wider range of problems. AI's integration into various fields has demonstrated its potential for technological advancement. Over the past decade, AI has been used in large data processing, autonomous driving, and customer

support, showcasing its adaptability and problem-solving capabilities. Current intelligent systems often surpass human capabilities in processing and problem-solving, as evidenced by their practical applications. Technology advancements have enabled businesses to provide AI service agent support around the clock, reducing the need for human resources and lowering costs. For example, IBM's Watson can offer chat services, customized responses, and tailored recommendations, providing businesses with an efficient way to handle customer inquiries and complaints (Akkiraju, 2017). AI-based bots are also increasingly present in social media ecosystems, performing tasks such as social media interactions and autonomous content creation (Varol, Ferrara, Davis, Menczer and Flammini, 2017).

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1.2.4. Voice Chatbots

The Growing Significance of Voice Chatbots: Voice chatbots are a major development in interactive technology that provide users with the ease of voice-driven interactions that resemble human dialogue. These systems can comprehend and react to user inquiries in real time because they are driven by advanced artificial intelligence algorithms that parse spoken language (Johnson, 2022). Voice chatbots can become more intelligent over time, responding to user preferences and speech patterns thanks to the combination of machine learning and natural language processing (NLP) technology (Smith, 2023). Voice chatbots are popular because they allow users to communicate hands-free. This makes them especially helpful in scenarios when users find it difficult to enter or traverse traditional menus, as when driving or cooking (Williams, 2023). This accessibility contributes to a seamless user experience by increasing convenience and user engagement (Brown, 2022). Additionally, speech chatbots are being utilized more and more in customer support apps to arrange appointments, respond quickly to commonly requested questions, and even handle complicated inquiries that would often call for human assistance (Davis, 2021). This feature gives customers an effective and engaging method to acquire information while drastically cutting wait times and operating expenses for organizations (Wilson, 2023). Voice chatbots are revolutionizing the way people engage with technology by offering a more user-friendly and accessible means of communication. This is improving customer happiness and operational efficiency for companies in a variety of industries (Taylor, 2023). The ability of voice chatbots to simulate human-like conversations makes them an asset in enhancing user interactions and fostering stronger connections with customers (Johnson, 2022). By integrating voice recognition capabilities with contextual understanding, these chatbots can provide personalized responses that cater to individual needs, thereby elevating the overall customer experience (Smith, 2023). In the healthcare sector, voice chatbots are being leveraged to provide patients with timely medical information, schedule appointments, and offer reminders for medication adherence. This not only improves patient engagement but also reduces the burden on healthcare professionals by automating routine tasks (Williams, 2023). For instance, a voice chatbot can assist elderly patients in managing their health by providing daily reminders for taking medications or performing specific exercises, thereby enhancing their quality of life (Brown, 2022).

In the financial industry, voice chatbots are transforming customer service by enabling users to perform banking transactions, check account balances, and receive financial advice through simple voice commands (Davis, 2021). This level of convenience is particularly beneficial for users who may have difficulty navigating traditional digital interfaces, such as the elderly or visually impaired (Wilson, 2023). By offering a more inclusive user experience, voice chatbots are helping financial institutions to better serve a diverse customer base and foster greater customer loyalty (Taylor, 2023).

Moreover, voice chatbots are being utilized in the retail sector to enhance the shopping experience. Customers can use voice commands to search for products, check stock availability, and even place orders, making the shopping process more efficient and enjoyable (Johnson, 2022). Retailers are also leveraging voice chatbots to provide personalized product recommendations based on past purchases and browsing history, thereby increasing the likelihood of repeat sales (Smith, 2023). This personalized approach not only drives customer satisfaction but also boosts revenue for retailers (Williams, 2023). The integration of voice chatbots into smart home devices is another area where this technology is making significant strides. Voice-activated assistants such as Amazon's Alexa, Google's Assistant, and Apple's Siri allow users to control various aspects of their home environment through voice commands (Brown, 2022). From adjusting the thermostat to playing music or setting alarms, these voice chatbots enhance the convenience and functionality of smart home systems (Davis, 2021). The ability to interact with home appliances and services through voice commands creates a seamless and intuitive user experience, contributing to the growing popularity of smart home technology (Wilson, 2023).

Voice chatbots are also playing a crucial role in education by providing students with interactive and engaging learning experiences. Educational institutions are using voice chatbots to assist students with homework, answer questions, and provide feedback on assignments (Taylor, 2023). This interactive approach helps to create a more dynamic and supportive learning environment, catering to the individual needs of students and promoting better academic outcomes (Johnson, 2022). Despite their numerous benefits, the deployment of voice chatbots also presents certain challenges. One of the primary concerns is ensuring the accuracy and reliability of voice recognition technology, particularly in noisy environments or when dealing with users who have accents or speech

impairments (Smith, 2023). Additionally, there are concerns about data privacy and security, as voice chatbots often handle sensitive information. Implementing robust security measures and ensuring compliance with data protection regulations are essential to maintaining user trust and safeguarding personal data (Williams, 2023). The growing significance of voice chatbots is evident across various industries, from healthcare and finance to retail and education. By providing a more accessible, user-friendly, and efficient means of communication, voice chatbots are transforming how businesses interact with their customers and enhancing overall user experience. As advancements in AI, machine learning, and NLP continue to evolve, the capabilities of voice chatbots are expected to expand further, offering even greater potential for innovation and improved customer engagement.

1.2.5. Generative AI Chatbots

The way we work, interact, and create is evolving due to the growing usage of GAI in daily life (Frosio, 2023). With the help of a novel technique called GAI, robots can now learn from past data and adjust to novel circumstances. The importance of this crucial technology to enterprises is growing. It increases people's general efficiency, aids in automated decision-making processes, and finds patterns in massive data sets (Noy and Zhang, 2023). Workers are left with increasingly complicated and perhaps innovative jobs that call for human creativity and problem-solving abilities as a result of the automation of an expanding number of tasks (Pistrui, 2018).

The discussion of GAI's possible applications and effects often boils down to a binary is or is not creative question. However, because there is a greater diversity in creative thinking and creative problem-solving, scientific literature paints a far more detailed picture of creativity. The framing of problems, the development and selection of ideas, and the possible execution of ideas are typical examples (Botella et al., 2019; Williams et al., 2016). By mixing existing data in novel ways, GAI may provide a plethora of new textual (ChatGPT, Dale, 2021) and graphic (Dall-E, Marcus, Davis, and Aaronson, 2022) output in response to written cues. Free-associative thinking, the foundation of creative processes, is the human equivalent of this (Steele et al., 2018). New

technologies are emerging quickly, and this creates a lot of previously unavailable information. In contrast to older "smart" tools that can compile current information, these new technologies are able to provide original ideas and solutions. This creates opportunities for assisting human duties in a variety of fields, such as education, entertainment, and healthcare (Seidel and Berente, 2020). It also begs significant issues about how these technologies may be developed to foster and encourage creativity, as well as about how they might be used to facilitate human performance. There have been several examples of AI's creative ability in recent years. According to the broad definition of "creating something new and useful" (Runco and Jaeger, 2012), algorithms, for example, may compose music (Civit et al., 2022). This might be considered creative work. In the age-old Chinese board game Go, Google's AlphaGo software emerged victorious in 2016 against the human world champion, demonstrating the creative potential of AI. By imitating human gamers, AlphaGo produced innovative and complex methods for victory (Miller, 2019). Furthermore, DiPaola (2016) talked about the creation of an artificial intelligence system that mimics the inventiveness of a portrait painter, giving designers and artists a new tool to explore unusual creative avenues and produce concepts that appear impossible without AI support. The ability of GAIs to replicate data from the web, including a variety of services for intricate digital operations like coding, template building, and company administration, is growing. However, documented errors in AI systems cast doubt on its applicability as a trustworthy instrument for knowledge generation and spark discussion about the specific uses and boundaries of these systems (Dale, 2021; Else, 2023; "The AI Writing on the Wall,", 2023). Regarding ChatGPT, its language model learns patterns and relationships between words and phrases in a language by being trained on vast volumes of text data collected from the internet. When facts are involved, the generated text is untrustworthy; nevertheless, when fiction and chance combinations are needed, it becomes more beneficial (as in fiction, poetry, and gaming dialogues, Dale, 2021). When paired with a few factual details, a broad body of knowledge can foster human creativity. It is claimed that the current GPT-4 advanced version produces more thorough, accurate, and imaginative outcomes than the previous GPT-3 version (OpenAI, 2023a).

1.3. Chatbots Usability Motivations

The drive to integrate chatbots into customer interaction frameworks is largely motivated by the necessity to enhance user experience while maintaining operational efficiency. At the core of chatbot usability are several key motivations that highlight their importance and influence in a digital-driven marketplace. In the following part we will delve a little deeper into these motivations:

1.3.1. Increased Efficiency and Scalability

Increased efficiency and scalability stand as primary motivations for the integration of chatbots in customer service operations. Chatbots are engineered to handle numerous customer inquiries simultaneously, drastically reducing the response time and increasing the efficiency of interactions compared to human agents (Vellido, 2021). This capability is crucial, especially during peak traffic periods or promotional events when customer inquiries surge, ensuring that every user receives timely assistance without the delays associated with human-operated service systems (Kumar et al., 2019). By automating the responses to frequently asked questions and routine inquiries, chatbots free up human agents to handle more complex issues, enhancing overall operational efficiency (Smith and Linden, 2020). Furthermore, the scalability of chatbots means that businesses can adjust to increased demand without the corresponding increase in human resources, significantly cutting down operational costs and optimizing resource allocation (Chen, 2022). This operational leverage is not only a strategic advantage but also a critical component in maintaining a high level of customer service and satisfaction in a competitive digital marketplace (Jones, 2021). 24/7 Availability

The 24/7 availability of chatbots significantly enhances customer service by providing constant support, a crucial factor in today's global marketplace where consumers expect immediate responses at any time of day (Nguyen, 2021). Unlike human agents, who require breaks and have limited working hours, chatbots can interact with customers around the clock, addressing inquiries, solving issues, and even processing transactions during off-hours (Lee and Moray, 2020). This round-the-clock service ensures that businesses can cater to customers across different time zones without any interruptions, leading to increased customer satisfaction and loyalty (Brown, 2022). Additionally, the

perpetual availability of chatbots reduces the wait times for responses, a common frustration among customers, thereby enhancing the user experience and potentially increasing conversion rates as customers are more likely to complete purchases when their questions and concerns are addressed promptly (Watson, 2019).

1.3.2. Cost Reduction

The implementation of chatbots contributes significantly to cost reduction within organizations by minimizing the need for extensive human customer service teams (Johnson, 2021). By automating routine inquiries and tasks, chatbots allow companies to allocate human resources to more complex and strategic activities, thereby optimizing labour costs (Smith and Zhang, 2020). Moreover, chatbots reduce the training expenses associated with new customer service agents as they can handle a vast array of customer interactions without the need for ongoing training (Brown, 2022). This automation leads to a decrease in operational costs and enhances the efficiency of the customer service process, as chatbots can manage multiple conversations simultaneously without compromising the quality of service, unlike human agents who can be overwhelmed by high volumes of requests (Watson, 2019). The cost-effectiveness of chatbots is further evidenced in their ability to reduce error rates in customer service interactions, thereby decreasing the costs associated with resolving errors and improving customer satisfaction (Lee and Moray, 2020).

