

UNIVERSIDADE FEDERAL DE SÃO CARLOS
CENTRO DE CIÊNCIAS EM GESTÃO E TECNOLOGIA – CCGT
PROGRAMA DE PÓS-GRADUAÇÃO EM ADMINISTRAÇÃO

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**THE INFLUENCE OF CHATGPT ON CUSTOMER EXPERIENCE:
A STUDY ABOUT RISKS AND OPPORTUNITIES**

Sorocaba

2024

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Dissertação apresentada ao Programa de Pós-Graduação em Administração para obtenção do título de Mestre em Administração.

Orientação: Prof. Dr. Ricardo Coser Mergulhão

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RESUME

GUIMARÃES, S. C. **The influence of ChatGPT on customer experience: a study about risks and opportunities.** 2024. Dissertação (Mestrado em Engenharia de Produção) – Universidade Federal de São Carlos, campus Sorocaba, Sorocaba, 2024.

Objetivos: O ChatGPT foi desenvolvido com uma habilidade fantástica de se comunicar com humanos sobre vários (ou todos) assuntos, atuando como um bot único e inteligente. Diversas áreas têm utilizado essa Inteligência Artificial (IA) para melhorar seus processos, reduzindo custos, otimizando etapas e aumentando a produtividade, bem como a ocorrência. Este estudo tem como objetivo pesquisar, por meio de Revisão de Literatura, como o ChatGPT pode impactar a jornada de Experiência do Cliente, positiva e negativamente à luz da literatura. *Métodos:* Foi realizada uma análise qualitativa de dados de avaliações online e uma busca em repositórios de artigos, como Scopus e Web of Science (WOS). Além disso, este estudo inclui uma entrevista com o ChatGPT, que visa entender na prática como ele funciona, sendo representado como uma co-orientação deste estudo, trazendo informações relevantes sobre si mesmo. *Conclusão:* No geral, a inteligência artificial pode ser uma ferramenta eficaz para melhorar a clareza, o estilo, o serviço, a assertividade, o custo e o processo. Essas melhorias ajudam a área de Customer Experience a oferecer mais qualidade no atendimento, conseguindo conquistar clientes como embaixadores da marca.

Palavras-chave: ChatGPT; Inteligência Artificial; Experiência do Cliente.

ABSTRACT

GUIMARÃES, S. C. **The influence of ChatGPT on customer experience: a study about risks and opportunities.** 2024. Dissertation (Master's degree in Production Engineering) – Universidade Federal de São Carlos, campus Sorocaba, Sorocaba, 2024.

Objectives: The ChatGPT went into development with a efficient ability to communicate with humans about several (or all) subjects as a unique and smart bot in actuality. Several areas have used this Artificial Intelligence (AI) to improve their process, reducing cost, optimizing steps, and gaining productivity and occurrence. This study an aim to search through the Literature Review how the ChatGPT can impact the Customer Experience journey positively and negatively according to the literature. *Methods:* A qualitative analysis of online review data and a search in repositories of articles, such as Scopus and Web of Science (WOS) were done. Additionally, this study includes an interview with ChatGPT which aims at understanding practical how it works so it is represented as a co-orientation of this study bringing some relevant information about oneself. *Conclusion:* Overall, artificial intelligence can be an effective tool to improve the clarity, style, service, assertiveness, cost, and process. This improvements helps the Customer Experience area to offer more quality in their service being able to win customers as brand ambassadors

Keywords: ChatGPT; Artificial Intelligence; Customer Experience.

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1 INTRODUCTION

Customer Experience also called “CX” has become a hot topic in the competitive business world today and several topics toward Artificial Intelligence, refereed also AI. As an advanced and disruptive process, this field of work and recent field of study related to customer service after the purchase and acquisition phases of a product uses AI to gain speed in service, assertiveness in approaching customers, and in collecting important data about them and cost reduction.

