

THESIS

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CONSUMER EXPERIENCE WITH CHATBOTS

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1. Introduction

The emergence of chatbots in recent years has altered how companies communicate with their clients. Chatbots have evolved into a crucial tool for businesses wanting to enhance customer service and boost sales thanks to their capacity to offer immediate assistance and individualized recommendations. However, there is still much to discover about chatbots' effects on consumer loyalty and sales, particularly among various age groups and nations.

A substantial quantity of study has been done to examine the effects of chatbots on several facets of business due to their rising popularity. Some studies have emphasized the advantages of chatbots, such as their capacity to offer quicker and more individualized help. In contrast, others have emphasized potential disadvantages, such as customers becoming irritated or alienated from the business. Additionally, there is growing curiosity about how various age groups and cultural groups engage with chatbots and how the caliber of chatbots influences customer happiness and loyalty.

My motivation for writing this paper was that this technology grasped my attention by interacting with a chatbot with a unique personality and engaging in casual conversation. I found it astonishing how fast this technology is developing. I intend to add to this body of knowledge and shed some light on the possibilities of chatbots as a tool for increasing client loyalty and sales through this thesis, how it impacts customer loyalty and brand image.

The world has witnessed major advancements in technology. Artificial intelligence (AI) is increasingly integrated into our daily lives, encompassing chatbots, smart devices, and even self-landing rockets. They were all developed to comprehend consumer needs, preferences, and keyword usage. Such actions are taken to provide distinctive customer experiences. AI is a key term used to represent the intelligence shown by machines. AI has long been a famous subject, and we are just beginning to understand it fully. It has already spread and is used in several industries, including marketing or just chatting normally if you feel lonely. In addition to saving us time and money, automated marketing methods enable more individualized consumer experiences. Artificial intelligence plays a significant role in our everyday lives by aiding in product research, guiding purchasing decisions, and shaping customer buying behaviors.

This thesis aims to grasp, understand, and solve a research problem regarding how badly implemented chatbots affect customer loyalty and damage a brand's image.

The main research questions are:

- 1) What are user adoption and satisfaction differences across different ages and demographics?
- 2) How do chatbots affect customer trust and loyalty to a brand?
- 3) What are the benefits and limitations of using chatbots in customer service?

In the literature review, I will be going in-depth about topics that are related to my questions above, covering customer loyalty, explaining in depth what it is and how it affects business, how people from different generations perceive and interact with chatbots, as well as covering the limitations presented and challenges. Other parts of the literature review will include definitions and categories of AI, its history, and how it developed through the years.

2. Literature review

2.1 Customer loyalty

Following earlier research, achieving customer loyalty depends on three primary factors: the client's trust, satisfaction, and commitment (Jenneboer et al., 2022) (Figure 1).

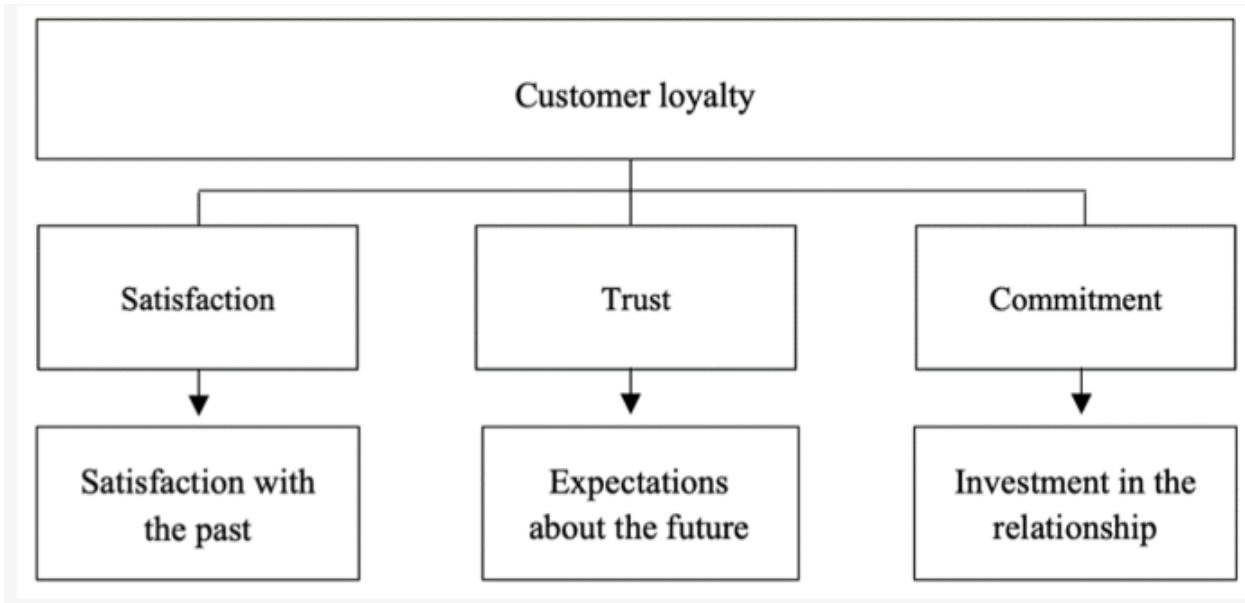


Figure 1. Drivers of customer loyalty

Source: Jenneboer et al., 2022

The relationship between client commitment, satisfaction, and loyalty is depicted in Figure 1. It defines customer satisfaction as the level of satisfaction that consumers have with a company's products, services, and past performance. Trust pertains to the consumer's inherent confidence in a product or service. Customer loyalty is correlated. The authors of this publication are JD Leck and DM Saunders, and it was published in 1992. The above diagram provides a concise overview of the primary factors that influence client loyalty.

Customer loyalty has been crucial for an extended period. Customer loyalty is an enduring emotional connection between you and your consumers, demonstrated by their propensity to engage with you and make repeated purchases from you rather than from your competitors, even when other options are available. Frequent repeat customers are highly valuable to many firms. The cost of obtaining a new client is considerably higher than retaining an existing one.

Furthermore, a client who comes back ensures a greater average client value. This underscores the significance of customer loyalty (McMullan & Gilmore, 2008)

Figure 1 depicts that when participants express satisfaction with a company's past accomplishments, products, services, and capabilities, it leads to "customer satisfaction." The company's product quality, historical customer service, and level of readiness directly influence consumer happiness (McMullan & Gilmore, 2008). If the brand meets the consumer's expectations, it may depend on the customer's continued usage. The three main factors driving customer loyalty impact behavioral and attitudinal loyalty. Retaining clients is a more economically efficient strategy compared to obtaining new ones. Therefore, it is crucial to provide the highest priority on behavioral loyalty. Customer retention is a beneficial and worthwhile technique as it enables the organization to forecast the recurrence of customers.

"Customer satisfaction" denotes the degree of satisfaction that individuals have with a company's previous achievements and offerings, services, and talents. The satisfaction of customers is influenced by the company's product quality, past customer service, and level of preparedness. If the brand meets the consumer's expectations, it may depend on the customer's continued usage (McMullan & Gilmore, 2008). Moreover, customer engagement plays a crucial role in operational advertising. The organization utilizes phrases like Hallowell or Lake to evoke favorable associations in everyday speech. From the corporation's perspective, it has shown a positive impact; the relationship between the client and the company is strengthened, leading to increased loyalty and satisfaction, ultimately enabling the organization to attain profitability.

2.2 What is AI?

The creation of computing devices capable of activities that traditionally require human intelligence, such as speech recognition, decision-making, and language translation, is known as artificial intelligence (AI). AI systems use deep neural networks and algorithms used in machine learning to evaluate data and spot patterns, which enables them to forecast the future and pick up new knowledge (SAS, 2020).

AI research has advanced significantly in recent years with applications in many industries, including healthcare, banking, and transportation. For instance, AI-based medical imaging systems have demonstrated promise in diagnosing and prognosis conditions like cancer (Wang et al., 2020).

Furthermore, AI is used by self-driving cars for perception and decision-making, which has the potential to lower traffic accidents and increase transportation efficiency (Bojarski et al., 2016).

Regarding the possible adverse effects of AI, such as losing employment and bias in decision-making, there are worries as well. According to Frey and Osborne's research from 2017, up to 47% of US employment might be automated over the next 20 years, which could have serious social repercussions. In addition, biased data used to train AI systems might reinforce and magnify preexisting prejudices (Obermeyer et al., 2019). In general, AI is a fast-evolving area that has the power to alter many facets of society drastically. Therefore, it is crucial to carry out further studies on the effects of AI.

2.2.1 History of AI

The origins of artificial intelligence may be linked to a time when creating computers with human-like abilities was simply a utopian dream. A way of study not adopted by many, known as connectionism, was developed to study thought phases in the 1940s. British polymath Alan Turing investigated the use of math in artificial intelligence in the 1950s. The Dartmouth Summer Research Project on Artificial Intelligence was established in 1956 by Marvin Minsky and John McCarthy, who are also credited with coining AI. Numerous eminent experts participated in an open discussion regarding AI during this event (Foote, 2016). AI experienced a boom between 1956 and 1974. As technology advanced, it became faster, less expensive, and more accessible.

Regrettably, the attainment of these objectives was hindered due to the discontinuation of funding for The FGCP and a decline in the popularity of AI. Undoubtedly, it acted as a source of motivation for numerous aspiring scientists and engineers (Anyoha, 2017). In the early 1990s, artificial intelligence research began to center around the concept of "intelligent agents." These intelligent agents can be employed for news retrieval, online commerce, and internet navigation. Intelligent agents, often known as agents or bots, are synonymous terms. Through the utilization of big data applications, they evolved into personal digital assistants or virtual assistants (Foote, 2016).

Artificial intelligence has significantly reshaped various sectors in recent decades, such as marketing, finance, technology, and entertainment. AI-driven language processing, in particular, has emerged as a prominent frontier. Machines with advanced language capabilities have become ubiquitous daily, making it nearly impossible to avoid interacting with them. As Foote (2016)

points out, this integration of AI technology has paved the way for fluent conversations with expert systems and the ability to seamlessly communicate in multiple languages, with instant translation services at our fingertips.

However, it is essential to note a significant gap in the historical timeline, from the 1990s to the present day, where the evolution and advancements in AI have been substantial. Unfortunately, specific sources detailing these developments during these years are needed to provide a comprehensive understanding of the progress made in artificial intelligence (Anyoha, 2017).

Deep Blue defeated Garry Kasparov on May 11, 1997, making it the first time a computer program defeated a global chess champion. The supercomputer, a customized version of an IBM framework, apparently had a processing speed of 200,000,000 movements per second, twice as fast as during the first match (which Deep Blue had lost). Over 74 million people viewed the live internet broadcast of the event (Steele, 2019).