1.3.3. Personalized User Experience

Customer loyalty and attracting new users who value seamless and engaging experiences (Brown, 2022). Furthermore, chatbots can gather and analyse customer data to deliver more personalized interactions, which further contributes to a positive brand image by demonstrating a commitment to understanding and meeting individual customer preferences (Davis, 2021).

Moreover, the round-the-clock availability of chatbots ensures that customer inquiries are addressed promptly, which enhances customer satisfaction and fosters a sense of reliability and trust in the brand (Wilson, 2023). By integrating chatbots into their service offerings, brands not only optimize operational efficiencies but also significantly improve

the customer experience, leading to a stronger brand image and a competitive edge in the digital marketplace (Taylor, 2023).

These motivations underscore the strategic value of chatbots in modern digital communication frameworks, highlighting their role not just in operational efficiency but also in strategic business functions like marketing, customer relationship management, and business intelligence.

1.4. Chatbot Usage in The Context of Customer Experience

Over the past two decades, the exploration of chatbots as a tool to enhance customer service has undergone significant evolution. This exploration has been marked by two distinct waves of interest, each characterized by different technological advancements and applications in the customer service domain.

The first wave, emerging in the early 2000s, was focused on the development of 'virtual agents' designed to address frequently asked questions (FAQs). These early chatbots were primarily rule-based systems, capable of providing pre-defined responses to a limited set of queries. The primary aim was to automate routine interactions, thereby reducing the burden on human customer service representatives and increasing efficiency in handling simple inquiries.

The second wave, which began around 2016, has been propelled by major technological advancements and the growing interest of tech giants such as Microsoft, Facebook, and Google. This era also saw the rise of voice-activated assistants like Apple's Siri and Amazon’s Alexa, signalling a shift towards more sophisticated, AI-powered chatbots. Unlike their predecessors, these modern chatbots leverage advanced natural language processing (NLP) and machine learning algorithms, enabling them to understand and respond to a broader spectrum of customer queries with greater accuracy and context-awareness.

The advancements in AI and NLP during this second wave have significantly enhanced the interpretational capabilities of chatbots, opening up new possibilities for their application in customer service. Industry analysts from firms such as Capgemini, Oracle, and Forrester have predicted that chatbots will play a crucial role in the future of customer

service, offering benefits such as round-the-clock availability, scalability, and consistent service quality.

However, despite these technological strides, contemporary chatbots are not without limitations. They may struggle with complex, ambiguous, or highly context-dependent queries and lack the emotional intelligence required for certain customer service scenarios. This has led to a tempered outlook on the role of chatbots in customer service, with a growing emphasis on strategic implementation that acknowledges both the strengths and limitations of the technology. A recommended approach is the 'tiered' model, where chatbots serve as the first line of response for routine inquiries, with the option to escalate more complex issues to human agents. This hybrid model ensures efficiency in handling basic queries while maintaining the quality of service for more intricate customer needs.

As research and development in AI and NLP continue to advance, it is anticipated that future generations of chatbots will exhibit even greater capabilities, including enhanced contextual understanding, emotional intelligence, and conversational continuity. These improvements are expected to further integrate chatbots into the fabric of customer service strategies, offering a seamless blend of automation and personalization.

The evolution of chatbots in customer service over the past two decades has been marked by significant technological advancements, leading to increased potential and application in the field. While challenges remain, the ongoing development of AI and NLP technologies holds promise for the future role of chatbots in delivering efficient, effective, and personalized customer service experiences. Chatbot Usability

The assessment of user experience, including user happiness and ease of use, is crucial to chatbot usability. Because it dictates whether or not users can accomplish their goals through the chatbot interface with the least amount of misunderstanding or annoyance, usability is very important. This idea includes perceived quality, functionality, security, and time efficiency, among other aspects. Users' perceptions and use of chatbots are influenced by the distinct ways in which each dimension contributes to the overall user experience. Chatbot designs may be improved and made better suited to the requirements

and preferences of users by evaluating these parameters using analytical data and user input. We will go further into each of these aspects in the sections that follow to have a better understanding of how they affect chatbot usability, some of these aspects are below in figure1:

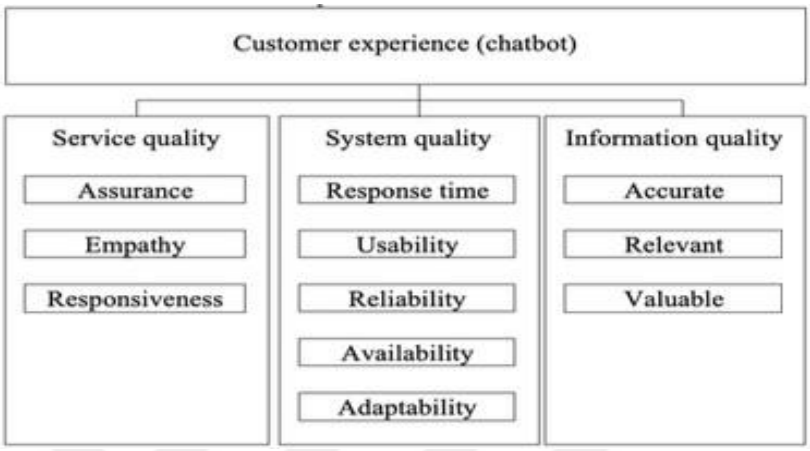

Figure 1. Customer Experience and Its Dimensions by Chatbots

1.4.1. Perceived Accessibility to Chatbot Functions

The idea of perceived accessibility to chatbot features, it's important to consider a number of factors that provide a seamless user experience. Accessibility is more than just making something easy to use; it's about the user experience from the moment they engage with it until they finish their duties. This covers the degree to which a chatbot can manage and react to a wide range of user requests and instructions while accommodating their various demands and preferences. A chatbot's design should put an emphasis on simple interaction and navigation. This may be accomplished by using language that is conversational, succinct, and evocative of human speech, which makes it simpler for users to comprehend and react to (Nielsen and Mack, 1994). One important factor in chatbot accessibility is the conversation's logical flow, which includes indications and prompts that anticipate user demands. For example, the chatbot need to provide alternatives for explanation or assistance when a user appears perplexed or enters an unidentified command, instead of only displaying an error notice (Polson et al., 1992). Accessibility needs to take the chatbot's inclusiveness into account as well. This entails making certain that individuals with diverse limitations, such visual or auditory impairments, may utilize the chatbot. Enhancing the accessibility of chatbot technology requires the

implementation of speech recognition and response capabilities, together with compatibility with screen readers (Lazar et al., 2017). These capabilities increase the overall efficacy and reach of the technology by making chatbot services more accessible to a wider audience.

User feedback systems are essential to preserving and enhancing chatbot functionality accessible. By asking consumers for feedback on a regular basis, you may gain insight into their encounters and challenges with the chatbot. The process of continuous assessment enables the chatbot's design and functionality to be improved, hence guaranteeing that the system adapts to changing customer demands and technical advancements (Shneiderman and Plaisant, 2006). Developers may optimize user engagement and happiness by gradually improving the accessibility and user-friendliness of their chatbots by an iterative design methodology.

1.4.2. Perceived Quality of Chatbot Functions

Perceived quality in the context of chatbot functions is in line with the definition of quality found in the larger service literature, which is the customer's assessment of an entity's overall excellence or superiority. Zeithaml (1987) asserts that this is not just about the details but also about a comprehensive assessment that takes into account the service delivery process as well as the final product. Taking a comprehensive approach is essential when analysing chatbots since user expectations are met as well as function correctness determines how effective the chatbot is. According to Grönroos (1982), a service's perceived superiority over others, such as chatbots, is mostly determined by the discrepancy between customers' expectations and their actual experiences. In this context, evaluating whether a chatbot meets or exceeds user expectations and if it efficiently provides the necessary information or support is an assessment of the perceived quality of the chatbot's capabilities. This is further supported by the definition of service quality provided by Parasuraman, Zeithaml, and Berry (1985), which suggests that assessing the quality of particular services, like chatbots, calls for more than a general understanding of service quality. Rather, it calls for a thorough understanding of the various characteristics that go into the perceived efficacy and efficiency of the chatbot.

1.4.3. Perceived Quality of Conversation and Information Provided

Information quality was described by Delone and McLean (2003) as a gauge of a technology's performance in terms of meaning. This relates to whether the information consumers were given was timely, accurate, and relevant according to the IS model. In this instance, the total quality of chatbot services may be significantly impacted by the quality of the information provided. Customers may have unfavourable opinions of the service, lose faith in it, and stop using the IS if chatbots fail to provide pertinent information when they request it. According to a study by Swanson (1997), the quality of the information has a variety of effects on things like organizational performance by raising maintenance and operating expenses. Furthermore, more recent research has shown that the quality of the material on websites influences its perceived worth, which in turn affects user loyalty (Pearson et al., 2012). In fact, chatbots' information is essential to customers' experiences and the caliber of their communications with businesses. Therefore, in this study, the quality of the information is a reliable indicator of the overall quality of chatbots.

1.4.4. Perceived Privacy and Security

"The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" is the fundamental definition of trust provided by Mayer et al. (1995). This emphasizes the inherent danger or susceptibility that comes with trust. When this idea is applied to consumer technology interactions, especially those using chatbots, the emphasis frequently switches to the privacy and security issues that these interactions may raise. Customer trust in technology such as chatbots is greatly impacted by perceived risk, particularly when it comes to security and privacy.

Perceived risk of security and privacy is defined by Dowling and Staelin (1994) as the customer's impression of the uncertainty or unfavourable outcomes while making a purchase of products or services. This is especially important in digital settings where user perceptions might be dominated by worries about privacy and data security. Tam (2012) showed that customer happiness and loyalty may be impacted by perceived

security issues, indicating a stronger inclination for dependable suppliers in the face of security concerns with emerging technologies. Concerning the security and privacy of user data, chatbots present particular difficulties. According to Sundar and Kim (2019), there are serious privacy problems since chatbots may not always use the personal information they communicate. As highlighted by Sundar and Marathe (2010), system-initiated customisation services, while seemingly practical, might heighten privacy threats and aggravate these problems. Customers may have to divulge personal information while utilizing chatbots, which heightens concerns about insufficient data protection.

Performance and privacy are two critical problems in the context of emerging technology services like chatbots (Gao and Waechter, 2017; Dehghani, 2018). These hazards cover both the secure management of personal information and functional requirements. Effective privacy protection is viewed as a basic component of performance in the digital era, according to Mendoza (2020), who also suggests that privacy concerns are a natural by-product of perceived performance threats.