Artificial Intelligence has been described as a part of computational science dedicated to the development of intelligent machines, capable of thinking and acting like humans. In this way, AI learns from its environment and the information it obtains, and then, uses this learning to make optimized decisions. There are several types of AI, including machine learning, which is capable of learning from data and formulating predictions (Ruksakulpiwat; Kumar; Ajibade, 2023).

As complemented by Giglio and Costa (2023), this ability of AI to learn and make decisions or make predictions based on real data, and its capacity of be trained to recognize data patterns, is a way for algorithms and computer programs to imitate human intelligence. Therefore, AI can be responsible for carrying out tasks that, normally, could only be carried out by humans as they require reasoning.

However, some practitioners have been concerned that the overwhelming employment of robots in service encounters may diminish humanist hospitality and customer experience (Kim *et al.*, 2021). In this study, examining part of this scope related to the impact of AI in the customer experience field of study will present the perspective of this technology throughout The ChatGPT - software built recently and with a huge global impact.

ChatGPT, an of the recent models from AI, is a robot for fast and effective communication with the reader/researcher which enables speed and assertiveness in responses, unlike chats and robots in this interaction category.

Compared to other AI models, ChatGPT has the advantage of being able to generate human-like responses that are more natural and fluid. This makes it a valuable tool for applications that require the ability to generate human-like text, such as chatbots or virtual assistants. Otherwise, it also has some limitations, such as the need for large amounts of data and computational resources to train and run the model (Thurzo *et al.*, 2023)

The ChatGPT can contribute directly to the advancement of Artificial Intelligence in environments such as companies, schools and universities, enhancing aspects such as

services, creativity, among others. AI tools, together with robotic process automation (RPA) technologies, capture customer messages and letters, identify them, recognize them, extract the necessary and useful information about the customer and his request, verify the received data with those already available in the company and then transfer them for processing and making decisions on a specific question (Dolganova, 2021).

Through the literature review, this study aims to link these technologies (AI and, consequently, ChatGPT) with customer experience strategies. Studies about AI and ChatGPT applications are analyzed to answer and create a correlation to follow research question: How can ChatGPT positively and negatively impact the Customer Success process in light of the literature?

To show the methodology research, this study introduces the concept and discussions above mentioned through a literature review extracted from the collection of journals presented from the perspective exploring by Prisma's flow diagram.

Using Prisma's diagram, which shows narrowly each different phase of a systematic review (Petza *et al.*, 2023), as well as presents statistics extracted from secondary data such as websites and specialized magazines through an integrative review.

As part of this study and to understand this experience deeply the Chats GPT contributes by bringing answers about itself with practical contributions in an interview as part of the co-participative model. This way, it is possible to understand how it works, writing, and integrity with users. Moreover, by analyzing the questions it is possible to understand more how this latter AI Tool can add to customer experience.

Additionally, was asked to ChatGPT about how it defines itself and how it can improve customer service (Holzinger *et al.*, 2023). There is no question that AI ethics, fairness, and trust are relevant research topics. Hence, some as sub-research question were elaborate for being to inserted in this paper.

1. How the ChatGPT could enhance the entire journey-building process as well as customer interaction?
2. How ChatGPT can impact the customer experience according to positive and negative perspectives?
3. Could ChatGPT replace a customer experience manager inside the company?
4. What issues could ChatGPT to cause in customer service from a company's perspective?

2 THEORETICAL FRAMEWORK

2.1 ARTIFICIAL INTELLIGENCE (AI) AND CHATGPT

According to Sallam (2023):

Artificial intelligence (AI) can be defined as the multidisciplinary approach of computer science and linguistics that aspires to create machines capable of performing tasks that normally require human intelligence. These tasks include the ability to learn, adapt, rationalize, understand, and to fathom abstract concepts as well as the reactivity to complex human attributes such as attention, emotion, creativity, etc. (Sallam, 2023, p. 01).

Zhang and Tur (2024) complement by saying that:

Artificial Intelligence (AI) has made significant advances over the past several years and has become more prevalent in numerous facets of our life. AI represents the capacity of computer systems to carry out tasks that usually involve human intelligence, such as learning, reasoning, problem-solving, and making decisions. It entails the creation of computational models and algorithms that allow machines to process and analyse data, identify patterns, and make predictions or decisions according to the available information (Zhang; Tur, 2024, p. 03).