A Stanford robot won the DARPA Grand Challenge in 2005 after traveling 131 miles on its own down an uncharted desert track. Two years later, a CMU team won the DARPA Urban Challenge by traveling 55 miles autonomously through an urban environment while observing all traffic dangers. Autonomously traveling 55 miles through a city while observing all traffic regulations and dangers. Brad Rutter and Ken Jennings, the two greatest contestants In Jeopardy, champions were heavily defeated by IBM's question-answering AI, the name of the AI is watson! In the February 2011 match . The long-term objective after that is to advance AI to the point where it outperforms all human skills and knowledge, and then it would the question of ethics will arise, and until then, it will continue to be part of our day-to-day society (Steele, 2019).

2.2.2 Categories of artificial intelligence

AI can be characterized in a variety of ways. The two categorization systems are most frequently used based on their abilities and functionality (Figure 2). Ability is the basis for Type 1 categorization, while functioning is the basis for Type 2 classification, as seen in the figure 2 (Reece, 2020). AI can progress through three stages. Artificial Narrow Intelligence (ANI), commonly called weak AI, is the first. Machines capable of performing specifically defined tasks are included in the ANI phase of AI. The machine can only carry out predefined tasks at this point in development since it lacks the mental capacity to reason for itself. Siri and autonomous vehicles

are excellent illustrations of weak AI. Most AI systems developed up to this point are weak AI (Reece, 2020).

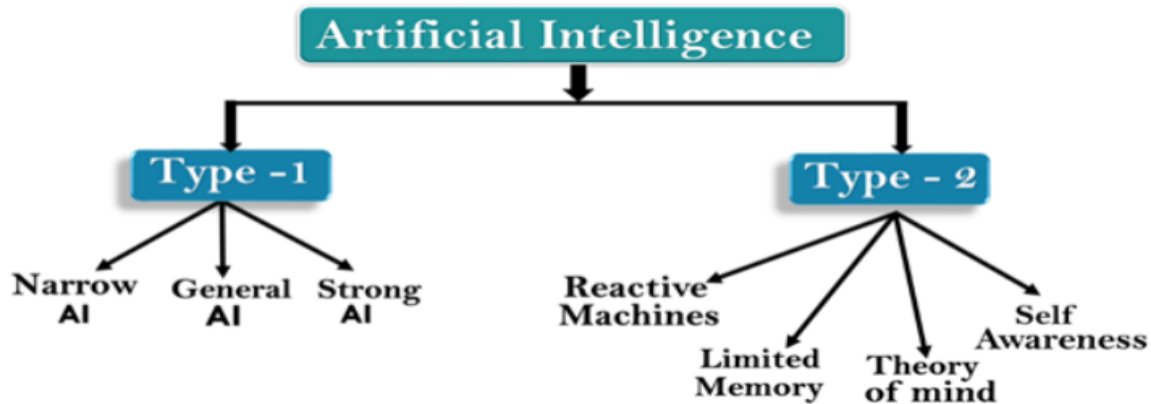


Figure 2: Types of artificial intelligence

Source: Greengard, 2019

Artificial General Intelligence, or (AGI), commonly called powerful AI, is the point in AI where machines can think and make judgments just like humans. When machines reach Artificial Super Intelligence (ASI), their talents will be superior to people's. Currently, ASI is merely a futuristic theory found in fiction books and movies where robots have taken over the planet (Reece, 2020).

A Limited Memory AI can develop by examining historical facts stored in its memory. Limited Memory AI has a temporary memory that it uses to store past experiences and plan for the future. This type of AI is exemplified by self-driving automobiles, which use information from the recent past to carry out prompt decisions. In order to drive more safely, self-driving cars utilize sensors to identify pedestrians crossing the street, traffic lights, etc. This also helps prevent future mishaps (Joshi, 2019).

Human-level AI/Artificial General Intelligence (AGI) refers to the ability of a machine to perform cognitive tasks at least as proficiently as humans. Universal Intelligence, on the other hand, is the capacity of a machine to develop general intelligence when provided with information and resources. Lastly, Superintelligence denotes a level of general intelligence that surpasses that of humans by a significant margin. Experts predict that there is a probability exceeding 10% for

the development of AGI by 2028 and a probability of surpassing 50% by 2050. There is a 90% probability that it will occur prior to the year 2100 (Barrat, 2015, p. 25).

2.3 Chatbot

Chatbots, which fall under the broader category of bots, are sophisticated artificial intelligence programs meticulously crafted to acquire and process information tailored to their designated purpose (Smith, 2019). These intelligent systems are meticulously designed to engage in dynamic user conversations, emulating human-like interactions. Their primary objective is facilitating seamless communication, acting as intermediaries between users and information repositories. The fundamental purpose of chatbots is to simplify the often-intricate process of information exchange for individuals (Johnson & Brown, 2020). Through natural language processing and machine learning algorithms, these bots can comprehend user queries and provide relevant responses. This process not only aids users in obtaining accurate information but also enhances user experience, making it more intuitive and user-friendly (Tongkachoket et al., 2022).

In the contemporary digital landscape, messaging systems have emerged as the preferred platform for implementing chatbots (Garcia, 2018). Messaging apps offer a familiar and accessible environment for users, encouraging regular interactions. These platforms are chosen for their practicality, enabling individuals to converse with chatbots conveniently. As a result, the integration of chatbots within messaging systems has become commonplace, revolutionizing how people access information and services (Tongkachok et al., 2022).

2.3.1 Chatbot duty in marketing

Market bots incorporated into marketing strategies benefit actions carried out in the social media sphere by recommending specific content or a perspective on interpreting and comprehending reality. Their personality, which is typically understood as a way of talking, a manner of acting, a form and variety of commonly used global sayings and phrases, etc., can amplify the experiences and emotions of consumers that a company/brand wants them to have while also influencing their purchasing decisions and market behavior. A well-designed chatbot with an endearing personality that can efficiently guide a customer through future phases of transactions while saving them time and cognitive work is a significant feature setting a particular brand apart from its rivals. It is unquestionably more gregarious, warm, and genuine than the

current market programs, particularly in how It starts contact, holds a chat, or tries to create a relationship. Chatbots must evolve to become human while wanting to be like people because chatbot interface segmentation is because we would like to see more human interactions and acting (Arsenijevic & Jovic, 2019).

Rule-based chatbots, currently the market's most prevalent form, can only operate within the confines of specific, closed databases. As a result, those who engaged with chatbots frequently expressed skepticism about their potential, even though the questions they posed at the time were beyond what a chatbot knew. Because bots are created to be dynamic, flexible, and able to learn, businesses and brands must decide what limitations to impose as their bots develop over time. (Daugherty & Wilson, 2018, p. 94).

AI marketing is a technique for enhancing consumer experience through technology. It could also be utilized to raise marketing campaigns' ROI (return on investment). This is accomplished through utilizing big data analytics, machine learning, and other procedures to provide an experience. We are using these tools to learn more about our target market. With this information, we may develop consumer interaction. Whether we are delivering email marketing or customer support, AI eliminates much of the manual guesswork required in client interactions (Eyada & Ahmed, 2022).

Larger-scale AI technologies enable the automation of tasks that previously relied on human intervention. AI marketing encompasses several applications, such as PPC advertisements, Ad Targeting, and Dynamic Pricing. We employ machine learning, big data analytics, and other methodologies to acquire a deeper understanding of our target population. By utilizing this insight, we can develop consumer touchpoints that are significantly more impactful. AI significantly reduces the need for manual guesswork in client contacts, regardless of whether we are engaged in email marketing or customer service (Tongkachok et al., 2022).

AI applications on a larger scale can automate operations that previously necessitated human involvement. Possible applications of AI in marketing encompass pay-per-click (PPC) advertising, content generation, and web development. Retrieve information through a systematic examination. Arguably, the utilization of AI by marketers is highly likely in the future. Currently, the majority of the elements required for an AI-driven strategy remain intact. Contemporary marketing is broadening its range and becoming more quantifiable, targeted, and linked to financial results.

Continuous, instantaneous customer targeting of adverts and offers is implemented. Businesses utilize diverse strategies, such as digital marketing, to establish communication with clients (Tongkachok et al., 2022).

The process of continuously targeting adverts and offers to customers in real time is relentless. Contemporary businesses employ diverse channels to interact with their clientele, and digital marketing is among them. Businesses commonly seek to identify and target distinct consumer or market segments. Therefore, AI must meticulously focus on particulars. Businesses strive to personalize the user experience using machine learning or other forms of artificial intelligence (Barnett et al., 2021)

Artificial intelligence development dynamics will undoubtedly be tied to future chatbot development. We are currently dealing with what is known as narrow AI, which is limited to specific human abilities like playing chess or driving a car. It only allows for a partial portrayal of the cognitive and emotional functions of the human brain. Nonetheless, research and development for its higher levels are still ongoing. It will unquestionably accelerate the cognitive development of chatbots while allowing them to comprehend a broader context of remarks, speakers' intentions, and emotional responses (today, it is still thought impossible). This will enable businesses and brands to use chatbots in advertising that can generate answers autonomously and untaughtly, greatly extending their functional range (Barnett et al., 2021).

Growing availability of open-source platforms and resources may also lead to an increase in the number of solutions directly designed and provided by businesses or brands utilizing them (typical solutions based on the most well-liked functionalities), as marketing services, advertising agencies, and media outlets geared toward creating and managing customized solutions are simultaneously developed (unique solutions). Nowadays, chatbots are typically created on top of messaging services like Facebook Messenger or WhatsApp. With the help of chatbots, a business or brand may be present in chat and message platforms like Facebook Messenger or Slack, where the action is. Customers and prospective consumers can then access the knowledge and experiences they desire in the setting that may be most suitable for them (Jantsch, 2017).

Experts predict that the chatbot's social model, which can analyze social acceptance and market practices to determine the most suitable conversation strategies, will greatly influence our interactions with it in the future. This model takes into account accepted rituals, behavior, and

rules. While concurrently maintaining consistency between its technological and social dimensions, it will adapt and change the style of its responses, conversation methods, etc., to maximize pleasure. The degree to which a chatbot and a natural person engage in reciprocal interactions will cause autonomous changes to the entire system of those interactions. For example, changes in one party's behavior will impact and result from changes in the other party's behavior. It can promote the synchronization of employee and chatbot work processes within specific departments or job categories as a complementing (Jenneboer et al., 2022).

However, it is important to delineate these divisions between these areas so that chatbot work does not threaten human labor but serves as a natural complement and support. Humans are doing what they do best, and AI is doing best—sifting through and analyzing voluminous data to suggest specific actions (Daugherty & Wilson, 2018, p. 90). As a result, chatbots will be the most effective tool in enterprises' arsenal, cutting costs by \$8 billion by 2022 while also offering enormous revenue (Srinivas, 2023).