1.4.5. Time Response

Response time is a type of chronemic cue, which is a temporal feature of communication (Walther and Tidwell 1995; Littlejohn and Foss 2009). It is also known as response latency or response delay. In human-to-human communication, it is a crucial social cue (Kalman et al. 2013; Schuetzler et al. 2019). Response time in face-to-face contact is the amount of time that passes between one person stopping to talk and another starting. In communication mediated by technology (such as instant messaging), It describes the interval between consecutive communications as well as the time it takes for someone to reply to someone else's message (Moon 1999). It encompasses the time required to read, process, and comprehend someone else's message in addition to the time required to draft and revise a response (Derrick et al. 2013). Chatbots reply faster than humans because they process user input in a matter of fractions of a second and provide a response (Følstad et al. 2018; Schuetzler et al. 2021). Nonetheless, other academics contend that instantaneous answers dehumanize chatbots and lessen the sense of a real interaction (Holtgraves and Han 2007). "It introduces a non-negligible feeling of artificiality to interact with something that can respond instantly to anything you say," claims Schuetzler

(2015). (Section 50). As a result, several practitioners and researchers hold off on their chatbot answers. For instance, Appel et al. (2012) utilized static delays of 15–30 s, but Holtgraves and Han (2007) used dynamic delays dependent on the number of characters in the current message (i.e., 50 ms per character). Additionally, in response to consumer complaints regarding Mildred's instantaneous reaction speed, Lufthansa postponed the chatbot's answers (Crozier 2017). There is a dearth of research on chatbot reaction times, and what little that is available yields contradictory results that need more study. According to Moon's (1999) research, medium response times (as opposed to instantaneous and prolonged response durations) increase persuasiveness. Dynamically delayed replies were found by Gnewuch et al. (2018) to boost satisfaction, social presence, and perceived humanness. Holtgraves et al. (2007) discovered, however, that quicker response times result in more positive impressions of the individual's personality. According to Schanke et al. (2021), a chatbot that responded dynamically (i.e., at 70 words per minute) as opposed to instantly produced a lower level of likeability. Considering this, we examine whether variations in users' expectations derived from past interactions with chatbots might explain the contradictory results seen in the body of existing work.

CHAPTER 2: CUSTOMER LOYALTY

In this chapter, we shift our focus to the critical concept of customer loyalty, a cornerstone for sustained business success and competitive advantage. Understanding customer loyalty is pivotal for businesses seeking to foster long-term relationships and enhance their market position. This chapter will provide a detailed exploration of customer loyalty, beginning with its definition and theoretical underpinnings.

We start by defining customer loyalty, establishing a clear and comprehensive understanding of what constitutes loyal customer behaviour and its implications for businesses. This foundation sets the stage for a deeper dive into the various drivers of customer loyalty, which are essential for developing effective strategies to retain customers.

The discussion on drivers of customer loyalty will be segmented into key factors such as satisfaction, trust, and commitment. We will analyse how each of these elements contributes to the development of loyal customers and the interplay between them. Satisfaction, as a fundamental driver, will be examined in terms of how meeting or exceeding customer expectations can lead to repeat business. Trust, another crucial component, will be explored through its role in building reliable and credible relationships between customers and businesses. Commitment, the third driver, will be discussed in the context of its importance in fostering a strong emotional and psychological connection with customers.

Next, we delve into the different levels of customer loyalty, categorized into cognitive, affective, conative, and action loyalty. Each level represents a distinct stage in the customer's loyalty journey, from initial awareness and belief in the brand to emotional attachment and proactive engagement. Cognitive loyalty will be addressed first, focusing on the customer's rational and evaluative process in choosing a brand. Affective loyalty will then be discussed, highlighting the emotional bonds that develop between customers and brands. Conative loyalty will cover the behavioural intentions of customers to repurchase, and finally, action loyalty will examine the actual purchase behaviour and advocacy actions taken by loyal customers. The chapter will also emphasize the significance of usability in customer loyalty. We will explore how the ease of use, accessibility, and overall user experience of a product or service can significantly

impact customer satisfaction and loyalty. This section will highlight the importance of designing user-friendly interfaces and processes that enhance customer engagement and retention.

In summary, Chapter 2 provides a comprehensive examination of customer loyalty, its driving factors, various levels, and the critical role of usability. This detailed exploration will offer valuable insights for businesses aiming to develop and maintain a loyal customer base, setting the stage for further analysis of the relationship between chatbot usability and customer loyalty in subsequent chapters.

2.1. Definition of Customer Loyalty

Explaining the concept of loyalty is a tough task. Although loyalty has been defined by numerous writers, the idea still lacks a single accepted definition. The act of consistently purchasing goods or services from a supplier while rejecting more attractive offers from rival businesses is known as loyalty. According to (Walsh et al. 2008, 977–1004), there are three common ways to conceptualize loyalty: as a mindset that fosters a relationship with the brand; as demonstrated by action; and as purchasing that is constrained by personal traits, external factors, or the context of the purchase. According to (Robinson et al. 2006), loyalty is an attitude- and emotion-based preference that leads to impulsive personal purchasing and recommendation behaviour. Loyalty is characterized by a strong desire to frequently use or repurchase a preferred good or service in the future, which leads to repetitive behaviour (Robinson et al. 2006). The increasing level of competition in the business sector raises the cost of a company's customer acquisition approach. Because of this, many companies are working hard to provide their customers with exceptional service to gain their loyalty. According to Kotler et al. (2003), maintaining a high level of customer satisfaction and values that result in strong customer loyalty and well-established business relationships can help retain customers. One of the most important factors in every business' success is its capacity to attract and retain consumers. In terms of market share and profit margins, companies that have been able to better please their customers and encourage repeat business are the industry leaders. Attaining effective customer satisfaction has the potential to boost customer loyalty and foster the growth of company partnerships by retaining customers (Kotler et al. 2003).

Every business's profit margin benefit from loyalty. Yoo and Bai (2013, 166) assert that devoted consumers are less likely to convert to a rival brand due to price and other special offers, they generate word-of-mouth referrals, and they are less expensive to retain. In a nutshell, design choices that prioritize customer needs and wants lead to the creation of devoted clientele in a single day. Not every consumer who makes a purchase and returns is a devoted one. Customer loyalty is a sign of a customer's positive outlook and recurrent purchasing of a certain good or service (Gremler and Brown 1999).

Gremler and Brown (1999) distinguished between three types of client loyalty: purposeful, behavioural, and emotional. From the perspective of the customer, emotional loyalty refers to a company's products or services. Intentional loyalty refers to a potential purchase intention, while behaviour loyalty refers to a pattern of repeat purchases. The act of making purchases is not what defines loyalty. A customer is not always loyal to a supplier just because they make frequent purchases from them. For several additional reasons, the client might keep making purchases from a supplier (Derek 2004).

2.2. Drivers of Customer Loyalty

Customer loyalty drivers are important factors that affect how devoted a customer is to a brand or business and how long that loyalty lasts. These drivers can be broadly divided into three categories, as shown in figure 2 below: emotional, rational, and structural.

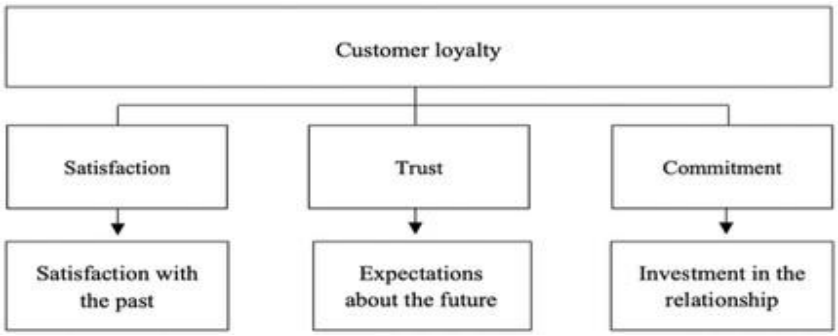

Figure 2. Drivers to Customer Loyalty.

2.2.1. Customer Satisfaction

Customer satisfaction is an important factor in the success of any organization, as it represents the difference between a customer's expectations before consuming a product or service and its subsequent reality after consumption. Kotler and Keller (2006) describe

satisfaction as a person's emotions of delight or disillusionment because of assessing how well a product performs in comparison to their expectations. This concept emphasizes how experiences either meet or surpass expectations, which directly affects customer satisfaction levels, which are subjective in nature. According to Goodman (2009), the fact that consumer expectations are always changing makes it difficult to define customer happiness. As expectations rise, it becomes increasingly difficult for companies to outline a clear path towards fulfilling them. Satisfaction can vary significantly among customers based on individual experiences, with some customers feeling satisfied while others do not, even when exposed to the same product or service. This variability necessitates a nuanced approach to managing customer expectations and perceptions.

Customer Satisfaction = Customer Perception of Service Received – Customer Expectation of Customer Service

The formula provided by Rai (2008), highlights the discrepancy between the expected and actual services, which encapsulates this dynamic. This disparity forms the foundation for contentment or discontent, especially in service-oriented sectors like hospitality where direct service encounters have a significant impact on client opinions. Additionally, Zeithaml and Bitner (2008) address how attributions, feelings of equity, and emotional reactions all impact customer satisfaction and determine whether or not a consumer will suggest or make another purchase of a good or service. The emotional aspect is particularly important as it has a big impact on clients' overall happiness because of how they feel about a service interaction. Achieving customer satisfaction therefore requires businesses to consistently exceed expectations through superior service and product quality. This involves enhancing the tangible aspects of products and services and ensuring that customer interactions are handled empathetically and efficiently, thereby improving the overall customer experience. Attention must also be paid to employee satisfaction, as content employees are more likely to provide exceptional service, thus perpetuating a positive cycle of customer satisfaction and loyalty. The impact of customer satisfaction extends beyond individual experiences, influencing broader business outcomes such as customer loyalty, word-of-mouth promotion, and profitability. Satisfied customers are likely to become repeat buyers and are more inclined to share positive experiences with others, thereby acting as advocates for the brand. This advocacy is crucial in an era where peer recommendations can significantly influence

purchasing decisions. Ultimately, companies that can navigate the complexities of customer expectations and deliver consistently pleasing experiences are more likely to achieve sustainable success. This requires not only a focus on the core elements of service delivery and product quality but also an organizational commitment to understanding and adapting to customer needs and preferences. By fostering an environment that values customer and employee satisfaction alike, businesses can create a robust foundation for ongoing growth and customer loyalty.

2.2.2. Trust

When it comes to customer loyalty, trust is essential, particularly when interacting with chatbots. According to Sidershmukh et al. (2002), consumer trust is predicated on their perception of the ability of service providers—including digital interfaces like chatbots—to fulfil their commitments in a trustworthy and consistent manner. This concept emphasizes how crucial it is to create chatbot designs that continuously live up to client expectations to establish and maintain trust. Because chatbot interactions are digital in nature, trust becomes essential. Consumers rely on chatbots to deliver trustworthy service, safe transactions, and accurate information—all of which are essential for establishing confidence. For instance, a chatbot that reliably responds to inquiries with precision and expeditiously builds client trust by exhibiting competency and dependability. Furthermore, as Hess and Story (2005) point out, the sustainability of consumer happiness with chatbots is critical for the building of trust. Regular positive encounters with a chatbot that are marked by accurate and prompt replies might help to progressively establish trust. To turn new users into devoted patrons, this constant delight is essential.

The relationship between satisfaction and trust is especially important when it comes to chatbots. Customers' degree of confidence in chatbots, which perform a variety of functions from personal shopping to customer care, has a direct impact on their level of happiness and loyalty. For chatbots to be trusted, they must not only work efficiently but also handle critical consumer data with extreme security and privacy. The research on relationship marketing, which includes observations by Sahadev and Purani (2008), indicates that satisfaction and trust are related, frequently with satisfaction serving as a prerequisite for trust. This relationship suggests that improving chatbot features that

increase user happiness would probably increase trust. For example, by providing customized and pertinent replies, a chatbot that adapts interactions according to user history and preferences may increase perceived trustworthiness.

Customer loyalty is significantly influenced by confidence in chatbots. It is promoted by interactions that are consistent, satisfying, and give users confidence in the security and dependability of the chatbot. To improve customer loyalty, businesses should concentrate on making chatbot interactions more dependable, safe, and easy to use. They should also make sure that these virtual assistants can accurately replicate the comforting presence of human customer support. In addition to securing a devoted client base, this deliberate focus on establishing trust through chatbots presents the company as a progressive, customer-focused organization in the digital era.