AI also involves the development of algorithms and computer programs that can learn from and make predictions or decisions based on real-world data, mimicking human intelligence. Furthermore, AI systems can be trained to recognize data patterns, make predictions, and learn from experience. AI can thus perform tasks that typically require human-like reasoning and decision-making.

Hence, Watrianthos, Ahamad and Muskhir (2023, p. 237) points that: “AI strives to create intelligent machines that can perform tasks that typically require human cognition. A major area within AI is machine learning, which develops algorithms capable of learning from data to make predictions”.

It is important to emphasize at the very beginning that all the successful AI we are describing today relies entirely on digital technology to function. Digitalization is therefore the very first step towards any AI application (Holzinger *et al.*, 2023). In many cases, AI systems are integrated with other digital technologies such as sensors, actors (cyber-physical

systems (CPS), often just called robots), and technology to enable the automation of tasks and the collection and analysis of data.

Because of this, AI, which is a simulation of human intelligence into machines, has already assumed an essential role in daily life, especially in many companies with a focus on technology and some situations in finance (Hirosawa *et al.*, 2023).

About the advances provided by the development of AI Zhang and Tur (2024) pointed that:

Artificial Intelligence (AI) has made significant advances over the past several years and has become more prevalent in numerous facets of our life. AI represents the capacity of computer systems to carry out tasks that usually involve human intelligence, such as learning, reasoning, problem-solving, and making decisions. It entails the creation of computational models and algorithms that allow machines to process and analyse data, identify patterns, and make predictions or decisions according to the available information (Zhang; Tur, 2024, p. 03).

If companies have enough biometric data, external data processing systems can intervene in all their wishes, decisions, and opinions. They will be able to know exactly who you are (Hirosawa *et al.*, 2023). One of the most notable examples of AI models is the Generative Pretrained Transformer also known as GPT.

Recently, the world was surprised at the creation and the impact of the technology of ChatGPT (Mann, 2023). The ChatGPT is the youngest of Artificial Intelligence. It presents the ability to perform a wide range of language-based tasks and how one utilizes this technology to function as a sophisticated chatbot.

ChatGPT was built by OpenAI, a nonprofit San Francisco-based AI research and deployment company, whose mission is to ensure that artificial general intelligence benefits all of humanity. Open AI was also released, which is an AI art generator (Hirosawa *et al.*, 2023).

It was launched at the end of 2022 and is one of the most effective bots when it comes to human-to-chat communication – ChatGPT (Lund; Wang, 2023). The tool is (still) available free of charge, user-friendly, and with high speed in the return of answers that are in text and also in another version, available for images.

ChatGPT-3, an AI chatbot developed by the Open AI foundation, is an application based on the latest version of GPT. It can create surprisingly intelligent-sounding texts in response to user queries (Mann, 2023).

According to Tiwari *et al.* (2023):

ChatGPT is a 175 billion-variable natural language recognition framework that employs deep learning techniques to produce responses that resemble those of people. It can handle a variety of themes because it is a dynamic interactive agent, making it suitable for chatbots, customer care, and other purposes (Tiwari *et al.*, 2023, p. 01).

ChatGPT can produce a wide range of written and unpublished content, such as formal essays and literary, journalistic, and even scientific manuscripts. Remarkably, the texts are often characterized by a high level of originality, coherence between ideas, and furthering of the existing scientific understanding. Moreover, ChatGPT can assist in determining optimal statistical methods for data analysis and transcribing the codes for use in R or Python (Quintans-Júnior *et al.*, 2023).

Furthermore, considering that ChatGPT was generated by fine-tuning the GPT-3.5 model from early 2022 with supervised and reinforcement learning, the quality of the chatbot-generated content can only be improved with additional training and optimization (Homolak, 2023), constantly.