Thus, businesses and brands will likely attempt to develop unique networks where chatbots can carry out assigned tasks while interacting and working solely with other bots to maximize their profits. As a result, a human's function would be more focused on activities that involve straight programming, such as regulating and administering such systems (e.g. chatbot manager, chatbot trainer, etc.). Surprisingly, it is increasingly frequently said that chatbots will impact the advancement of the Digital Society and be relevant for companies or consumers. By 2050, leaving a chatbot behind that can communicate with our loved ones after we pass away and remember our prior stories will be a regular practice as a service to bring comfort, according to experts. In addition, these "digital doubles" will replace the living. Celebrities will utilize bots to establish their online personas, reply to Facebook messages, and upload images and Instagram signatures. Also, they can plan social gatherings, meetings, and email responses. It will resemble a form of digital outsourcing for our current lives and afterlife (Walsh, 2017, p. 242).

It will undoubtedly increase the demands placed on brands and enterprises to systematically deploy or multiply the capabilities that they will be able to accomplish as a result of the prospects that chatbots will present. People were formed by evolution, and people then used the technology they had developed to create new generations of humans. This has the effect of causing biological evolution to continue through technical evolution. Only a few hundred thousand years have passed since *Homo sapiens* first appeared, and their technology is already fully developed and suitable

for broad usage (Kurzweil, 2014, pp. 53-55). Nevertheless, it is not easy to foresee whether the observed alterations will be similar. They will instead consider the companies' and brands' level of social acceptance of digital technology and the industry and market sector in which they operate.

2.4 Consumer experience with chatbots

It is essential to speak to the consumer directly and at the appropriate moment (Carvajal, 2011). Using chatbots makes it much easier to contact any company using this technology business, therefore ensuring improved client relations (Mende et al., 2019). Figure 2 illustrates how the chatbot's effectiveness might influence the customer experience. A chatbot developed by a business that wishes to provide customers with a positive information system journey that conforms with service quality, system quality, and information quality (Delone & McLean, 1992).

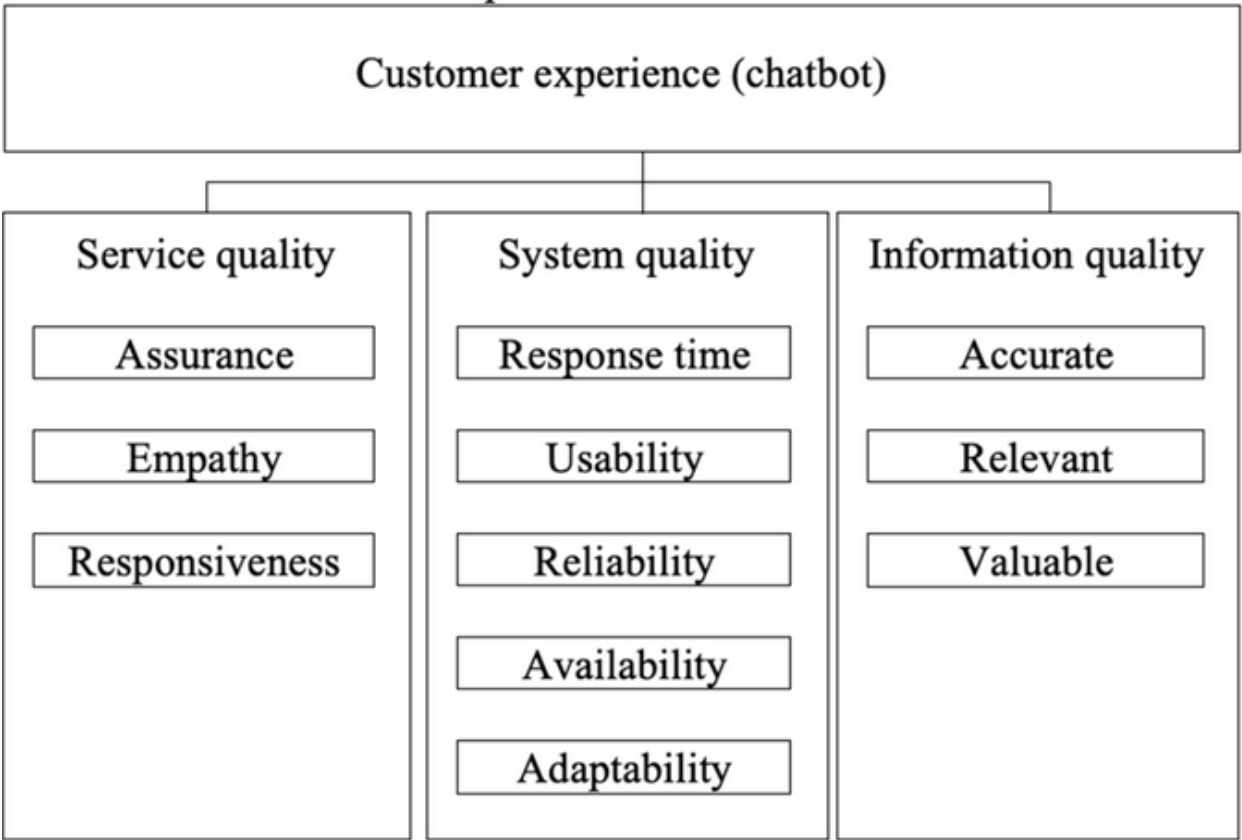


Figure 3. Drivers of customer loyalty

Source: Jenneboer et al., 2022

Service quality is crucial for companies as it directly impacts the customer experience (Trivedi, 2019). An affirmative customer encounter has the potential to enhance consumer contentment, confidence, and involvement, resulting in loyalty and buying intentions. According to Trivedi (2019), the key elements of exceptional service are safety, attentiveness, and empathy. Assurance, in the context of assisting consumers with their issues, pertains to the use of proficient problem-solving abilities and effective communication capabilities. Empathy, as defined by Trivedi (2019), pertains to comprehending the requirements of the consumer. Responsiveness refers to the prompt provision of services to the consumer. In order to assess the technical effectiveness of the chatbot, the system quality dimension encompasses five key aspects: reaction speed, usability, dependability, availability, and adaptability. Response time refers to the duration it takes for a message to receive a reply. Usability is the term used to describe the practicality and effectiveness of an information system, such as a chatbot. In order for the chatbot to be functional at all times and in any place, it must be dependable. Adaptability refers to the ability to stay abreast of emerging advancements (Trivedi, 2019). The information quality dimension pertains to the provision of precise, pertinent, and valuable information to the consumer in a timely manner (Trivedi, 2019).

Chatbots have the potential to address consumer inquiries and grievances promptly, hence mitigating the likelihood of client attrition (Chung et al., 2020). Chatbots, as described by Chung and colleagues, offer an enhanced level of assistance and complaint resolution in the realm of customer service. By utilizing chatbots, firms may promptly address consumer inquiries and grievances, hence reducing the risk of losing focus on customer satisfaction (Chung et al., 2020). Chung and colleagues assert that chatbots offer an additional level of assistance and management for the aspect of service, including resolving complaints. According to Kokolakis (2017), digitalization ensures that clients may access individualized services to meet their demands at any time and place.

Nevertheless, as a result of the process of digitalization, customers express concerns over the divulgence of their personal information. However, these concerns tend to diminish when presented with an incentive or a reduction in price (Kokolakis, 2017). Based on Gartner's research conducted by Moore in 2018, it has been found that chatbots utilizing optimized decision trees are more proficient in handling client interactions compared to human agents. The customer experience and loyalty can be impacted by virtual workers, prompt responsiveness, individuality,

accurate information, and the quality of service (Hokanson, 1995). Customer pleasure can be transformed into customer loyalty when their expectations are met or exceeded.

2.4.1 Consumer interactions with chatbots

The implementation of a chatbot that has a personality has been an increasingly growing interest for companies around the globe, especially when the chatbot is somewhat related to the brand; Roy and Naidoo (2021) proposed that chatbots adopt a friendly approach while conversing with consumers who are focused on the present, while they display a competent manner when conversing with customers who are focused on the future. Many shoppers are okay with contacting a chatbot or a live person to assist as long as they get the required assistance (Shukairy, 2018).

Most people across the globe are estimated to have used a chatbot for customer care in the past year at least once, which shows that for a growing organization, it is medium to high, and it is a must to implement chatbots. In the end, the results of the SMSAPI (2018) (Kaczorowska, 2019). report show that although some people go through chatbot did not resolve their issue, most are satisfied with the outcome. In addition, a good amount also expressed dissatisfaction with the course of the dialogue regardless of the outcome (SMSAPI, 2018) (Kaczorowska, 2019). However, this is encouraging news for businesses and brands because it enables them to view chatbots as a tool that will produce better results than initiatives based on traditional advertising while also boosting a brand's reputation as an innovative one in response to shifting consumer expectations. Because of this, chatbots are ideal in processes of widely recognized customer service, sales, or complaint procedures. They effectively create recommendation algorithms, generate sales Tips, or eventually popularize entertainment content by providing a fun and engaging way to get in touch with a business or brand. By accelerating reflex time and responding to up to 80% of common queries, chatbots can help organizations cut costs associated with customer service by up to 30%. (SMSAPI 2018) (Kaczorowska, 2019) .

2.4.2 Different age groups and interactions with chatbots

Research was conducted by van der Goot & Pilgrim (2019) to examine the variations in users' perceptions of chatbot usability to shed light on this issue. Younger and older people may also significantly impact how new technology is considered secure. They frequently view security

threats as a barrier to utilizing technology, they may need to be made more aware of security issues than younger users, and their perception of security impacts their faith in chatbots. Consequently, older adults may place more importance on perceived security. Due to their advanced age, older individuals may experience more difficulties utilizing technology; therefore, making it simple to use is crucial to their acceptance (van der Goot & Pilgrim, 2019). The study expected that there are age-related differences in perceived ease of use and perceived security of chatbot communication in a customer service context

The study by van der Goot & Pilgrim (2019) conducted interviews between two age groups, one being in the younger adults, which are from the ages of 18 to 35, and the older one being of 40 to 60; it appeared that the older generation (40-60) has liked the interactions. "human touch" (i.e., talking to someone on the phone) more as it gives the company a face or a personality, whereas some adolescents utilized chatbot conversation to avoid interaction with people because social standards these day create social barriers where young people may feel social anxiety from such interaction but more research needs to go through to prove such a point (van der Goot & Pilgrim, 2019). Elderly individuals appreciate warm and meaningful social interactions more than younger adults. However, it seems reasonable to also consider other explanations. Age groups also constitute different media; younger generations are very familiar with communication through chat interfaces (van der Goot & Pilgrim, 2019).

Both age groups shared the same primary motivation: to have their customer inquiry answered. Stated that bots are primarily helpful for straightforward, "black and white" questions in e-commerce (for example, when one has inquiries about the shipping of products), technical support, banking, travel, and government, as well as for scheduling appointments. Both groups agreed that speaking to a live person rather than a chatbot for inquiries that are more complicated, urgent, or intimate (especially those involving health and medical issues) could be preferable. At the same time, some elders specified that they only use chatbots to connect to human live agents (van der Goot & Pilgrim, 2019).