2.2.3. Commitment

Customer loyalty is mostly influenced by commitment, which is based on the conviction that the benefits of preserving a valuable connection outweigh the expenses involved. This idea, which was put out by Morgan and Hunt (1994), emphasizes the role that commitment plays in creating loyalty by implying that a customer's persistent want to maintain a connection results in more encounters and increased trust.

In the context of consumer relationships, commitment frequently results from the client's pleasure with earlier exchanges, which shapes expectations for the future. Dwyer, Schurr, and Oh (1987) assert that every successful interaction raises the possibility of subsequent transactions, strengthening loyalty via a mutually beneficial cycle of trust. Thus, commitment implies a deeper, value-driven motivation to stay connected rather than merely sticking with a service out of convenience or necessity. Through the prism of relational norms, the significance of commitment in fostering loyalty is further clarified. Heide and John (1992) emphasize how reciprocal respect and support within a partnership strengthen the commitment. This is especially important when service outages are handled well, showing how committed the provider is to the duration and calibre of the partnership.

Practically speaking, increasing commitment can entail several tactics, including aggressively seeking out and customizing client experiences, delivering consistently

high-quality service, and reacting to customer feedback. By reducing the gap between customers' expectations and actual service experiences, these tactics aid in preserving high satisfaction levels and encouraging loyalty. In essence, the depth of commitment within a service relationship significantly impacts the likelihood of sustained customer loyalty. It is through ongoing, satisfying interactions that businesses can ensure customers feel valued and inclined to continue their relationship, thereby securing their loyalty in a competitive marketplace.

2.3. Levels of Customer Loyalty

Customer loyalty is a critical determinant of a business's success and can be understood through various levels that illustrate the depth of a customer's commitment and connection to a brand. These levels of loyalty range from basic awareness to deep emotional engagement and advocacy. Understanding these different stages can help businesses tailor their strategies to cultivate stronger relationships with their customers, encouraging not just repeat purchases but also active promotion of the brand. Each level of loyalty reflects a more profound attachment and a greater likelihood of sustained business over time. In exploring these levels, businesses can effectively address and enhance the customer experience, strategically moving consumers from one level of loyalty to the next, ultimately leading to increased customer retention and long-term profitability. In this section we will go through each level of figure 3.

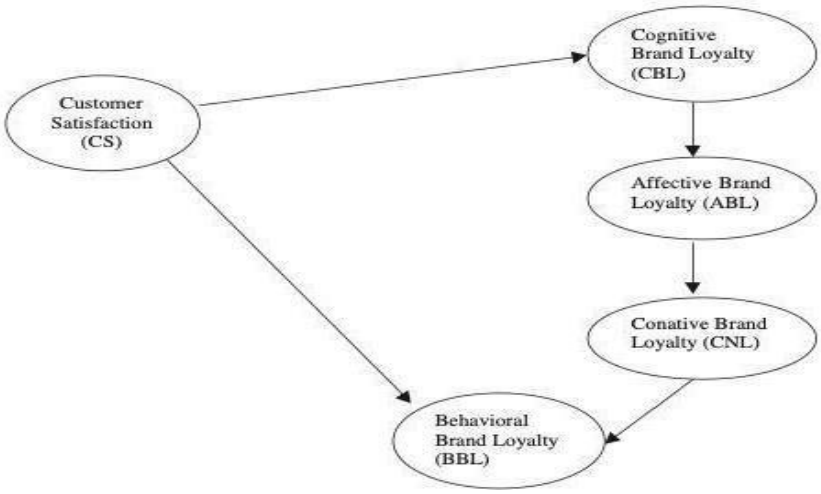

Figure 3. Levels of customer brand loyalty.

2.3.1. Cognitive Loyalty

Cognitive loyalty, which is sometimes seen as the fundamental stage of brand loyalty, is centred on the customer's worldview and brand awareness. According to Chaudhuri and Holbrook (2001), it is defined by a consumer's ability to recognize and recall a brand's qualities, resulting in a preference based just on information. This kind of loyalty, in which the customer rationally considers the benefits of sticking with a certain brand over others, is mostly driven by their opinions of the brand's value and quality. For instance, a client who buys a specific brand of smartphone on a regular basis could do so because they believe it to offer better technology and customer support than its rivals. Here, cognitive loyalty is not necessarily about deep emotional attachment but rather about an informed decision based on comparative benefits (Oliver, 1999).

In the realm of e-commerce, cognitive loyalty can be seen in how customers respond to detailed product descriptions, user reviews, and ratings that inform their purchase decisions. Brands that provide comprehensive, accurate, and accessible information are more likely to foster cognitive loyalty. Customers use this data to assess whether the brand meets their needs and expectations consistently across multiple interactions (Zeithaml, 1988).

Scholarly research, like that of Johnson and Grayson (2005), highlights the importance of cognitive loyalty since it provides a foundation for stronger types of loyalty, such as emotional and cognitive loyalty. Deeper emotional ties and persistent purchasing patterns are less likely to form in the absence of the reasoned appraisal that is indicative of cognitive loyalty. This kind of devotion is especially important in areas like electronics and the automobile industry where specs, performance data, and peer reviews play a significant role in purchase choices. In order to create and retain cognitive loyalty, brands in these industries emphasize conveying functional advantages and upholding strict guidelines for client education and transparency.

2.3.2. Affective Loyalty

Affective loyalty represents the emotional attachment a consumer develops towards a brand, transcending the mere cognitive assessment of its value and attributes. This form of loyalty is characterized by a deep fondness or affection for a brand that elicits a

consistent preference regardless of changes in the market or offerings from competitors. For instance, in their seminal work, Oliver (1997) posited that affective loyalty is marked by a customer's liking or emotional attachment to a brand, which can lead to repeat purchasing driven by this emotional connection. This is further supported by Thomson, MacInnis, and Park (2005), who explored how emotional attachments to brands can create a sense of community and belonging among consumers, reinforcing the affective component of brand loyalty. Moreover, companies like Apple have excelled in creating effective loyalty through branding that emphasizes innovation, design, and a user-friendly experience, fostering a passionate customer base that is highly vocal and loyal. These customers do not just use the products but also form part of a community with shared values and enthusiasm for the brand. The development of affective loyalty is significantly influenced by the brand's ability to consistently deliver on its promises and provide a customer experience that resonates on a personal level. Emotional advertising, community involvement, and customer engagement strategies are common methods used by brands to deepen emotional ties with their consumers. This emotional connection is crucial as it often leads to word-of-mouth promotion and brand advocacy.

Research indicates that affective loyalty is a strong predictor of future purchase behaviours because it is not easily swayed by price changes or competitive offers. Consumers with high affective loyalty are more likely to repurchase, recommend the brand to others, and maintain their loyalty even in the face of occasional service failures or product issues.

The significance of affective loyalty is particularly evident in sectors like fashion and beauty, where brands build emotional narratives that resonate with personal identities and values of the consumer. Here, loyalty goes beyond product attributes and taps into the consumer’s self-expression and lifestyle choices.

2.3.3. Conative Loyalty

Conative loyalty is a crucial stage in the loyalty architecture as it deals with consumers' intents to interact with a brand going forward, which is frequently seen as a reliable predictor of real consumer behaviour. This kind of loyalty focuses on the behavioural intents that lead a customer to make future purchases or advocacy acts such as promoting

a brand to others, going beyond simple contentment and emotional connection. Conative loyalty represents a deeper level of commitment where customers are not just satisfied with a product or service but are also inclined to take deliberate actions that benefit the brand, indicating a strong potential for future engagement and advocacy (Oliver, 1999).

Conative loyalty is important since it expresses a customer's devotion to a brand even in the absence of concrete actions. It shows a proactive approach to the brand, which is important since this is the point at which the customer's potential to generate future income becomes more foreseeable. Consumers that exhibit strong cognitive loyalty are not only apathetic observers of the brand; rather, they are prepared and eager to act based on their preferences, which makes them invaluable resources for the business. This type of loyalty involves an element of volition and anticipation, where customers are psychologically prepared to engage with the brand in future transactions (Dick and Basu, 1994).

Conative loyalty is strongly impacted by the experiences and perceptions that are formed during the cognitive and affective phases. Voss, Spangenberg, and Grohmann (2003) argue that cognitive loyalty, which involves the beliefs about a brand, and affective loyalty, which entails emotional responses to a brand, lay the groundwork for conative loyalty. Without a positive cognitive evaluation and a favourable affective response, it is unlikely that customers will develop the intent to repurchase or recommend the brand. This step is essential for businesses because while cognitive (beliefs about a brand) and affective (emotional responses to a brand) loyalties are significant, they do not guarantee customer retention unless they transition into conative actions.

Furthermore, researchers like Chaudhuri and Holbrook (2001) have identified that conative loyalty is significantly impacted by the perceived value and quality of the product or service, which can enhance the customer's intention to remain loyal. When customers perceive high value and quality in what they are purchasing, they are more likely to form a strong intent to repurchase and recommend the product to others. This perception of value can be influenced by various factors, including the product's performance, the brand's reputation, and the overall customer experience.

Effective marketing strategies that reinforce brand value and continuously engage customers can foster this type of loyalty. For instance, personalized marketing efforts that

make customers feel valued and understood can enhance their conative loyalty. By addressing the specific needs and preferences of individual customers, brands can create a more engaging and satisfying customer experience that encourages repeat business and positive word-of-mouth. According to Baloglu (2002), the segmentation of customers based on their loyalty levels and tailored marketing efforts can significantly boost conative loyalty.

Additionally, conative loyalty is also influenced by the social and community aspects associated with the brand. When customers feel that they are part of a community or share common values with the brand, their intent to stay loyal and recommend the brand increases. McAlexander, Schouten, and Koenig (2002) highlight the importance of brand communities in fostering a sense of belonging among customers, which can lead to higher levels of conative loyalty. Brands that successfully create and nurture such communities can benefit from a strong and loyal customer base.

Moreover, conative loyalty can be reinforced through consistent positive interactions and excellent customer service. Service quality, as Parasuraman, Zeithaml, and Berry (1985) point out, plays a pivotal role in shaping customer perceptions and future intentions. When customers consistently receive high-quality service, their trust in the brand increases, leading to a stronger commitment and a higher likelihood of conative actions. In the context of digital interactions, such as those involving chatbots, the usability and effectiveness of the technology can also impact conative loyalty. Chatbots that provide accurate, timely, and helpful responses can enhance the overall customer experience, leading to a higher intent to use the service again and recommend it to others. According to McLean and Osei-Frimpong (2019), the quality of chatbot interactions can significantly influence customer satisfaction and loyalty intentions, making it a crucial factor for businesses to consider. Conative loyalty is a critical stage in the loyalty hierarchy that reflects a customer's intent to continue engaging with a brand and advocate for it. It is influenced by a range of factors, including cognitive and affective loyalty, perceived value and quality, effective marketing strategies, social and community aspects, and consistent positive interactions. By understanding and nurturing these factors, businesses can enhance conative loyalty, leading to greater customer retention and advocacy, and ultimately, increased revenue and growth.