In summary, ChatGPT's underlying AI system is pre-trained on vast amounts of text data from the Internet that enables it to learn the patterns and structures of languages. Therefore, it learns how to generate coherent and contextually appropriate responses to a wide range of text prompts (Costa *et al.*, 2023).

2.1.1 The creation and architecture of the ChatGPT

Since its creation, the ChatGPT has been developed each time more, step by step, being several tests, refinement, and models. News algorithms and vast amounts of data with background extracted from the internet, books, and deep searches are used to incorporate each version of the ChatGPT improving this tool. There have been several versions of the ChatGPT since its initial release in 2019. A report by Elixes Naurez, published in February 2023, on the website *OpenI ChatGPT Guide*, presents a brief overview of data and a timeline of the ChatGPT journey. According to this report:

ChatGPT-1: The first version of ChatGPT was released in 2019. It was based on the GPT-2 language model, which had been trained on a large corpus of text data. ChatGPT-1 was capable of holding basic conversations on a wide range of topics (Naurez, 2023).

ChatGPT-2: In 2020, OpenAI released ChatGPT-2, which was an improved version of the chatbot. It was based on the more advanced GPT-3 language model and had been trained

on a larger corpus of data. ChatGPT-2 was capable of holding more complex conversations and providing more accurate responses to user queries (Naurez, 2023).

ChatGPT-3: The most recent and advanced version of ChatGPT is ChatGPT-3, which was released in 2020. It is based on the GPT-3 language model, which has been trained on a massive corpus of text data (Naurez, 2023).

ChatGPT-3 is capable of holding highly sophisticated and nuanced conversations on a wide range of topics. It can also generate human-like text and provide users with personalized responses based on their input (Naurez, 2023).

Each version of ChatGPT represents a significant step forward in the development of artificial intelligence and natural language processing. Following each release, the chatbot has become more sophisticated, intelligent, and capable of providing users with valuable information, guidance, and new support to users. In Figure 1 demonstrate the ChatGPT’s Lifetime.