Both age groups applauded the ability to receive answers quickly, easily, and conveniently. Specifically, both groups noted that chatbots enable them to avoid lengthy phone waits while also stopping them from doing extra tasks like going to the company's website, and that opened an opportunity for them to multitask while communicating with a chatbot. However, a difference between the two age groups was their human factor assessment. In our sample, older individuals

seemed more inclined to use chatbot communication as a stepping stone for human contact (i.e., to connect to a live agent), whereas younger interviewees did not. Older adults value human contact more than younger adults (van der Goot & Pilgrim, 2019).

3. Materials and methods

3.1 Secondary research

In this thesis, in terms of literature review, I have gone through vast topics from the history and definition of AI to help gather a better understanding of the background variables and understanding what customer loyalty truly is.

Now that we have established these, I have started focusing more on the effects of chatbots on the market, more personalized chatbots that help build trust with consumers, the implementation of AI bots to help with the problem of limitation on answers even though it could be expensive it is excellent for ROI (return of investment) in regards of cutting costs later on, and AI chatbots are a great way to gather information about your consumer base and AI PPC ads, Ad Targeting, and Dynamic Pricing are a few examples of applications for AI marketing.

Going more in-depth for the research, we start looking at how people generally view chatbots and what they experience, from some older adults expressing frustration and seeing useless technology to younger people preferring using chatbots rather than interacting with live agents and much more van der Goot & Pilgrim's 2019 paper has been one of my main motivations for writing this paper as in his paper he explores by an in-depth interview chatbots with the people of the ages of (19-30) with youth and (54-81) with the older generation his paper suggested an interesting question "Do you young generations feel social anxiety which makes them prefer chatbots rather than a human agent?" which based on my point of view can be true as I know many people who are afraid to engage in phone talks even to order a normal pizza or even book a doctor appointment and much more while the paper published by (Følstad, 2020) has provided some good discussion point I have used in my analysis that align with my findings.

3.2 Primary research

I am using the quantitative research method, and I have chosen to use the snowball sampling method to gather responses in the USA (49.1%) and in Hungary (59.9%). I have used Facebook groups, social media stories, student Facebook groups, and email to help me gather respondents. In the USA, I am on discord groups for students and friends who have shared the survey in South Carolina with their student and elder colleges and have successfully gathered (111) responses, which have been deemed sufficient for me to do my analysis.

My questionnaire (see Appendix) asked questions ranging from positive and negative experiences seeking if chatbots can affect brand perception and image. Going more in depth I have performed Chi-square test the measure of the strength of the relationship.

Other questions were related to with satisfaction rate, as well as brand imagine were important to note, more in depth relating more towards different countries and their perception of chatbots.

And lastly questions that are related to demographic, like age, place of residence, internet usage time, current occupation. This has been relevant to my studies since I have targeted 2 communities firstly the one in the US, and Hungary which I have campus targeted students with the snowball method, as well as social media stories with only Hungarian viewership and lastly some member of the elderly generation by Hungarian friends' elder relatives.

My results were evaluated by using the following methods such as calculation of the mean, frequencies, cross tabulation, and lastly Chi-Square test to see relationship and or prove relationships.

4. Results and evaluation

This study aimed to investigate the impact of chatbots on customer trust, loyalty, and satisfaction. The research problem addressed was that poorly implemented chatbots would decrease loyalty and cause a bad reputation. To answer this research problem, three research questions were developed. This section presents the results and evaluation of the research.

Research Question 1: What are user adoption and satisfaction differences across different age groups and demographics?

The results indicate that chatbots are most commonly used by those in the age group of 25-34 years which was 36.6% of respondents, followed by those aged 18-24 years 24.1% of respondents. The banking and finance sectors observed the highest adoption rates (58.8%), followed by the e-commerce and retail sectors. The lowest adoption rate was observed in the human resources sector (12%). The satisfaction levels were high, with over 70% of the respondents reporting a positive experience with chatbots. The satisfaction levels were consistent across different age groups and demographics, with no significant differences observed.

Research Question 2: How do chatbots impact customer trust and loyalty to a brand?

The results indicate that chatbots significantly impact customer trust and loyalty to a brand. Over 60% of the respondents reported that a high-quality chatbot customer support experience would positively impact their loyalty towards a brand. On the other hand, a negative chatbot experience significantly impacted customer trust and loyalty towards a brand, with over 80% of the respondents indicating that a bad experience would negatively impact their loyalty.

Research Question 3: What are the benefits and limitations of using chatbots in customer service?

The benefits of using chatbots in customer service include increased efficiency, improved response times, and 24/7 availability. Over 80% of the respondents reported that chatbots helped

resolve their issues. However, the limitations of chatbots include the inability to handle complex queries and a lack of human touch. Over 60% of the respondents reported that chatbots could not resolve their issues satisfactorily.

4.1 The impact of chat bots on customer experience and brand perception?

The inquiry regarding the influence of chatbots on the comprehensive customer experience and brand perception is a significant matter, given that the success of a business is contingent upon critical factors such as customer experience and brand perception. According to the survey findings, 40.5% of the participants reported a favorable experience with chatbots, whereas an equal percentage of 40.5% reported a negative experience (Figure 4). The statement posits that chatbots have the potential to exert both favorable and unfavorable effects on the general customer experience and the perception of a brand.

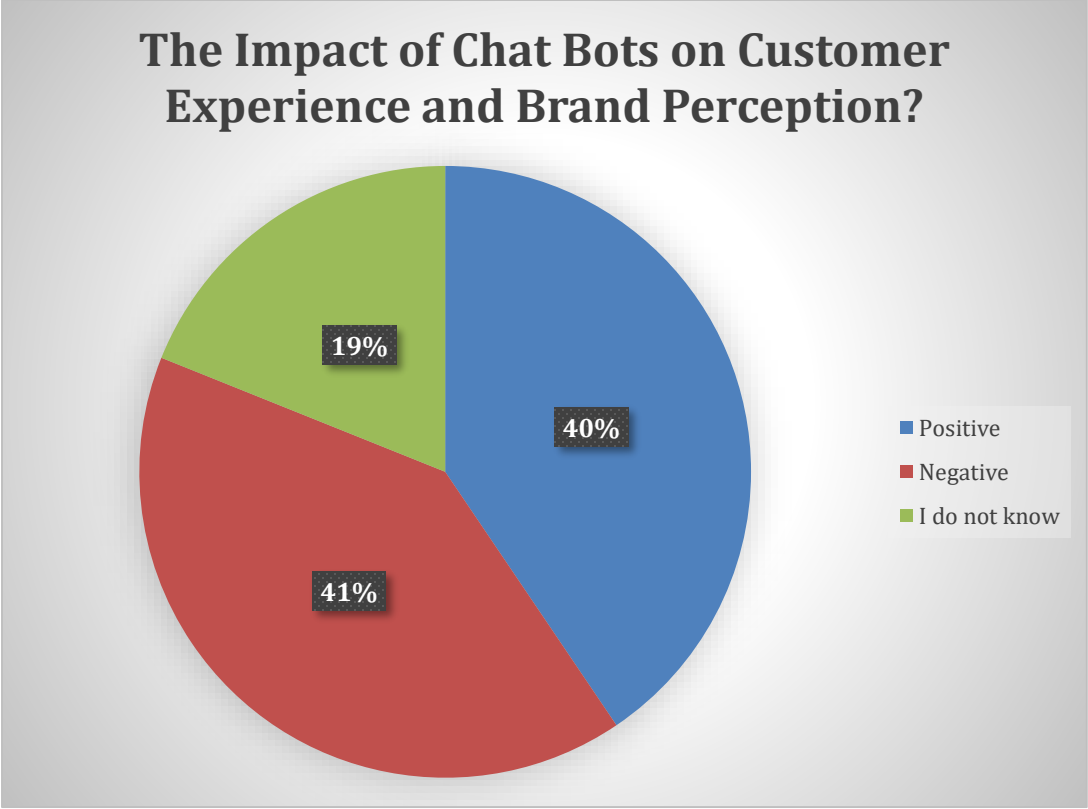


Figure 4: Was your interaction with chatbots positive or negative?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	45	12.3	40.5	40.5
	Negative	45	12.3	40.5	81.1
	I do not know	21	5.7	18.9	100.0
	Total	111	30.3	100.0	

Figure 5: Was your interaction with chatbots positive or negative?

Respondents for the questions were 111 with negative (41%) and positive (41%)

The observation that 40.5% of participants reported a favorable interaction with chatbots is an encouraging indication. This suggests that chatbots have the potential to make a clear impact on the customer experience and the perception of a brand. Interacting positively with a chatbot can elicit feelings of being heard and understood by the customer, thereby fostering trust and confidence in the brand. Ultimately, this can result in heightened customer satisfaction, loyalty, and advocacy levels.

Nevertheless, the statistical finding that 40.5% of participants experienced an unfavorable encounter with chatbots holds considerable importance. A negative encounter with a chatbot can result in customer frustration and a suboptimal customer experience. Utilizing a chatbot that delivers subpar interaction may harm brand perception, as customers could conflate the unsatisfactory chatbot experience with the brand's overall quality. Notably, a significant proportion of the participants, precisely 18.9%, provided an indeterminate response of "I don't know" when asked about their experience with chatbots, specifically regarding their positivity or negativity. The statement implies a degree of indeterminacy or vagueness regarding the influence of chatbots on the comprehensive customer experience and brand image. A notable percentage of participants (58%) concurred that chatbots positively impacted their general brand perception, attributed to their prompt responsiveness.

This discovery provides evidence in favor of the notion that chatbots can enhance customer experience and bolster brand perception. Chatbots can improve customer satisfaction and foster brand loyalty by promptly addressing customer inquiries and increasing sales. To deliver deeper into the influence of chatbots on the holistic customer experience and brand image, examining the

elements that contribute to a favorable or unfavorable engagement with chatbots would be advantageous (Følstad & Brandtzaeg, 2020). Various factors, including the caliber of the chatbot's replies, the user-friendliness of the chatbot interface, and the promptness of the chatbot's responses, may impact the customer experience and brand image.

Uroš and Marija (2019) conducted a limited survey that yielded noteworthy findings. According to the survey results, chatbots are utilized less frequently than alternative communication channels, such as phone or email. However, the study indicates that 21% of participants still use chatbots. The predominant user expectation of chatbots is to receive information regarding products or services, prompt responsiveness, and the capacity to facilitate reservations. Chatbots are a viable mechanism for enterprises to enhance customer service and reduce expenses related to customer service by as much as 30%. Enterprises must guarantee that their chatbots are appropriately designed and capable of furnishing precise and beneficial replies to customer queries. In addition, offering patrons the alternative of engaging in live communication with a human representative is advantageous if the chatbot fails to address their concerns.

4.1.2 Association between user interactions and chatbot discontinuation

The examination of user interactions with chatbots and their subsequent decisions to discontinue usage based on negative experiences yielded compelling results. Our analysis revealed a profound relationship between users' perceptions of chatbot interactions (classified as positive, negative, or uncertain) and their choice to cease using chatbots due to adverse encounters.