2.3.4. Action Loyalty

Action loyalty, also referred to as behavioural loyalty, is the stage where the intentions and attitudes of customers translate into actual behaviours. It is the most concrete expression of loyalty as it involves repeat purchases, continued patronage, and other tangible actions that demonstrate a customer's loyalty to a brand. Defined by the action's customers take due to their commitment to a brand, action loyalty includes behaviours such as repeat purchasing, referring the brand to new potential customers, and engaging in positive word-of-mouth. Unlike cognitive and conative loyalties, which deal with thoughts and intentions respectively, action loyalty is observable and measurable through customer behaviours. The significance of action loyalty lies in its direct impact on a company's financial performance, providing a reliable indicator of future revenue streams and significantly lowering marketing costs, as acquiring new customers is far more expensive than retaining existing ones. Several factors can influence the development of action loyalty, including customer satisfaction, perceived value, service quality, and the overall customer experience. Positive experiences reinforce a customer's decision to remain loyal, manifesting in repeated interactions with the brand. According to research by Oliver (1999), action loyalty is not only the culmination of the loyalty process but also a critical metric for gauging the health of a brand's relationship with its customers, reflecting a deep-seated commitment likely to endure over time. This makes it a strategic focus for businesses aiming for long-term success. Jones and Sasser (1995) suggest that companies can foster action loyalty by not only meeting but exceeding customer expectations, thereby turning satisfied customers into loyal advocates. This level of loyalty is often achieved through consistent high-quality service and exceptional customer experiences. In practice, businesses strive to enhance action loyalty by implementing loyalty programs, offering exclusive benefits, and maintaining high standards of customer service. These efforts help solidify the bond between customers and the brand, encouraging ongoing patronage and advocacy (Oliver, 1999; Jones and Sasser, 1995). Understanding and effectively managing the transition from conative loyalty to action loyalty is essential for businesses seeking to leverage their customer base for maximum competitive advantage and profitability. According to Dick and Basu (1994), action loyalty is the stage where prior attitudes and intentions culminate into repeat behaviours, underscoring the importance of sustained customer engagement

strategies. Moreover, Baloglu (2002) emphasizes that action loyalty can be significantly influenced by emotional bonds and community-building efforts that resonate with customers on a deeper level. To foster such loyalty, companies often utilize personalized communication and tailor their offerings to meet individual customer preferences, thereby enhancing the overall value proposition. The transition to action loyalty is a critical phase where companies can capitalize on their relationship-building efforts and convert them into tangible business outcomes.

2.4. Significance of Usability in Customer Loyalty

In today's cutthroat business environment, usability is a crucial component that greatly affects consumer loyalty. It describes the degree to which a user can interact with a product or service successfully, efficiently, and satisfactorily (Nielsen, 1994). Customer experiences are significantly shaped by how simple it is to utilize digital platforms, such as chatbots, mobile applications, and websites. According to Venkatesh et al. (2003), user acceptability is significantly predicted by perceived ease of use, which affects users' loyalty and continuous usage. By lowering barriers to use and facilitating smooth interactions, usability raises consumer happiness. Customers' entire experience increases, and their satisfaction levels rise when they can quickly navigate a platform and accomplish their duties without encountering needless hurdles (Anderson and Srinivasan, 2003). Because it mediates the link between usability and loyalty, this pleasure is quite important. Positive brand perception may be created by an interface that is well-designed and fits user demands; this will encourage brand loyalty and repeat business.

Trust is another essential element of consumer loyalty that is fostered by usability. Users are more inclined to trust a platform that is dependable and easy to use, according to Gefen et al. (2003). Customers are more likely to return and feel more confidence in their interactions when they have faith in a platform. Trust lowers the perceived risk connected to online transactions, which is crucial when it comes to e-commerce and digital services.

Usability also reduces cognitive load, which refers to the amount of mental effort required to use a product or service (Sweller, 1988). When a platform is intuitive and straightforward, it minimizes the cognitive effort needed from users, allowing them to

focus on their primary tasks. This reduction in cognitive load not only enhances the user experience but also increases the likelihood of continued use and customer loyalty. Users are more inclined to return to a platform that does not overwhelm them with complex processes or confusing interfaces.

In the context of chatbots, high usability ensures efficient handling of customer inquiries, leading to higher satisfaction and trust. Sheehan et al. (2020) found that chatbots that are easy to use and provide quick, accurate responses significantly improve customer satisfaction. When customers have positive experiences with chatbots, they are more likely to develop a favourable view of the company, leading to increased loyalty. The efficiency and effectiveness of chatbots in addressing customer needs can turn occasional users into loyal customers who repeatedly engage with the brand.

Furthermore, companies that prioritize usability can gain a competitive advantage in the marketplace. A user-friendly design can differentiate a brand from its competitors, making it more appealing to potential customers. This competitive edge can result in higher customer acquisition and retention rates. Additionally, improved usability can reduce support costs, as users are less likely to encounter issues that require assistance. This cost reduction can be reinvested into further enhancing the user experience, creating a positive feedback loop that continually improves customer satisfaction and loyalty. Overall, usability is a multifaceted concept that plays a crucial role in fostering customer loyalty. By providing a consistent and predictable user experience, companies can build lasting relationships with their customers. The emphasis on usability not only improves the immediate interaction but also has long-term benefits in terms of customer retention, brand reputation, and business growth. As digital platforms continue to evolve, the importance of usability in maintaining and enhancing customer loyalty will only increase (Nielsen, 1994; Zeithaml et al., 2002).

CHAPTER 3: A RESEARCH TO MEASURE THE EFFECT OF CHATBOT USABILITY ON CUSTOMER LOYALTY

The need for a thorough grasp of chatbots' effects on customer loyalty has been highlighted by their widespread use as a crucial tool for customer contact. Through a well-planned empirical investigation, this chapter aims to explore the connection between chatbot usability and client loyalty. This study intends to assess how well chatbots satisfy user expectations and the ensuing impact on customer loyalty, acknowledging the critical role that usability plays in improving the customer experience.

The primary objective of this chapter is to elucidate the extent to which the usability of chatbots impacts customer loyalty. By focusing on primary data, this research will offer original and significant contributions to the field, assisting businesses in understanding the critical role of chatbot usability in customer retention. The findings from this study are expected to yield actionable insights that can inform the improvement of chatbot design and functionality, ultimately fostering stronger customer relationships and enhancing brand loyalty.

3.1. The Aim of the Research

In today's world, with the advancement of technology, businesses are increasingly adopting artificial intelligence (AI) technologies to enhance customer service and improve customer experience. Within the framework of these technological changes, chatbots, a software application designed to simulate human speech through text or voice interactions, have emerged as an important tool for interacting with customers in different sectors. As chatbots become increasingly common in customer service environments, it is crucial to understand how their designs and functions affect customer perceptions and behaviors.

Chatbot applications used by organizations that want to maximize customer satisfaction by improving customer experience can cause customer dissatisfaction by causing disappointment and dissatisfaction depending on the usability performance of chatbots.

Considering all this information, this study, which was conducted to explore and evaluate the impact of chatbot usability on customer loyalty, focuses on the key usability factors

of chatbots (perceived accessibility, perceived quality of chatbot functions, perceived quality of conversation and information provided, perceived privacy and security, and response time) that significantly affect customer loyalty.

3.2. Type and Limitations of the Study

The research was conducted with an exploratory research model that aims to obtain more information and understanding about the phenomenon or situation under investigation (Edgar and Manz, 2017:133). Thus, the research problem, valid variables, relationships between variables and hypotheses were determined and the research problem became clearer and more understandable.

In the study, correlation analysis was conducted to determine the relationship between chatbot usability and consumer loyalty, and multiple linear regression analysis was conducted to measure the effect of chatbot usability on consumer loyalty.

The research covers chatbot applications of banks operating in the banking sector in Turkey, and chatbot usability was evaluated based on perceived accessibility, perceived quality of chatbot functions, perceived quality of conversation and information provided, perceived privacy and security, and response time functions.

The first part of the survey included questions about whether consumers use internet banking or mobile banking services; if so, which bank they use this service from; and whether they use the bank's chatbot in internet banking or mobile banking transactions, which can be considered as a limitation of the research.

3.3. Originality of The Research

This research offers a focused examination of the relationship between chatbot usability and customer loyalty within contemporary service environments. While several studies, such as Smith and Brown's (2020) exploration of AI-powered chatbots in enhancing customer service experiences, have addressed the general impact of chatbots, this study specifically investigates the usability aspects and their direct effect on customer loyalty metrics. Using a quantitative approach, the research provides a comprehensive analysis that captures detailed customer experiences and perceptions. The study aims tounderstand users' interactions and opinions, offering valuable insights into how

chatbots are perceived. By evaluating the effectiveness of chatbots in promoting customer loyalty, this research contributes to academic knowledge.

3.4. Research Model

Focusing on the relationship between chatbot usability and customer loyalty, the research model includes 5 dimensions of chatbot usability (Perceived accessibility to chatbot functions, Perceived quality of chatbot functions, Perceived quality of conversation and information provided, Perceived privacy and security, Time response) and consumer loyalty. Perceived accessibility to chatbot functions

Each dimension is hypothesized to influence customer loyalty, as indicated by hypotheses (H1a, H1b, H1c, H1d, and H1e) in the diagram. The model suggests that improving these usability factors may enhance customer loyalty toward the chatbot.

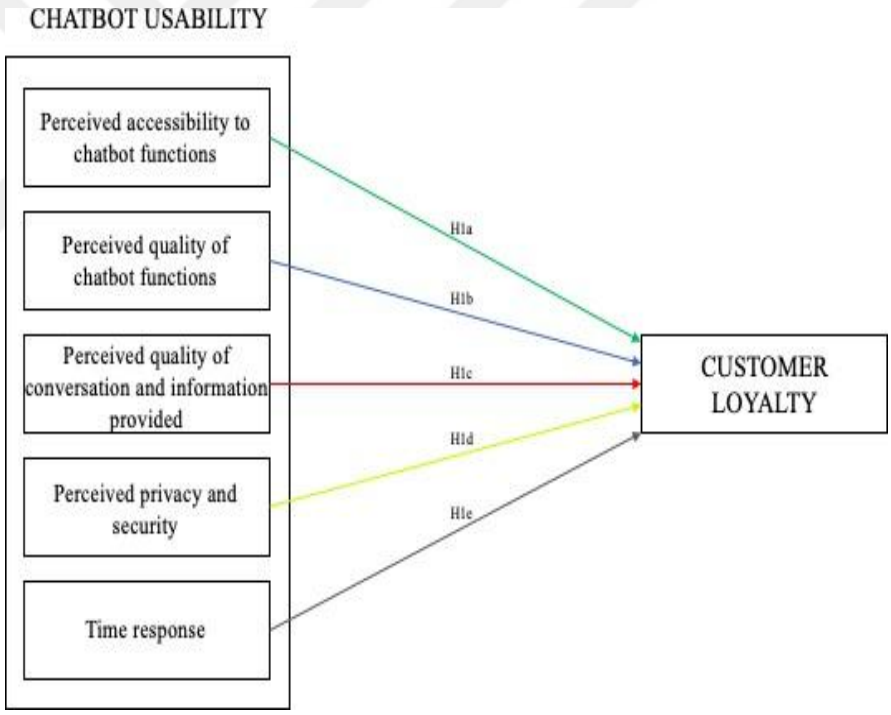

Figure 4. Research Model

3.5. Hypotheses

The following hypotheses were created using the chatbot usability scale developed by Borsci et al (2022) and the consumer loyalty scale developed by Godey et al (2016), using the scale used by Cheng and Jiang (2020) to measure consumer loyalty levels.