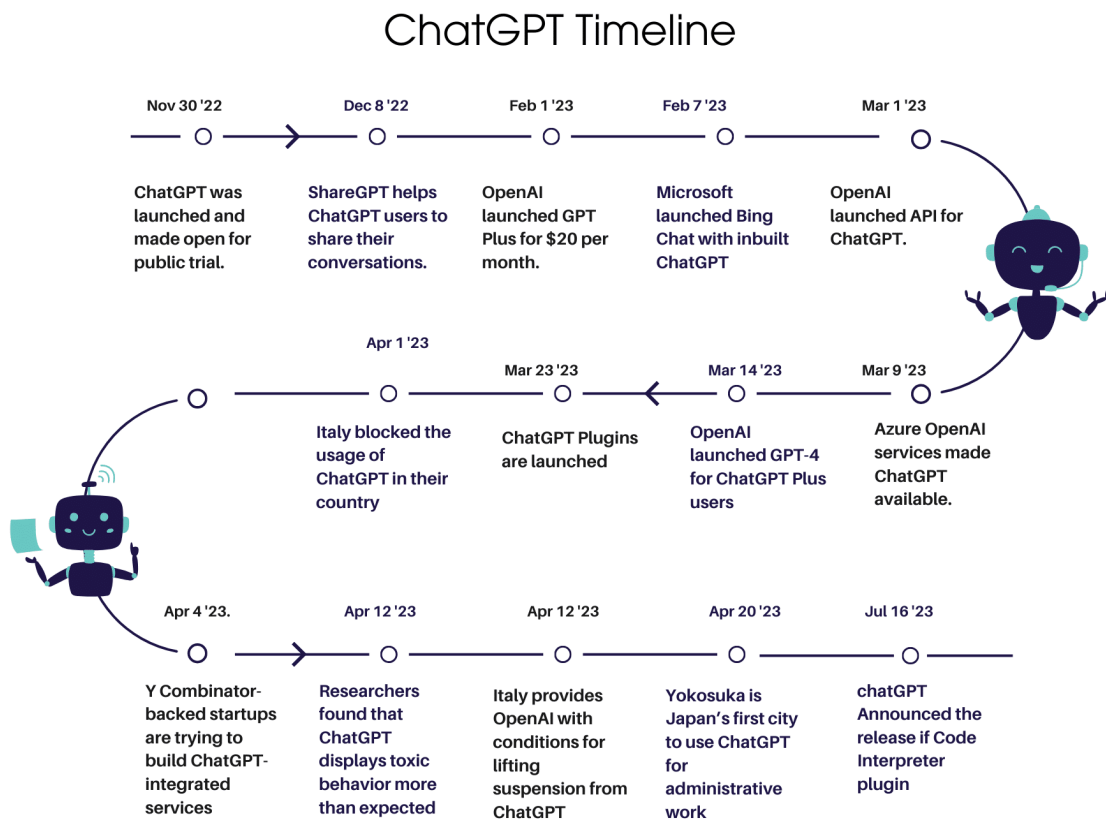


Figure 1 - ChatGPT's timeline
Source: Singh (2024)

The fastest platform that won users was ChatGPT, according to data from the website *Digital Information World*. Differently, it was widespread that social media platforms/services such as Instagram, Spotify, and Dropbox have also achieved the one million user mark, but it took them a greater time to do it.

As shown in Table 1, Instagram achieved this major milestone in just 2.5 months. Similarly, platforms, such as Spotify and Dropbox achieved the one million user spot in 5 and 7 months, respectively represented graphically (Singh, 2024).

Table 1 - ChatGPT Numbers of Users

| Platform | Year of Launch | Time To Reach 1 Million Users. |
|-------------------|-----------------------|---------------------------------------|
| Instagram Threads | 2023 | 1 hour |
| ChatGPT | 2022 | 5 days |
| Instagram. | 2010 | 2 months |
| Spotify | 2008 | 5 months |
| Dropbox | 2008 | 7 months |
| Facebook | 2004 | 10 months |
| FourSquare | 2009 | 13 months |
| Twitter | 2006 | 2 years |
| Airbnb | 2008 | 2.5 years |
| Kickstarter | 2009 | 2.5 years |
| Netflix | 1999 | 3.5 years |

Source: Adapted by Singh (2024)

The open AI chatbot gained more than 1 million users in the first few days after its launch and 100 million in the first 2 months, positioning itself as the fastest-growing consumer application in many subjects (Homolak, 2023).

The superiority of ChatGPT compared to its GPT-based predecessors can be linked to its ability to respond to multiple languages generating refined and highly sophisticated responses based on advanced modeling.

Despite its popularity and usefulness, ChatGPT has raised concerns among researchers and practitioners due to its potential to generate content that, although seemingly reasonable, lacks factual accuracy (Borji, 2023).

As can be seen in Table 2, the highest engagement was recorded in **May**, when the website had **1.9 billion visits**. Over 88% of ChatGPT's traffic comes from direct sources. This

means people are directly typing “ChatGPT” on their search engines and entering the official website (Singh, 2024).

Table 2 - ChatGPT’s website visits over time

| Month | Monthly ChatGPT Website Visits. |
|----------------|--|
| November 2023 | 1.7 billion |
| October 2023 | 1.7 billion |
| September 2023 | 1.5 billion |
| August 2023 | 1.4 billion |
| July 2023 | 1.5 billion |
| June 2023 | 1.6 billion |
| May 2023 | 1.9 billion |
| April 2023 | 1.7 billion |
| March 2023 | 1.6 billion |
| February 2023 | 1 billion |
| January 2023 | 616 million |
| December 2022 | 266 million |
| November 2022 | 152.7 million |

Source: Adapted by Singh (2024)

2.2 CUSTOMER EXPERIENCE AS A CUSTOMER JOURNEY

Customer experience is the internal and subjective response customers have to any direct or indirect contact with a company. Direct contact generally occurs in the course of purchase, use, and service and is usually initiated by the customer. Indirect contact most often involves unplanned encounters with representations of a company’s products, services, or brands and takes the form of word-of-mouth recommendations or criticisms, advertising, news reports, reviews, and so forth (Meyer; Schwager, 2007).