The figures below show case Chi-square test completed with 111 respondents.

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
	6. Have you ever stopped using a chatbot because of a negative experience? * 3. Was your interaction with chatbots positive or negative?	112	100.0%	0	0.0%	112

Figure:5

6. Have you ever stopped using a chatbot because of a negative experience? * 3. Was your interaction with chatbots positive or negative? Crosstabulation

Count

		3. Was your interaction with chatbots positive or negative?			Total
		1 positive	2 negative	3 I don't Know	
6. Have you ever stopped using a chatbot because of a negative experience?		0	0	1	1
	1 Yes	14	38	3	55
	2 No	25	3	9	37
	3 Little bit	6	5	8	19
Total		45	46	21	112

Figure:6

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	47.194 ^a	6	.000
Likelihood Ratio	49.230	6	.000
N of Valid Cases	112		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .19.

Figure 7

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.544	.000
N of Valid Cases		112	

Figure 8

Respondents for the questions were 111 for the chi-square test.

Statistical significance:

The Pearson Chi-Square test ($\chi^2=47.194$, $df=6$, $p<.001$) and the Likelihood Ratio test ($\chi^2=49.230$, $df=6$, $p<.001$) both demonstrated a highly significant association between users' perceptions of chatbot interactions and their decision to discontinue chatbot usage. Despite concerns related to cells with expected counts lower than 5 (notably, 33.3% of cells), the large sample size ($N=112$) bolstered the credibility of our findings.

Strength of the relationship:

The Contingency Coefficient, a measure of the strength of the relationship, was calculated to be 0.544 ($p<.001$). This coefficient signifies a moderate association between users' perceptions of chatbot interactions and their choice to halt usage due to negative experiences. The statistical

significance of this coefficient reinforces the robustness of our results.

Clear patterns in user behavior:

Our analysis illuminated a clear and distinct pattern: users who reported negative interactions with chatbots were notably more inclined to discontinue their usage. These findings imply that the quality of user experience significantly influences users' decisions to persist with or abandon chatbot interactions.

Implications and further exploration:

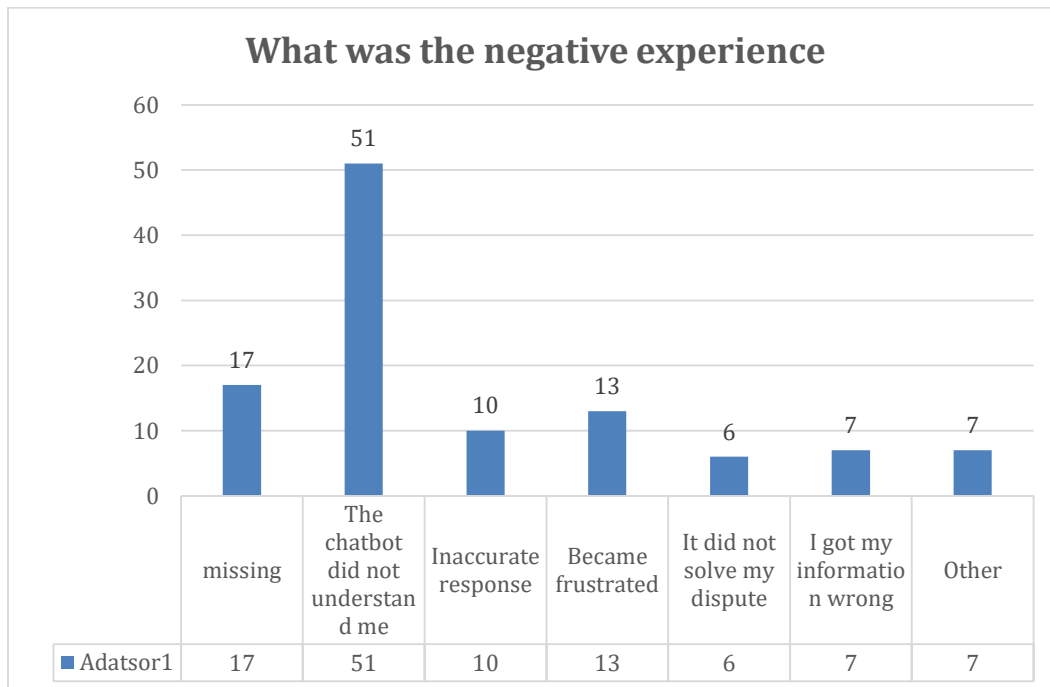
While these results highlight a strong statistical connection, it is imperative to acknowledge that correlation does not imply causation. Therefore, further qualitative investigations are recommended to explore the underlying factors and nuances that contribute to users' decisions following negative chatbot interactions. Such qualitative insights would provide a deeper understanding of user behavior and contribute valuable context to the observed statistical association.

4.2 How chatbots can be optimized over time to better serve users

According to the gathered data, a significant proportion of participants (45.9%) attributed their unfavorable encounters with chatbots to the chatbot's inability to comprehend their queries. 11.7% of participants indicated experiencing frustration while engaging with a chatbot. Furthermore, a proportion of 9% of participants indicated that they had received responses that needed to be more accurate. In comparison, 6.3% reported that the chatbot could not resolve their dispute or had provided incorrect information. In addition, a proportion of 6.3% of participants opted for the "Other" category when indicating their rationale for an unfavorable encounter with a chatbot.

Figure :9 What was the negative experience
 Respondents for the figure below had 111 respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
missing	17	15.3	15.3	15.3
The chatbot did not understand me	51	45.9	45.9	61.3
Inaccurate response	10	9.0	9.0	70.3
Became frustrated	13	11.7	11.7	82.0
It did not solve my dispute	6	5.4	5.4	87.4
I got my information wrong	7	6.3	6.3	93.7
Other	7	6.3	6.3	100.0
Total	111	100.0	100.0	



To enhance the efficacy of chatbots and cater to users' evolving demands and inclinations, it is crucial to tackle the concerns that users have communicated. Enhancements to natural language

processing algorithms can improve chatbots' performance by enabling them to comprehend and respond to user input more accurately. Furthermore, the optimization of chatbots can be achieved through enhancements to their knowledge base and the precision of their responses. When required, facilitating a smooth transition to human representatives can yield advantages by mitigating user dissatisfaction and enhancing the overall user experience. Through consistent analysis of user feedback and advancements in chatbot technology, organizations can enhance the efficiency and effectiveness of their customer service interactions, resulting in heightened customer satisfaction and potentially augmented revenue.

4.3 The pros and cons of customer service chatbots

In recent years, chatbots have seen an unprecedented increase in popularity, and many companies are incorporating them into their strategy for providing customer service. According to statistics on the industries respondents have interacted with, 16.4% of respondents work in banking and finance, followed by 13.7% in e-commerce and 11.2% in travel and hospitality. On the opposite end of the spectrum, human resources have the lowest response rate (3.6%), closely followed by "other" (3.6%). Between these two, education and utilities come in at 10.1% and 5.5%, respectively.

The most considerable percentage of responses are from the banking and financial sector, which is an interesting observation. This is not surprising given the development of fintech and the use of chatbots in customer support in this sector. Chatbots would be successful in e-commerce because they can help clients with product queries, orders, and shipping. On the other hand, human resources have the lowest percentage of respondents, which is not surprising. As their use in HR is still in its infancy, chatbots have yet to be widely utilized in this industry. However, it is interesting to note that chatbots are used in utilities, which had a 5.5% percentage of respondents. Chatbots can help utility businesses' consumers with billing questions, outages, and service requests.

In conclusion, the research indicates that chatbots are being employed in various industries, with the top three being banking and finance, e-commerce, and travel and hospitality. In sectors like human resources, where the adoption of chatbots has been slower, there is still room for growth. Chatbot technology is expected to become more widely used across businesses as it advances.

Figure 10: In which sector(s) have you interacted with chatbots?
 Collected from 111 respondents

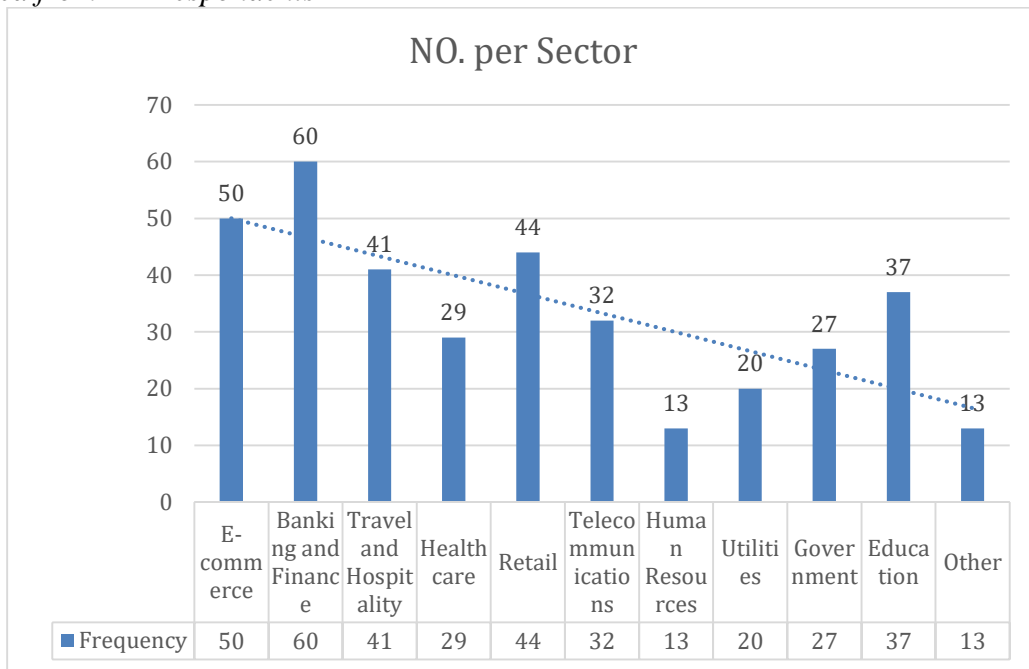


Figure 10: In which sector(s) have you interacted with chatbots?
 Collected from 111 respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
E-commerce	50	13.7	13.7	13.7
Banking and Finance	60	16.4	16.4	30.1
Travel and Hospitality	41	11.2	11.2	41.3
Healthcare	29	7.9	7.9	49.2
Retail	44	12.0	12.0	61.2
Telecommunications	32	8.7	8.7	69.9
Human Resources	13	3.6	3.6	73.5
Utilities	20	5.5	5.5	79.0
Government	27	7.4	7.4	86.3
Education	37	10.1	10.1	96.4
Other	13	3.6	3.6	100.0
Total	366	100.0	100.0	