H1. Chatbot usability has a significant impact on customer loyalty.

H1a. Perceived accessibility to chatbot functions has a significant impact on customer loyalty.

H1b. Perceived quality of chatbot functions has a significant impact on customer loyalty.

H1c. Perceived quality of conversation and information provided has a significant impact on customer loyalty.

H1d. Perceived privacy and security has a significant impact on customer loyalty.

H1e. Time response has a significant impact on customer loyalty.

3.6. Research Methodology

3.6.1. Data Collection

An online survey created on Google Forms was conducted to collect data for the research. In the survey, a scale developed by Borsci et. al (2022) was used to evaluate bot usability. The scale consists of 5 dimensions: perceived accessibility to chatbot functions, perceived quality of chatbot functions, perceived quality of conversation and information provided, perceived privacy and security, and time response. The scale includes a total of 15 statements; 2 statements under the perceived accessibility to chatbot functions dimension in the scale (sample statements: ‘‘The chatbot function was easily detectable’’; ‘‘It was easy to find the chatbot.’’) While the perceived quality of chatbot functions in the scale consists of a total of 7 expressions (sample statements: ‘‘Communicating with the chatbot was clear.’’; ‘‘I was immediately made aware of what information the chatbot can give me.’’; ‘‘The interaction with the chatbot felt like an ongoing conversation.’’; ‘‘The chatbot was able to keep track of context.’’; ‘‘The chatbot was able to make references to the website or service when appropriate.’’; ‘‘The chatbot could handle situations in which the line of conversation was not clear.’’; ‘‘The chatbot’s responses were easy to understand.’’). The perceived quality of conversation and information provided dimension includes a total of 4 statements (sample statements: ‘‘I find that the chatbot understands what I want and helps me achieve my goal.’’; ‘‘The chatbot gives me the appropriate amount of information.’’; ‘‘The chatbot only gives me the information I need.’’; ‘‘I feel like the chatbot’s responses were accurate.’’). The perceived privacy and

security dimension includes 1 statement (sample statement: ‘‘I believe the chatbot informs me of any possible privacy issues.’’). The time response dimension includes 1 statement (sample statement: ‘‘My waiting time for a response from the chatbot was short.’’). The scale is arranged on a 5-point Likert scale.

In the study, the customer loyalty scale developed by Godey et al. (2016) and adapted by ChengandJiang (2020) was used to measure the customers’ loyalty level toward their selected brand. The scale consists of a single dimension. The scale includes a total of 4 statements. Sample statements are ‘‘I intend to keep purchasing products/services from this brand.’’; ‘‘I will recommend this brand to others.’’; ‘‘I will expand using other products/services of the brand.’’; ‘‘I consider myself to be loyal to the brand.’’. The scale is arranged on a 5-point Likert scale. The survey also includes questions about demographic information of the participants, such as age, gender, education level and income status.

3.6.2. Population and Sample

According to the sample formula, the sample size that will represent the main mass with a 5% margin of error at a 95% confidence level is 384 (Davis, 1997: 182). Considering that there will be invalid surveys after the research, 13% more surveys (434) than the calculated sample size were conducted. A convenience sampling method was used to ensure the sample represented a diverse cross-section of the population. To gather a wide range of perspectives, the survey was shared with students, employees, and randomly selected individuals. This strategy ensured the inclusion of varied viewpoints and allowed for a comprehensive analysis of the collected data. By conducting on a total of 434 people selected by the convenience sampling method, the sample reflects this diversity, capturing insights from different demographic and professional segments.

3.7. Findings

Within the scope of the study, the descriptive, factor, correlation and multi linear regression analyses and normal distribution test of the data collected from 434 participants via an online survey and analysed in the JAMOVI program, which is used in

statistical research with an open-source graphical user interface for the R programming language, are given below.

3.7.1. Descriptive Statistics

As stated under the heading 'Population and Sample', according to the sample formula, although the sample size that would represent the main mass with a 5% margin of error at a 95% confidence level is 384 (Davis, 1997: 182), the research was conducted on 434 people, considering that there would be invalid surveys later.

As seen in the descriptive statistics (Table 1), there are 2 missing data in the income level data, 1 missing data in the education level data, 5 missing data in the gender data and 6 missing data in the age group data provided by the participants.

When we look at the gender statistics (mode 1.00), it is seen that the majority of the participants are women; when we look at the demographic data, the majority of the participants are between the ages of 28-37 (median 2.00); the majority of the participants have a postgraduate degree (median 6) and most of the participants (median 3.00) have an income between 31,001 TL and 45,000 TL.

Table 1. Descriptive Statistics for Constructs

	Income Level	Education Level	Gender	Age Group
N	432	433	429	428
Missing	2	1	5	6
Median	3.00	6	1	2.00
Mode	3.00	6.00	1.00	3.00

When the distribution of participants in the study according to their gender is examined (Table 2), it is seen that more than half of the participants (67.4%) are women. The proportion of male participants in the sample is 32.6%.

Table 2. Frequencies of Gender

Gender	Counts	% of Total	Cumulative %
1	289	67.4%	67.4%
2	140	32.6%	100.0%

When the distribution of participants in the study according to their ages is examined (Table 3), it is seen that 22.7% of the participants are between 18 and 27 years old; 32% are between 28 and 37 years old; 36% are between 38 and 47 years old; 7% are between 48 and 57 years old and 2.3% are 58 and over.

Table 3. Frequencies of Age Group

Age Group	Counts	% of Total	Cumulative %
5	10	2.3%	2.3%
4	30	7.0%	9.3%

Table 4. Frequencies of Age Group

Age Group	Counts	% of Total	Cumulative %
3	154	36.0%	45.3%
2	137	32.0%	77.3%
1	97	22.7%	100.0%

When the educational backgrounds of the participants were examined, it was determined that 56.8% of the participants had a postgraduate degree, 32.3% had a bachelor's degree, 5.1% had an associate degree, 4.2% had a high school degree, 0.7% had a middle school degree, and 22.7% had a primary school degree (Table 4).

Table 5. Frequencies of Education Level

Education Level	Counts	% of Total	Cumulative %
6	246	56.8%	56.8%
5	140	32.3%	89.1%
4	22	5.1%	94.2%
3	18	4.2%	98.4%
2	3	0.7%	99.1%
1	4	0.9%	100.0%

When the distribution of the participants participating in the study according to their income levels is examined (Table 5), it is seen that 5.6% of the participants have an income level of less than 17,000 TL; 20.4% have an income level between 17,001 TL and 31,000 TL; 28.7% have an income level between 31,001 TL and 45,000 TL; 20.1% have

an income level between 45,001 TL and 59,000 TL, and 25.2% have an income level of 59,001 TL and above.

Table 6. Frequencies of Income Level

Income Level	Counts	% of Total	Cumulative %
5	109	25.2%	25.2%
4	87	20.1%	45.4%
3	124	28.7%	74.1%
2	88	20.4%	94.4%
1	24	5.6%	100.0%

3.7.2. Tests of Normality

Since the data set should show a normal distribution to perform parametric tests, Kolmogorov Smirnov was tested whether the data showed a normal distribution. In addition to the Kolmogorov Smirnov, the Shapiro-Wilk and Anderson-Darling tests also confirm that the data are not normally distributed. According to the result of the Kolmogorov Smirnov test ($p<.001$), the data do not show a normal distribution. For this reason, the analyses carried out within the scope of the research were carried out with non-parametric tests.

Table 7. Tests of Normality

		Statistic	**p**
Perceived Accessibility to Chatbot Functions	Shapiro-Wilk	0.898	<.001
		statistic	p
	Kolmogorov-Smirnov	0.231	<.001
	Anderson-Darling	18.5	<.001
Perceived Quality of Chatbot Functions	Shapiro-Wilk	0.799	<.001
	Kolmogorov-Smirnov	0.334	<.001
	Anderson-Darling	38.9	<.001
Perceived Quality of Conversation and Information Provided	Shapiro-Wilk	0.841	<.001

	Kolmogorov-Smirnov	0.320	<.001
	Anderson-Darling	33.4	<.001
Perceived Privacy and Security	Shapiro-Wilk	0.889	<.001
	Kolmogorov-Smirnov	0.252	<.001
	Anderson-Darling	21.8	<.001
		statistic	**p**
Time Response	Shapiro-Wilk	0.812	<.001
	Kolmogorov-Smirnov	0.342	<.001
	Anderson-Darling	37.6	<.001
Customer Loyalty	Shapiro-Wilk	0.845	<.001
	Kolmogorov-Smirnov	0.287	<.001
	Anderson-Darling	26.5	<.001

Note. Additional results provided by *more tests*

3.7.3. Confirmatory Factor Analysis

In order to determine the structural validity of the scales used to measure the chatbot usability and customer loyalty confirmatory factor analysis which is a type of structural equation modelling that deals specifically with measurement models, that is, the relationships between observed measures or indicators and latent variables or factors (Brown, 2006: 1) was performed.

The factor analysis performed for the chatbot usability scale confirms that the scale consists of 5 dimensions (p<.001).

Table 8. Factor Loadings of Chatbot Usability Scale

Factor	Indicator	Estimate	SE
Perceived Accessibility to Chatbot Functions	Factor1-1.Q	0.813	0.0462
	Factor1-2.Q	0.474	0.0373
Perceived Quality of Chatbot Functions	Factor2-3.Q	0.692	0.0354
	Factor2-4.Q	0.657	0.0345
	Factor2-5.Q	0.870	0.0437
	Factor2-6.Q	0.755	0.0386
	Factor2-7.Q	0.750	0.0356
	Factor2-8.Q	0.836	0.0421
	Factor2-9.Q	0.605	0.0350
Perceived Quality of	Factor3-10.Q	0.917	0.0382

Conversation and Information Provided	Factor3-11.Q	0.857	0.0370
	Factor3-12.Q	0.805	0.0417
	Factor3-13.Q	0.562	0.0366
Perceived Privacy and Security	Factor4-14.Q	0.986	0.0312
Time Response	Factor5-15.Q	0.977	0.0309

Table 9. Factor Covariances of Chatbot Usability Scale

		Estimate	**SE**	**Z**
Perceived Accesibility to Chatbot Functions	Perceived Accesibility to Chatbot Functions	1.000[a]		
	Perceived Quality of Chatbot Funtions	0.963	0.0289	33.34
	Perceived Quality of Conversation and Information Provided	0.877	0.0325	26.95
	Perceived Privacy and Security	0.495	0.0446	11.08
	Time Response	0.476	0.0512	9.29
Perceived Quality of Chatbot Funtions	Perceived Quality of Chatbot Funtions	1.000[a]		
	Perceived Quality of Conversation and Information Provided	0.957	0.0111	85.91
	Perceived Privacy and Security	0.546	0.0338	16.15
	Time Response	0.340	0.0422	8.06
Perceived Quality of Conversation and Information Provided	Perceived Quality of Conversation and Information Provided	1.000[a]		
	Perceived Privacy and Security	0.528	0.0353	14.95
	Time Response	0.398	0.0406	9.80
Perceived Privacy and Security	Perceived Privacy and Security	1.000[a]		
	Time Response	0.332	0.0399	8.33
Time Response	Time Response	1.000[a]		

Table 10. Test for Exact Fit of Chatbot Usability Scale

χ^2		df		p
622		82		<.001
			RMSEA 90% CI	
CFI	**LI**	**RMSEA**	**Lower**	**Upper**
0.886	.854	0.115	0.106	0.123

Table 10. Fit Measures of Chatbot Usability Scale

As a result of the factor analysis performed for the customer loyalty scale, it was confirmed that the scale consisted of one dimension (p<.001).