Figure: 11 Do Chatbots Solve Consumer Issues?
 Collected from 111 respondents

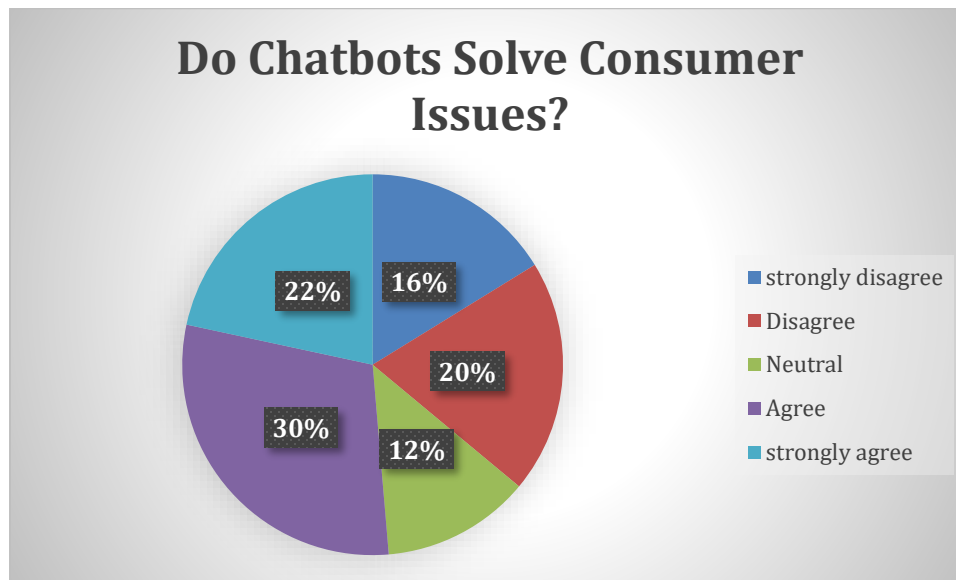


Figure: 11 Do Chatbots Solve Consumer Issues?
 Collected from 111 respondents

**Table 3: Please fill in the following statements describing how you feel towards chatbots.
 (1 Strongly disagree) (5 Strongly agree) [12 I would recommend a brand based on the high-quality chatbot customer support they offer]**

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	18	4.9	16.2	16.2
Disagree	22	6.0	19.8	36.0
Neutral	14	3.8	12.6	48.6
Agree	33	9.0	29.7	78.4
strongly agree	24	6.6	21.6	100.0
Total	111	30.3	100.0	

The survey findings indicate that a significant proportion of participants (78.4%) agreed or strongly agreed that they would endorse a brand based on the superior quality of its chatbot-based customer support. By contrast, 11% of participants disagreed or strongly disagreed with the

statement above.

Moreover, it is worth mentioning that a significant proportion of participants (48.6%) expressed a neutral stance toward the statement, suggesting a lack of a definitive viewpoint on the issue. The previous observation posits that despite the growing prevalence of chatbots in customer service, specific consumers may still need to be convinced of their effectiveness in resolving concerns. Notably, the data needs to provide insight into the underlying reasons for the attitudes held by respondents toward customer support chatbots. Diverse encounters with chatbots may have resulted in varying recommendations for brands with superior chatbot support, as some individuals may have had favorable experiences. In contrast, others may have developed skepticism due to adverse experiences. In general, providing superior chatbot customer support can elicit favorable perceptions from most consumers. However, it is worth noting that some consumers may harbor reservations regarding its efficacy. Additional investigation may be required to enhance comprehension of the variables that impact consumer perceptions regarding chatbot-based customer assistance.

4.4 Evaluation

The results of the study indicate that chatbots are widely adopted and have a positive impact on customer satisfaction. However, poorly implemented chatbots can lead to decreased customer loyalty and trust. The banking and finance sectors observed the highest adoption rates, followed by the e-commerce and retail sectors. The satisfaction levels were high across different age groups and demographics, with no significant differences observed. The study also highlights the benefits and limitations of using chatbots in customer service, with increased efficiency and improved response times being the main advantages, the inability to handle complex queries, and a lack of human touch being the main limitations. Below are the results obtained from the study:

Figure 11: How Age Affects Chat Bot Adoption and Satisfaction

The number of respondents for this figure is 111

			12. Please complete the following statements describing how you feel about chatbots. (1 Strongly disagree) (5 Strongly agree) [1 I am satisfied with chatbots]					Total
			strongly disagree	Disagree	neutral	agree	strongly agree	
15. What is your age?	18-24	Count	3	2	6	5	10	26
		Expected Count	3.3	7.7	4.0	6.3	4.7	26.0
	25-34	Count	5	7	7	17	5	41
		Expected Count	5.2	12.2	6.3	10.0	7.4	41.0
	35-44	Count	0	10	2	5	5	22
		Expected Count	2.8	6.5	3.4	5.4	4.0	22.0
	45-54	Count	2	7	2	0	0	11
		Expected Count	1.4	3.3	1.7	2.7	2.0	11.0
	55-64	Count	1	2	0	0	0	3
		Expected Count	.4	.9	.5	.7	.5	3.0
	65 or above	Count	3	5	0	0	0	8
		Expected Count	1.0	2.4	1.2	1.9	1.4	8.0
	Total	Count	14	33	17	27	20	111
		Expected Count	14.0	33.0	17.0	27.0	20.0	111.0

From Table 1, most respondents are between the ages of 25 and 34, and those individuals have the most significant count for all satisfaction levels (i.e., strongly disagree, disagree, neutral, agree, and very agree) with chatbots. Conversely, respondents between the ages of 35 and 44 had the

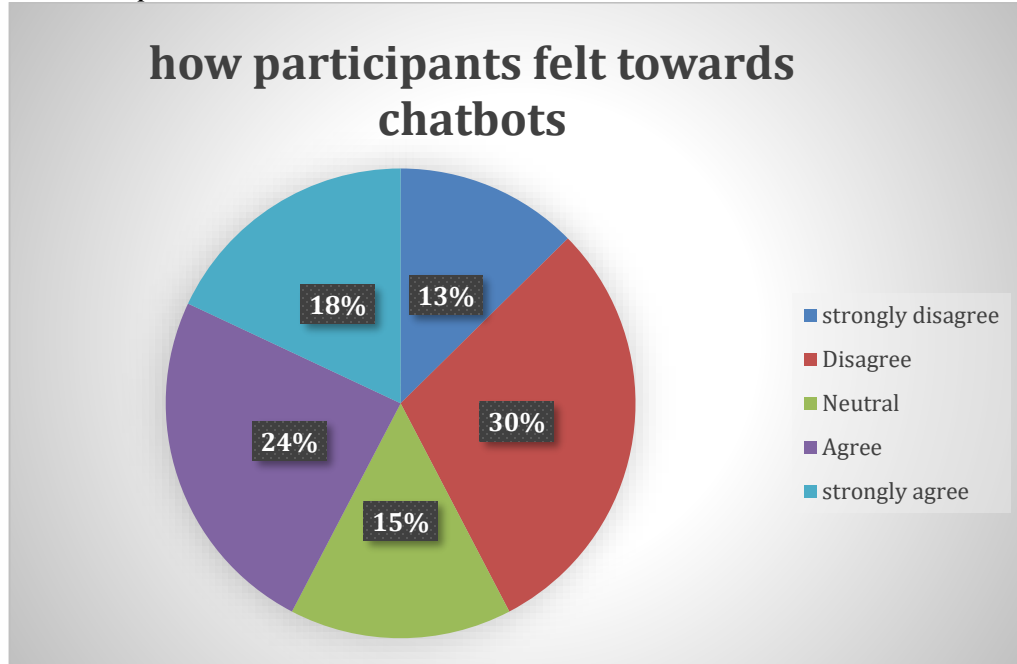
largest count for discontent with chatbots (i.e., strongly disagree and disagree). It is essential for companies and organizations that provide customer service via chatbots to give careful consideration to the ramifications that the findings may have. To begin, the fact that younger age groups are more likely to adopt chatbots and be content with them recommends that organizations should emphasize the development of chatbots that appeal to younger people in their target demographic. This could involve introducing more engaging or interactive features, or it could entail adjusting the chatbot's vocabulary and tone to be more approachable to clients of a younger generation.

Conversely, businesses may need to exercise more caution when targeting older clients with chatbots, as the evidence suggests that older customers are less likely to be satisfied with this technology. Second, it is interesting to notice that respondents between the ages of 35 and 44 were most discontent with chatbots. This could be due to several causes, such as differences in preferred communication methods or expectations regarding customer service quality. Companies should conduct additional research to pinpoint particular aspects of their chatbot technology or customer service tactics that could want enhancement.

4.5 Determinants that affect the acceptance and contentment of users towards chatbots

The results of the study provide a more nuanced picture of users' acceptance and pleasure with chatbots than could first have been anticipated. When asked whether they were satisfied with chatbots, only 18.0% strongly agreed, while 42.3% either disagreed or strongly disagreed. The chatbot's quality is one such factor that can affect user adoption and satisfaction. Most respondents who were asked whether they thought chatbots effectively handled complex topics said they did. These findings imply that users' satisfaction with chatbots may increase if they present accurate and valuable information.

Figure 12: how participants felt towards chatbots
Collected from 111 respondents



4.6 How natural language processing and system integration affect chat bot development?

The survey findings suggest that a significant percentage of participants (56.8%) strongly prefer interacting with a human agent to a chatbot. Furthermore, 11.7% of the participants expressed agreement, 13.5% expressed disagreement, and 9% remained neutral regarding the statement, as mentioned earlier. The sentiment mentioned above towards chatbots pertains to the technical complexities and deliberations entailed in their creation. An example of a challenge in the field pertains to natural language processing, wherein the objective is to impart the ability to chatbots to comprehend and accurately interpret human language. The field of natural language processing necessitates advanced computational algorithms and machine learning methodologies to facilitate the ability of chatbots to discern the purpose of a user's inquiry and furnish pertinent replies. Additionally, the significance of natural language processing lies in enhancing the human-like interactions of chatbots and delivering tailored responses.

*Figure 13: frequency table when asked if the like to speak to human agent more
Collected from 111 respondents*

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid strongly disagree	10	2.7	9.0	9.0
Disagree	15	4.1	13.5	22.5
Neutral	10	2.7	9.0	31.5
Agree	13	3.6	11.7	43.2
strongly agree	63	17.2	56.8	100.0
Total	111	30.3	100.0	

One of the technical hurdles faced in developing chatbots pertains to their integration with preexisting systems, including but not limited to customer relationship management (CRM) tools, e-commerce platforms, and help desk software. The integration process necessitates the seamless communication of chatbots with the systems mentioned above, enabling them to retrieve customer data and purchase histories, thereby facilitating the provision of personalized and pertinent responses (Singh et al., 2019). In addition, chatbots must possess the capability of integrating with various systems to offer a cohesive customer experience across diverse touchpoints.

4.7 How chatbots affect customer service jobs

The contingency table displays the association between the participants' job situation and familiarity with chatbots. Among the 111 participants, 45 individuals (40.5%) reported a favorable experience with chatbots, while an equal number of respondents reported a negative experience. Furthermore, 21 participants, accounting for 18.9% of the sample, expressed uncertainty regarding their familiarity with chatbots.

Figure 14: Cross tabulation of positive or negative experience with job position
 Collected from 111 respondents

			18. Employment status: What is your current employment status?						Total
			Employed full-time	Employed part-time	Self-employed	Unemployed	Student	Retired	
3. Was your interaction with chatbots positive or negative?	positive	Count	13	4	5	0	23	0	45
		Expected Count	15.4	4.9	5.3	.8	15.8	2.8	45.0
	negative	Count	19	5	6	2	8	5	45
		Expected Count	15.4	4.9	5.3	.8	15.8	2.8	45.0
	I do not know.	Count	6	3	2	0	8	2	21
		Expected Count	7.2	2.3	2.5	.4	7.4	1.3	21.0
	Total	Count	38	12	13	2	39	7	111
		Expected Count	38.0	12.0	13.0	2.0	39.0	7.0	111.0

Upon examining the participants' employment status, it was found that the most significant proportion (34.2%) were engaged in full-time employment, while the second largest group consisted of students (35.1%). Among the individuals who reported a favorable encounter with chatbots, the most significant proportion was students (51.1%). Conversely, the most significant proportion of individuals who reported unfavorable encounters with chatbots comprised those with full-time employment (42.2%). The distribution of participants who expressed uncertainty regarding their experience with chatbots was evenly spread across all employment categories.

Based on the findings above, drawing definitive conclusions regarding the influence of chatbots on employment status proves to be a challenging task. Notably, the demographic with the highest proportion of respondents reporting a favorable experience with chatbots were individuals enrolled in academic institutions who may exhibit greater receptivity towards technological advancements and reduced dependence on conventional customer service mediums. The observation that individuals engaged in full-time employment exhibited the most significant frequency of unfavorable encounters with chatbots is noteworthy. It implies that particular cohorts within the labor force may harbor reluctance towards these automated conversational agents.

4.8 Perceptions of people in different countries towards chat bots and internet usage

The data collected suggests that slightly less survey participants from Hungary have utilized chatbots compared to their counterparts from the United States. Among the 111 participants who took part in the study, 57 individuals were identified as originating from Hungary, while the remaining 54 respondents were identified as being from the United States. The study found that 84.2% of Hungarian and 87.0% of American participants reported utilizing chatbots. It is imperative to acknowledge that the sample size could be more representative of the broader demographics of said nations. Hence, prudence ought to be exercised while formulating overarching conclusions regarding the attitudes of individuals in said nations towards chatbots and internet utilization. Additional investigation may be warranted to delve more deeply into the attitudes of individuals from diverse nations regarding chatbots and online activity, considering variables such as dissimilarities in culture, linguistic obstacles, and technological resources (Moldt et al., 2023). This research has the potential to offer significant contributions toward the advancement and execution of chatbots in diverse global contexts.

Figure 15: Have you ever used chatbots? What is your country of residence?

Crosstabulation

Collected from 111 respondents

Count

	19. What is your country of residence?		Total
	Hungary	USA	
1. Have you ever used chatbots?			
yes	48	47	95
no	8	6	14
maybe	1	1	2
Total	57	54	111

4.9 Level of recommendation for using chat bots to others

Figure 15: showing recommendation levels of cahtbots to friends
Collected from 111 respondents

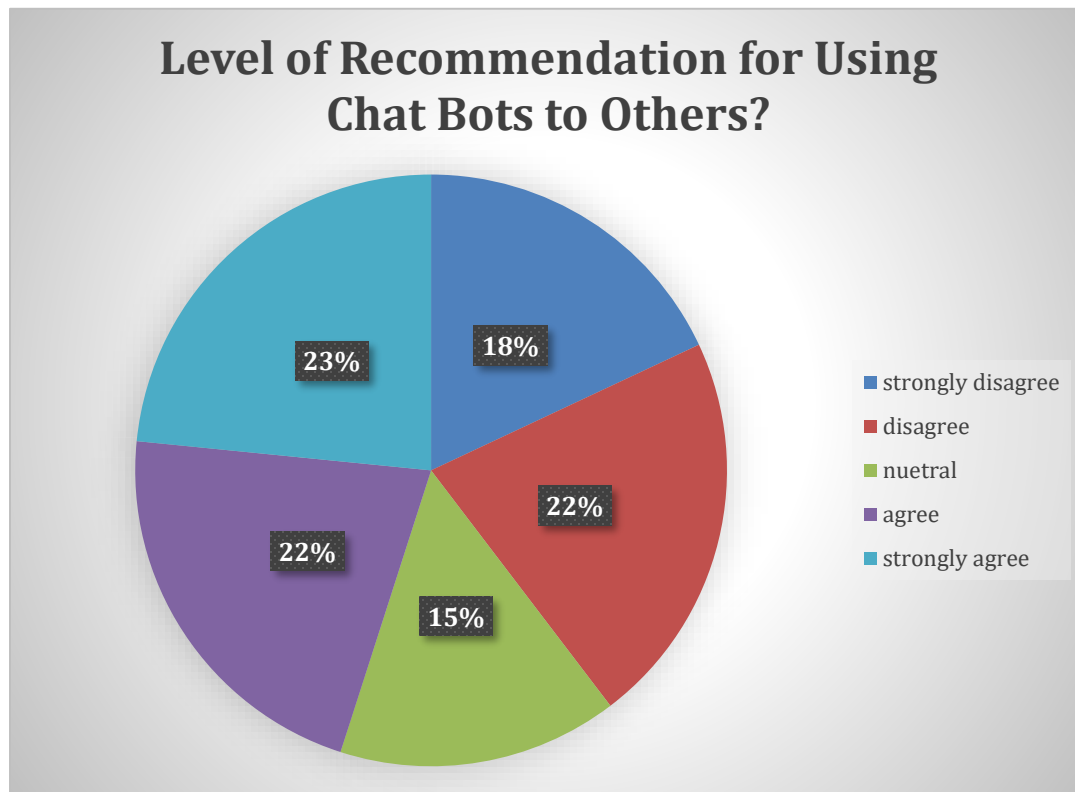


Figure :16 Shows the frequency table of the graph above
Collected from 111 respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	20	18.0	18.0	18.0
disagree	24	21.6	21.6	39.6
neutral	17	15.3	15.3	55.0
agree	24	21.6	21.6	76.6
strongly agree	26	23.4	23.4	100.0
Total	111	100.0	100.0	

Based on the data collected from 111 respondents, it was found that 48 individuals, constituting 44% of the sample, agreed or strongly with recommending chatbots to their acquaintances. Conversely, 44 individuals, accounting for 39.6% of the sample, disagreed or strongly disagreed with the same proposition.

In addition, 15.3% (equivalent to 17 participants) of the survey respondents expressed a neutral stance towards chatbots, signifying their lack of agreement or disagreement with the given statement. Notably, a considerable proportion, nearly 40% of the participants, expressed their reluctance to endorse chatbots to their acquaintances. This suggests there could be skepticism or lack of confidence toward chatbot technology among the wider populace. Further examination may be conducted to explore the underlying causes of this lack of confidence and potential strategies for mitigating it to enhance the reception and implementation of chatbots.

The data collected indicates that chatbots have emerged as a prevalent means for businesses to engage with their clientele. Improper implementation of chatbots may result in adverse customer experiences, reducing customer loyalty and tarnishing business reputation.

Table 17: The Chi-Square Test of age demographic and satisfaction rate Collected from 111 respondents

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	49.877 ^a	20	.000
Likelihood Ratio	59.437	20	.000
N of Valid Cases	111		

a. 21 cells (70.0%) have an expected count of less than 5. The minimum expected count is .38.

To undertake a more in-depth analysis of the data, a chi-square test was carried out to assess whether or not there is a statistically significant relationship between age and satisfaction levels. According to the findings of the chi-square test, there is a statistically significant correlation between one's age and one's degree of overall satisfaction (Pearson Chi-Square = 49.877, df = 20, $p < 0.001$). This suggests that there are age-related disparities in both the adoption rate of chatbots and the level of pleasure experienced by their users. It is important to note that the findings of the chi-square test demonstrated a significant relationship between age and levels of satisfaction with chatbots; however, this study does not necessarily imply that age is the cause of these levels of satisfaction. Additional research may be required to understand the underlying reasons for these

variations in adoption and contentment, as well as to develop particular techniques that can promote chatbot loyalty and customer satisfaction across a wide range of age groups.

According to the collected evidence, younger age groups are more likely to adopt chatbots and report being satisfied with them than older age groups are. This information can be put to use in the development of targeted strategies to promote chatbot adoption and satisfaction among consumers across a variety of age groups.

5. Conclusions and recommendations

According to the survey data, a significant proportion of the respondents (45.9%) reported having a negative experience with chatbots. The most frequently cited problem was the chatbot's inability to comprehend their queries. This underscores enterprises' need to guarantee that their chatbots are coded to precisely comprehend and construe user inquiries. Furthermore, the study revealed that 11.7% of participants experienced frustration, indicating the necessity for a chatbot design that prioritizes a good user experience to mitigate customer frustration.

Additionally, the data uncovered variations in the perceptions of chatbots among users from diverse nations. As an illustration, 57.9% of participants from Hungary reported the utilization of chatbots, whereas 87% of participants from the USA reported the same. The previous observation may indicate a heightened level of receptivity and acquaintance towards chatbots within the United States, potentially influencing the strategies and applications of chatbots in customer service operations for businesses operating within these regions.

Moreover, the primary incentive for individuals of all ages to utilize chatbots for customer support is the expeditious and convenient resolution of fundamental customer issues. The data obtained from the interviews suggests that older individuals tend to place a higher value on interpersonal communication. In contrast, specific younger individuals may exhibit a preference for conversing with chatbots as a means of circumventing social interaction. It is posited that potential variations in age cohorts' inclination toward chatbot interaction vis-à-vis human communication exist; however, additional research is required to corroborate this assertion.

Regarding recommendations, businesses should adopt a customer-centric approach in designing and implementing chatbots. It is imperative to ensure that the chatbot is designed with a user-centric approach, emphasizing ease of use and intuitive functionality. Additionally, it is crucial to program the chatbot with high accuracy in understanding and interpreting user requests. Furthermore, it is imperative for enterprises to consistently monitor and analyze customer feedback about their chatbots to pinpoint potential areas for enhancement (Ivanov & Webster, 2019). A crucial suggestion is to maximize the personalization of the chatbot encounter. It has been observed that chatbots that exhibit human-like characteristics and offer customized responses based on customers' preferences and prior interactions with the enterprise are more likely to elicit engagement from customers. Implementing machine learning algorithms facilitates the ability of

chatbots to acquire knowledge and adjust their responses according to customer behavior and feedback. Enterprises must acknowledge the cultural variances in the interpretations and utilization of chatbots, as this can significantly influence the efficacy of chatbot integration in diverse geographical locations (Rodríguez Cardona et al., 2021). It is recommended that corporations engage in research to gain a deeper comprehension of the demands and inclinations of their intended clientele and subsequently customize their chatbot approach.