Table 11. Factor Loadings of Customer Loyalty Scale

Factor	Indicator	Estimate	SE	Z	p
Customer Loyalty	Customer Loyalty - Q1	0.679	0.0385	17.7	<.001
	Customer Loyalty-Q2	-0.866	0.0361	-24.0	<.001
	Customer Loyalty-Q3	-0.721	0.0401	-18.0	<.001
	Customer Loyalty-Q4	-0.737	0.0429	-17.2	<.001

Table 12. Factor Covariances of Customer Loyalty Scale

		Estimate	SE	Z	p
Customer Loyalty	Customer Loyalty	1.00[a]			

A fixed parameter

Table 13. Test for Exact Fit of Customer Loyalty Scale

χ^2	df	p
13.8	2	0.001

Table 14. Fit Measures of Customer Loyalty Scale

RMSEA 90% CI CFI	TLI	RMSEA	Lower
0.986	0.959	0.108	0.0593

3.7.4. Correlation Analysis

In the study, correlation analysis was used to examine whether there was a relationship between chatbot usability and consumer loyalty. Since the data were not parametric as a result of the normality test, Spearman Correlation test was used for correlation analysis.

According to the results (Table 15), it was revealed that there was a significant relationship between chatbot usability and consumer loyalty.

Table 15. Correlation Matrix

		Perceived Accessibility to Chatbot Functions	**Perceive d Quality of Chatbot Function s**	**Perceived Quality of Conversation and Information Provided**	**Perceived Privacy and Security**	**Time Response**
Perceived Quality of Chatbot Functions	Spearman' s rho	0.484	—			
	df	432	—			
		Perceived Accessibility to Chatbot Functions	**Perceived Quality of Chatbot Functions**	**Perceived Quality of Conversation and Information Provided**	**Perceived Privacy and Security**	**Time Response**
	p-value	.001	—			
Perceived Quality of Conversation and Information Provided	Spearman' s rho	.671	.564	—		
	f	432	432	—		
	p-value	<.001	<.001	—		
Perceived Privacy and Security	Spearman' s rho	0.440	0.249	0.419	—	
	df	432	432	432	—	
	p-value	.001	.001	<.001	—	
Time Response	Spearman' s rho	0.357	0.485	0.368	0.373	—
		Perceived Accessibility to Chatbot Functions	**Perceive d Quality of Chatbot Function s**	**Perceived Quality of Conversation and Information Provided**	**Perceived Privacy and Security**	**Time Response**
	df	432	432	432	32	—
	p-value	<.001	<.001	.001	<.001	—
Customer Loyalty	Spearman' s rho	0.385	0.367	.396	0.409	0.387
	df	432	432	432	432	432
	p-value	<.001	<.001	<.001	.001	<.001

3.7.5. Multiple Linear Regression Analysis

In order to measure the effect of chatbot usability on consumer loyalty, Multi Linear Regression Analysis, which is used to analyse the regression of a dependent variable onto multiple independent variables, was used.

Table 16. Model Fit Measures

Overall Model Test						
Model	**R**	**R^2**	**F**	**df1**	**df2**	**p**
1	0.565	0.319	40.2	5	428	<.001
Note. Models estimated using sample size of N=434						

Table 17. Model Coefficients - Customer Loyalty

Predictor	Estimate	SE	t	p
Intercept	0.767	0.2333	3.29	0.001
Perceived Accessibility to Chatbot Functions	0.101	0.0545	1.85	0.065
Perceived Quality of Chatbot Functions	0.121	0.0660	1.83	0.067
Perceived Quality of Conversation and Information Provided	0.139	0.0663	2.10	0.036
Perceived Privacy and Security	0.274	0.0482	5.69	<.001
Time Response	0.210	0.0514	4.08	<.001

According to the results of the Multi Linear Regression Analysis (Table 17), the dimension of chatbot usability "perceived accessibility to chatbot functions" does not have a significant effect on customer loyalty (B = 0.101 p = 0.065) (H1a. rejected). On the other hand, the "perceived quality of chatbot functions" dimension of chatbot usability does not have a significant effect on customer loyalty (B = 0.121 p = 0.067) (H1b. rejected).

When we look at the "perceived quality of conversation and information provided" dimension of chatbot usability, it is seen that it has a significant effect on customer loyalty (B = 0.139, p = 0.036) (H1c. accepted). In addition to the "perceived quality of

conversation and information provided" dimension of chatbot usability, the "perceived privacy and security dimension" was also found to have a significant effect on customer loyalty because of the analysis (B = 0.274 p = <.001) (H1d. accepted). According to the results of the Multi Linear Regression Analysis, which revealed that the "time response" dimension of chatbot usability also has a significant effect on customer loyalty (B = 0.210 p = <.001) (H1e. accepted), only 3 dimensions out of 5 dimensions of chatbot usability have a significant effect on consumer loyalty, thus H1. hypothesis is partially accepted.

Table 18. Hypotheses Testing

Hypothesis	Result	Details
H1: Chatbot usability has a significant impact on customer loyalty.	**Partially Accepted**	‘‘Perceived quality of conversation and information provided’’, ‘‘Perceived privacy and security’’ and ‘‘Response time’’ predictors significantly influenced customer loyalty.
H1a: Perceived accessibility to chatbot functions significantly impacts customer loyalty.	**Rejected**	B = 0.101 p = 0.065 was not statistically significant.
H1b: Perceived quality of chatbot functions significantly impacts customer loyalty.	**Rejected**	B = 0.121 p = 0.067 was not statistically significant.
H1c: Perceived quality of conversation and information provided impacts customer loyalty.	**Accepted**	B = 0.139, p = 0.036 was statistically significant.
H1d: Perceived privacy and security impacts customer loyalty.	**Accepted**	B = 0.274 p = <.001 was statistically significant.
H1e: Response time significantly impacts customer loyalty.	**Accepted**	B = 0.210 p = <.001 was statistically significant.

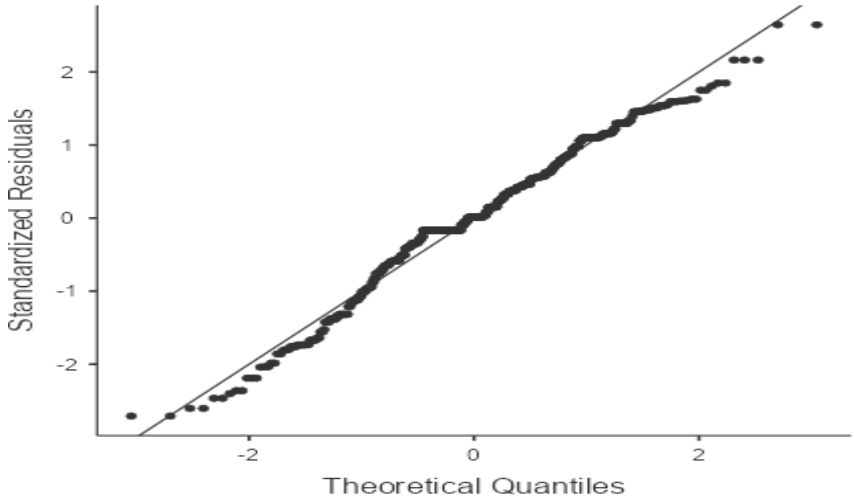

Figure 5. Q-Q Plot

3.8. Discussion

The findings of this study underline the importance of chatbot usability in influencing customer loyalty, offering detailed insights into the role each usability dimension plays in shaping consumer perceptions and behaviours. The correlation analysis demonstrated that chatbot usability and consumer loyalty are significantly related. Given the non-parametric nature of the data, Spearman's correlation test was applied, revealing a strong association between the two variables. This result reinforces the notion that enhancing usability features can substantially improve customer loyalty metrics.

The multi-linear regression analysis provided a deeper understanding of the specific impacts of usability dimensions on customer loyalty. Notably, not all dimensions contributed equally to this relationship. For instance, "perceived accessibility to chatbot functions" was found to lack a significant effect on customer loyalty (B = 0.101, p = 0.065), leading to the rejection of H1a. This finding suggests that while accessibility is a fundamental component of usability, its impact may be overshadowed by other factors in environments where users already have a baseline familiarity with chatbot technology. However, accessibility remains a vital entry point, and its importance should not be entirely discounted in the broader user experience framework. Organizations may need to focus on accessibility enhancements in contexts where customers are less technologically adept or unfamiliar with chatbot functionalities.

Similarly, "perceived quality of chatbot functions" also showed no significant impact on customer loyalty (B = 0.121, p = 0.067), resulting in the rejection of hypothesis H1b. This

outcome could be attributed to user expectations being set higher due to advancements in AI technology, where basic functional performance is perceived as a given rather than a differentiating factor. In sectors where customers are accustomed to advanced AI interactions, merely meeting functional expectations may no longer suffice. Future studies could explore how variations in functional expectations across industries might alter this dynamic. For instance, sectors like healthcare or finance might demand highly specialized chatbot functionalities that directly address complex user needs.

"Perceived quality of conversation and information provided" ($B = 0.139$, $p = 0.036$) was found to have a significant effect on customer loyalty, supporting H1c. This result emphasizes the value customers place on meaningful, accurate, and contextually appropriate exchanges with chatbots. It reflects the increasing demand for conversational intelligence and the importance of tailoring responses to meet individual customer needs. For businesses, this finding underscores the need to invest in advanced natural language processing (NLP) systems that can handle nuanced interactions, anticipate customer intent, and deliver highly personalized responses. By focusing on the conversational quality, businesses can transform chatbots from mere service tools to valuable customer engagement platforms.

"Perceived privacy and security" ($B = 0.274$, $p < .001$) also demonstrated a significant impact on customer loyalty, supporting H1d. highlights growing consumer awareness and concern regarding data protection and privacy issues. Customers are more likely to remain loyal to brands that prioritize their privacy and ensure secure interactions, making this an essential focus area for chatbot design. In light of global regulations like GDPR, organizations must align their chatbot systems with strict compliance standards while transparently communicating their privacy measures to customers. Investing in robust data encryption, multi-factor authentication, and frequent security audits can reinforce trust and loyalty among users.

"Time response" ($B = 0.210$, $p < .001$) was another dimension with a significant effect on customer loyalty, supporting H1e. This finding aligns with consumer expectations for fast and efficient service in today's digital environment. Prompt responses not only enhance satisfaction but also foster trust and reliability, key factors in cultivating loyalty. Businesses should explore real-time processing technologies and scalable cloud

infrastructures to minimize response delays, especially during peak interaction times. Additionally, incorporating predictive analytics to pre-emptively address common customer queries can further enhance response efficiency.

The partial acceptance of the overall H1—with only three of the five dimensions showing significant effects—reflects the nuanced relationship between chatbot usability and customer loyalty. It underscores the need for a targeted approach in improving usability dimensions, prioritizing those that directly influence loyalty outcomes. By addressing specific areas such as conversational quality, data security, and response efficiency, businesses can enhance the effectiveness of their chatbot systems in fostering customer trust and loyalty. Simultaneously, attention to accessibility and functional design should not be entirely neglected, as these remain foundational elements of a seamless user experience.

Based on these findings, the following recommendations are proposed for organizations aiming to enhance chatbot usability and foster customer loyalty:

Focus on Conversational Quality: Invest in advanced natural language processing capabilities to ensure that chatbot interactions are accurate, relevant, and tailored to customer needs. Regular updates to conversational databases and integration with customer relationship management (CRM) systems can help meet evolving user expectations.

Prioritize Privacy and Security: Implement robust data protection mechanisms, including end-to-end encryption, secure access protocols, and clear privacy policies. Regular security audits, transparent communication about data usage, and compliance with global privacy standards like GDPR or CCPA can further build trust.

Optimize Response Time: Develop systems that ensure minimal response delays, leveraging technologies like real-time processing, AI-driven task automation, and scalable cloud infrastructures. Faster response times can significantly enhance the customer experience, particularly in time-sensitive sectors like finance or healthcare.

Improve Functional Design: While "perceived quality of chatbot functions" did not show a significant impact in this study, ensuring that chatbots perform core tasks seamlessly remains critical. Businesses should conduct rigorous usability testing,

iteratively refine functionalities, and explore adaptive designs that align with diverse customer needs.

Enhance Accessibility: Simplify chatbot interfaces and ensure multi-platform availability, including web, mobile, and social media integrations, to improve user access. Accessibility features such as multilingual support, voice recognition, and intuitive navigation can broaden the chatbot's reach and appeal to diverse user groups.

Conduct Regular Assessments: Periodic usability evaluations and customer feedback analyses can help organizations identify areas for improvement and adapt their chatbots to changing user needs. Benchmarking against industry standards and incorporating emerging technologies can further elevate the user experience.

Future research could explore contextual factors such as cultural differences, industry-specific expectations, and varying levels of digital literacy among users. Additionally, longitudinal studies tracking the long-term effects of usability improvements on customer loyalty could provide more robust insights into the sustainability of these strategies. Researchers might also investigate the role of emotional intelligence in chatbot interactions and how this influences customer trust and satisfaction. By addressing these areas, future investigations can build on the current study to further elucidate the complex interplay between chatbot usability and consumer loyalty in diverse settings.

The findings of this thesis collectively highlight the critical importance of chatbot usability in shaping customer loyalty within the modern digital landscape. By systematically analysing the influence of individual usability dimensions, the study demonstrates that not all aspects of usability equally affect consumer behaviours. While perceived accessibility and functional quality were found to have limited direct effects, the strong impact of conversational quality, privacy and security, and response time underscores the need for a nuanced approach in chatbot design. These results not only enrich the theoretical understanding of customer engagement mechanisms but also offer actionable insights for organizations seeking to enhance their service offerings. In a rapidly evolving technological ecosystem, the ability to provide secure, meaningful, and efficient interactions is paramount for fostering long-term customer trust and loyalty. Future studies should delve deeper into contextual and longitudinal analyses to expand

on these findings, ensuring that chatbot solutions continue to meet the dynamic expectations of diverse user bases.

CHAPTER 4: CONCLUSION

Consequently, the analysis of chatbot and its influence on brand equity in the context of the banking sector contributes a great deal to the understanding of the nature of chatbot use and effects on the banking companies' operations and development. This study has made it possible to shed light on the essential components of chatbot performance, including perceived accessibility of the chatbot, quality of functions, quality of conversational experience, privacy and security measures, and response time and their strong relationship with customers' loyalty benchmarks. All the above factors are important in helping the bank influence the perception that the customers have, in addition to their levels of satisfaction as well as the loyalty that they have for the bank. The findings of this study therefore are a reminder that the perception of accessibility is an important determinant of favourable customer outcomes (Trivedi, 2019). It, therefore, appears that when customers view the chatbot as easy to access, that is, easy to interact with, and finding their way around it, they are likely to transact with the bank, recommend the bank, and associate themselves with the bank. This is why it is important for banks to factor the ease-of-use and interface design when adopting chatbots (Naqvi et.al., 2024). Thus, by both refining the user interface and reducing the cost and inconvenience, banks are likely to improve the levels of satisfaction and, therefore, the bond with the consumers.

In addition, Chatbot functions' quality was identified as another significant factor that influences the brand loyalty of the consumers. Customers also have specific expectation for the chatbots which includes accuracy, reliability, prompt response and most importantly relevance. An efficient model of the chatbot that is capable of satisfying demands for information and solving issues on a regular basis makes customers more confident. Such trust is beneficial for the creation of the long-term loyal and advocate customers since clients perceive the bank as a trustworthy financial partner.

Moreover, it was established that elements of conversation quality and information accuracy also have a significant impact on the customer's perception and subsequent behavior. If the communication is elaborate, unambiguous, and informative, then common interactions enhance customer experiences, thereby solidifying their belief in the banks' digitization. In the next steps, it is proposed to enhance the efficiency of the chatbot by using deep learning algorithms, natural language processing, to evaluate the

performance of improving understanding of analysts' intent for the best quality of further interaction (Yu, 2021). Moreover, the demographics variable of perceived privacy and security was the most influential factor affecting customer trust and loyalty. It has been established that customers place premium value on the privacy of their information together with the safeguard of their individual and company information every time they transact with banks through online platforms. To ensure customer confidence and minimize risks from transgressions such as hacks or unauthorized access of a customer's data, privacy, data availability and processing by banks should follow certain principles (Ho, 2021). In this aspect, it is imperative that the bank continues to improve its customers' privacy, security and the level of confidence to foster long term business relationships with clients. Another important determinant was the response time which greatly affected the level of satisfaction and loyalty of customers. This means that the bank is providing an effective response to the various inquiries by customers, a move that shows the bank's operational efficiency as well as emphasis on the needs of the customers (Magno and Dossena, 2023). When customers do not have to wait for long periods or extensively wait for their inquiries to be addressed, the customer perception of the organization's service quality and its ability to respond efficiently is marginally improved. Such a strategic focus on response time has a cumulative effect on customer loyalty, their consequent interactions with the bank and word-of-mouth publicity which in turn enhances the strategic position of the bank out-competing its rivals.

For this reason, the findings of this research emphasize the importance of the discussion about the importance of chatbot usability as one of the most promising and essential tools for building customer loyalty and improving business outcomes for banks. The institutions can also incorporate user experience design that is focused on fast and qualitative, technological in nature, secure solutions that will significantly enhance the banks' digital value proposition in line with the needs of sophisticated and informed customers (Patel and Trivedi, 2020). Consistency, frequent adjustments to customers' needs, and the address of other market characteristics is crucial in having and maintaining a competitive edge and sustainable growth in the digital banking environment. Incorporating the above knowledge and adopting a responsive approach, banks can securely fortify themselves and their positions as reliable financial partners in todays and tomorrow's fast-changing world.

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APPENDICE 1. SURVEY QUESTIONS

Customer Loyalty Scale (seven-point Likert Scale)

Müşteri Sadakati Ölçeği (7li likert ölçeği)

I intend to keep purchasing product/services from this brand.

Bu markadan ürün/hizmet almaya devam etmeyi düşünüyorum.

I will recommend this brand to others.

Bu markayı başkalarına tavsiye edeceğim.

I will expand using other product/services of the brand.

Markanın diğer ürün/hizmetlerini kullanarak genişleteceğim.

I consider myself to be loyal to the brand.

Kendimi markaya sadık biri olarak görüyorum.

Chatbot Usability Scale (five-point Likert-scale)

Chatbot Kullanılabilirliği Ölçeği (5 li likert ölçeği)

1-Perceived accessibility to chatbot functions.

1-Chatbot işlevlerine erişilebilirlik algılandı.

1-The chatbot function was easily detectable.

1-Chatbot işlevi kolaylıkla tespit edilebiliyordu.

2-It was easy to find the chatbot.

2-Chatbot'u bulmak kolaydı.

2-Perceived quality of chatbot functions

2-Chatbot işlevlerinin algılanan kalitesi

3-Communicating with the chatbot was clear.

3-Chatbot ile iletişim açıktı.

4-It was immediately made aware of what information to chatbot can give me.

4-Chatbot'un bana hangi bilgileri verebileceği hemen öğrenildi.

5-The interaction with the chatbot felt lile an ongoing conversation.

5-Chatbot ile etkileşim devam eden bir sohbet gibi hissettirdi.

6-The chatbot was able to keep track of context.

6-Chatbot bağlamı takip edebildi.

7-The chatbot was able to make references to the website or service when appropriate.

7-Chatbot, uygun olduğunda web sitesine veya hizmete referanslar verebildi.

8-The chatbot could handle situations in which the line of conversation was not clear.

8-Chatbot, konuşmanın net olmadığı durumlarla başa çıkabiliyordu.

9-The chatbot’s responses were easy to understand.

9-Chatbot'un yanıtlarının anlaşılması kolaydı.

3-Perceived quality of conversation and information provided

3-Konuşmanın ve sağlanan bilgilerin algılanan kalitesi

10-I found that the chatbot understands what I want and helps me achieve my goal.

10-Chatbot'un ne istediğimi anladığını ve hedefime ulaşmama yardımcı olduğunu gördüm.

11-The chatbot gives me the appropriate amount of information.

11-Chatbot bana uygun miktarda bilgi veriyor.

12-The chatbot only gives me the information I need.

12-Chatbot bana yalnızca ihtiyacım olan bilgiyi veriyor.

13-I feel like the chatbot’s responses were accurate.

13-Chatbot’un yanıtlarının doğru olduğunu düşünüyorum.

4-Perceived privacy and security

4-Algılanan gizlilik ve güvenlik

14-I believe the chatbot informs me of any possible privacy issues.

14-Chatbot'un beni olası gizlilik sorunları konusunda bilgilendirdiğine inanıyorum.

5-Time response

5-Yanıt zamanı

15-My waiting time for a response from the chatbot was short.

15-Sohbet robotundan yanıt almak için bekleme sürem kısaydı.

ETHICS COMMITTEE PERMISSION

İSTANBUL NİŞANTAŞI UNIVERSITY NUV

T.C.
İSTANBUL NİŞANTAŞI ÜNİVERSİTESİ REKTÖRLÜĞÜ
ETİK KURULU

Evrak Tarihi
6/6/2024

Evrak Numarası
20240606-15

Sayın ***Majda MOHAMDI***
İstanbul Nişantaşı Üniversitesi
Lisansüstü Eğitim Enstitüsü
İşletme Yönetimi (Tezli)

İstanbul Nişantaşı Üniversitesi, Etik Kurulu Başkanlığına **16/5/2024** tarihinde incelenmek üzere başvurmuş olduğunuz "**Chatbot Kullanılabilirliğinin Müşteri Sadakati Üzerindeki Etkisi**" başlıklı çalışmanız, **6/6/2024** tarihli **2024/06** numaralı etik kurul toplantısında değerlendirilmiştir. Kurulumuz tarafından yapacağınız araştırmanın etik açıdan uygunluğuna oy birliğiyle karar verilmiştir.

Bilgilerinize rica ederim.

Doç. Dr. Gözde MERT
Başkan

BAŞVURU BİLGİLERİ

Araştırmacı(lar)	**Majda MOHAMDI**	Başvuru Tarihi	**16/5/2024**
Danışman/Yürütücü	**Doç. Dr. Sevda DENEÇLİ**	Araştırma Türü	**Nicel Yöntem**
Program/Alan	**İşletme Yönetimi (Tezli)**	Etik kurul Toplantı Tarihi	**6/6/2024**
Çalışma Niteliği	**Yüksek Lisans Tezi**	Etik Kurul Karar No	**2024/06**