Medical sector should be extra careful while applying its chatbots as if badly implemented chatbots and depending on their duty could cause health problems for the user which can lead to a law suit, it is important to note that if the company is international it is fundamental to provide language support systems to provide a smoother experience with foreigners, apply better servers if there is way too much load and if the chatbot is experiences delays from all the heavy online usage.

In terms of ROI, companies with a budget to spare should invest in having a chatbot, these days. We can find many companies or online services that can help you instantly even function the simplest chatbot, but it is fundamental to note that small business should rather wait on such an investment as being a small business could lead to financial loss with no gain as online traffic to the website could be low and such technology is not needed yet, but you will get there someday!

6. Summary

In this paper, we have gone through a journey together to gain a better understanding of chatbots, Beginning to understand what customer loyalty is and the drivers for past satisfied experiences, plus much more with the fundamental technology used today behind chatbots, which is the history of AI history, how they started by just asking questions based on your answer to now, very personalized with some even having their unique personalities related to a brand to help drive sales and interact in humor like conversations.

In this discussion, the impact of chatbots on customer satisfaction, loyalty, and trust were examined in different industries. Data from a survey of 111 respondents was analyzed who had interacted with chatbots in various sectors such as e-commerce, banking and finance, travel and hospitality, healthcare, retail, telecommunications, human resources, utilities, government, education, and other sectors. The survey responses were analyzed to answer three research questions. The first research question sought to determine user adoption and satisfaction differences across different age groups and demographics. The analysis revealed that younger people (under 30) were more likely to interact with chatbots, while older respondents (over 50) were less likely to do so. There were also differences in satisfaction levels across age groups, with younger respondents being more satisfied with chatbot interactions than older ones.

Chatbots have become influential tools in contemporary customer service, effectively connecting businesses with their customers. This study thoroughly explores the complex terrain of chatbot interactions, analyzing the subtle details that shape user experiences. The findings are persuasive, emphasizing the opportunities and obstacles encountered in incorporating chatbots across different industries and among varied population groups.

An essential finding of this study is that 45.9% of respondents reported experiencing unpleasant incidents. The revealed primary source of this pessimism arises from the chatbots' limited capacity to completely understand user inquiries, highlighting a crucial aspect that requires enhancement. The statement emphasizes the need for enterprises to allocate resources toward enhancing the artificial intelligence algorithms that support chatbots to guarantee a smooth comprehension of user intentions. Tackling this disparity in understanding is not solely about improving technology; it is about establishing trust. Establishing meaningful and good relationships is crucial to bridging the gap between users and making them feel understood and valued.

Moreover, the report provides insights into the fascinating differences in using chatbots worldwide. The significant disparity between the extensive acceptance rates in the United States (87%) and Hungary (57.9%) highlights the need for tailored approaches in each region. Chatbot installations by businesses should be customized according to regional attitudes and degrees of acceptance. Recognizing and adjusting cultural variations is crucial for successfully integrating chatbots, as these differences have a substantial impact. It is not solely about converting language but about comprehending cultural perceptions and expectations. Customization is crucial to ensure that chatbots integrate well with the cultural context of the locations they cater to.

Age-related discrepancies in chatbot preferences also arise as a vital element. Older consumers typically prioritize human communication, but younger users prefer the efficiency and ease of chatbots. This discrepancy requires customized methodologies. A universal approach must be revised in a context where user demographics exhibit significant variation. By acknowledging these discrepancies, organizations can develop chatbots that accommodate the distinct tastes of various age cohorts, augmenting user contentment and involvement.

The study's recommendations guide firms seeking to enhance their chatbot engagements. Implementing a user-centric strategy is fundamental. Chatbots should possess intuitive interfaces, be easy for users to navigate, and have a high level of accuracy in comprehending a wide range of user inquiries. Personalization is identified as a prominent theme. Chatbots should exhibit not liveness but activity by comprehending user preferences and adapting their responses accordingly. Machine learning algorithms are helpful in this situation since they allow chatbots to acquire knowledge and develop with user interactions.

The importance of continuous feedback analysis is emphasized as a crucial element in the process of enhancing chatbot performance. User feedback is a valuable source of information, highlighting places where unhappiness or discontent exists. Conducting a proactive analysis of this feedback enables organizations to promptly attend to user concerns, thus assuring a favorable user experience and strengthening user confidence. Furthermore, the research emphasizes the importance of explicit guidance and assistance, particularly for elderly individuals. Thorough training and coaching can significantly boost user confidence, reducing difficulties arising from unfamiliarity with chatbot interactions. Businesses must allocate resources to technological infrastructure and user education, guaranteeing that users feel empowered and well-informed throughout their interactions with chatbots.

Ultimately, this study emphasizes the need for organizations to approach chatbot interactions with sensitivity, agility, and an unwavering dedication to user pleasure. The chatbot era encompasses more than technology progress; it revolves around cultivating significant connections and improving user experiences. By adopting the suggestions and comprehending the complexities emphasized in this research, firms can effectively navigate the intricate landscape of chatbot interactions, guaranteeing that each user engagement exemplifies outstanding customer service. The future of customer-business interactions is arrived, characterized by tailored, efficient, and deeply human experiences.

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Appendix

Questionnaire

Dear respondents, My name is Maher Rawashdeh, during recent years the evolution of chatbots has been astonishing, and it catches my attention to write my thesis about it. I am gathering information regarding your experience with chatbots to see if it helped you to put more trust, to increase your loyalty, and if it drives sales up to any brand of your choosing to assess if it was a negative or a positive experience. Thank you very much for your response.

1. Have you ever used chatbots?

Mark only one oval.

1. Yes
2. No
3. Maybe

2. Have you used chatbots to make a purchase?

Mark only one oval.

- 1 Yes
- 2 No
- Maybe

3. Was your interaction with chatbots positive or negative?

Mark only one oval.

- 1 positive
- 2 negative
- 3 I don't Know

4. What was the positive experience?

Check all that apply.

- 1 Faster response
- 2 Accurate response
- 3 Easy checkout
- 4 It supports my language
- 5 Easy communication
- 6 Other

5. What was the negative experience

Check all that apply.

- 1 Chatbot did not understand me
- 2 Inaccurate response
- 3 Became frustrated

- 4 Did not solve my dispute
- 5 Got my information wrong
- 6 Other

6. Have you ever stopped using a chatbot because of a negative experience?

Mark only one oval.

- 1 Yes
- 2 No
- 3 Little bit

7. How often do you use chatbots for customer service or support inquiries?

Mark only one oval.

- 1 Every day
- 2 Once a week
- 3 Once month
- 4 Less than once a month
- 5 Never

8. Do you believe that the quality of the chatbot affects your perception of the brand?

Mark only one oval.

- 1 Yes
- 2 No
- 3 Maybe

9. What aspects of chatbots do you find most appealing?

Check all that apply.

- 1 Convenience
- 2 24/7 availability
- 3 Quick response times
- 4 Personalized interactions
- 5 Accurate response
- 6 Other

10. What are the non appealing aspects of chatbots?

Check all that apply.

- 1 Misunderstanding of user queries
- 2 Limited ability to handle complex inquiries
- 4 Difficulty in resolving complaints
- 5 Long wait times or delays in responses
- 6 lacking in human-like conversation
- 7 Difficulty understanding chatbot system

- 8 Privacy concerns or data security issues
- 9 Inability to escalate to a human agent when needed
- 10 Language barriers

11. In which sector(s) have you interacted with chatbots?

Check all that apply.

- 1 E-commerce
- 2 Banking and Finance
- 3 Travel and Hospitality
- 4 Healthcare
- 5 Retail
- 6 Telecommunications
- 7 Human Resources
- 9 Utilities
- 10 Government
- 11 Education
- 12 Other

12. Please fill the following statements with describing how you feel towards chatbots .

(1 Strongly disagree) (5 Strongly agree)

*

- 1 I am satisfied with chatbots
- 2 Chatbots made me see a Brand in more positive light Because of the fast response time they offer
- 3 Chatbots helped me build trust with the brand for providing me with good information
- 4 I would buy again because of the fast check out provided by chatbots
- 5 I would recommend chatbots to my friends
- 6 The chatbot response was human-like
- 7 The chatbot understood my question
- 8 I think that chatbots are the new approach for companies
- 9 I like to speak with a human representative more than a chatbot
- 10 I see that most chatbots provide accurate responses
- 11 I would make another purchase in the future using chatbots
- 12 I would recommend a brand based on the high quality chatbot customer support they offer
- 13 I have used a chatbot with a unique personality and it affected my purchase decision
- 14 Chatbots have influenced me to make a purchase
- 15 I got frustrated while using chatbots because it got my information wrong and inaccurate response
- 16 The negative experience made me dislike the brand
- 1 I am satisfied with chatbots
- 2 Chatbots made me see a Brand in more positive light Because of the fast response time they offer
- 3 Chatbots helped me build trust with the brand for providing me with good information

- 4 I would buy again because of the fast check out provided by chatbots
- 5 I would recommend chatbots to my friends
- 6 The chatbot response was human-like
- 7 The chatbot understood my question
- 8 I think that chatbots are the new approach for companies
- 9 I like to speak with a human representative more than a chatbot
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- 11 I would make another purchase in the future using chatbots
- 12 I would recommend a brand based on the high quality chatbot customer support they offer
- 13 I have used a chatbot with a unique personality and it affected my purchase decision
- 14 Chatbots have influenced me to make a purchase
- 15 I got frustrated while using chatbots because it got my information wrong and inaccurate response
- 16 The negative experience made me dislike the brand

13. How many hours a day do you use internet?

Mark only one oval.

1. Less than 1 hour
- 2 1-2 hours
- 3 3-4 hours
- 4 5-6 hours
- 5 7-8 hours
- 6 More than 8 hours

14. What kind of device do you use?

Mark only one oval.

- 1 Smartphone
- 2 Laptop
- 3 Desktop computer
- 4 Tablet
- 5 Smart TV
- 6 Gaming console
- 7 Smart home devices

15. What is your age? *

Mark only one oval.

1. 18-24
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. 65 or above

16. What is your gender? *

Mark only one oval.

1. Male
2. Female

17. What is your highest level of education?

Mark only one oval.

1. High school or equivalent
2. Associate's degree
3. Bachelor's degree
3. Master's degree
4. Doctorate or professional degree

18. Employment status: What is your current employment status? *

Mark only one oval.

1. Employed full-time
2. Employed part-time
3. Self-employed
4. Unemployed
5. Student
6. Retired

19. What is your country of residence? *

Mark only one oval.

1. Hungary
2. USA


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