About Customer Experience Hilton *et al.* (2020, p. 03) said: “Customer Experience refers to the evaluation and design of the customer journey as the set of customer experiences and reactions to the selling firm's offerings and touchpoints”. In addition, they expanded that Customer Experience builds on the foundation of Customer Relationship Management: “customer touchpoint data enables product and service design teams to measure customers' reactions and reactively improve products and services” (Hilton *et al.*, 2020, p. 03).

Customer experience also refers to individuals' interpretations of and responses to incite as a result of encountering, undergoing, or living through things (Meyer; Schwager, 2007). It relates to sensory or participative consumption (Adhikari; Bhattacharya, 2015) and can occur through observing, hearing, tasting, touching, smelling, or directly engaging in activities. The formed experience leaves customers with positive or negative memories, resulting in either loyalty or abandonment behavior (Mathayomchan; Taecharungroj, 2020).

Mehta, Steinman and Murphy (2016) points out that:

Customer success is ultimately about loyalty. Every company wants loyal customers. Recurring revenue businesses, such as Salesforce, need loyal customers. Acquiring customers is expensive. Really expensive. That makes keeping them a necessity, no matter how big your market might be. It's simply a losing battle to try to out-acquire a high churn rate (Mehta; Steinman; Murphy, 2016, p. 06).

2.2.1 Understanding the Customer Journey and their Touchpoints

Huang *et al.* (2021), in a Forbes Magazine article, explore the customer experience journey map and the many steps within it. Due to it, the tasks can be accomplished by using traditional self-service technologies such as touch screens, and customer engagement with service robots augments frontline services with interactivity and enjoyment. The Forbes Magazine article presents the mean elements of a Customer Journey Map.

1. First step: Create a customer persona to understand the customer's experience until it is essential to who your customer is.

2. Second step: This phase is the general stage of decision-making and purchasing the customer is in. You can break down buying stages in several ways, but here's a basic outline:

- Awareness: the customer realizes they have a need, problem, or opportunity.
- Research: the customer research solutions to determine whether to make a purchase and evaluate options.
- Consideration: the customer decides they'll purchase to address their need, and they narrow down their options.
- Purchase: the customer chooses a solution and buys it.
- Support: the customer uses the product or service, engages with the company, and decides whether to purchase again.
- Touchpoints: touchpoints are every interaction the customer has with your brand throughout the buying journey. Phases may each include several touchpoints. The

touchpoints of a customer's journey depend on the approach to marketing, sales, product, and customer service.

The touchpoint might include things like marketing collateral, like posters, stickers, billboards, flyers, commercials or display ads, physical properties, including storefront or office space digital properties. It can include website and social media page interactions with the staff of companies, such as cashiers, customer service reps, and sales reps, and purchase experience.

Any post-purchase follow-up from the company, like an email or phone call ongoing customer support renewal, or cancellation of service. The customer journey map planning is shown in the Figure 2.



Figure 2 - Customer Journey Map – 2023 version
Source: Ray (2023)

The customer experience journey already is represented on a map and in some steps this journey is possible to find some software and technology tools to interact with the customers such as Zendesk, Chatbots, and CRMs (Customer Relationship Managers).

Using AI technologies when interacting with customers provides significant economic potential, but requires solving problems with data security, transparency of algorithms for machine behavior, and trust in such tools on the customer side.

2.2.2 The effects of artificial intelligence on customer experience

According to Sallam (2023):

The versatility of human intelligence (HI) compared to AI is related to its biological evolutionary history, adaptability, creativity, the ability of emotional intelligence, and the ability to understand complex abstract concepts. However, HI-AI cooperation can be beneficial if an accurate and reliable output of AI is ensured (Sallam, 2023, p. 02).

The determination of an individual trajectory of interaction with a client can also be implemented using AI systems, which are based on natural language processing and machine learning technologies (Dolganova, 2021).

Customer experience encompasses every aspect of a company's offering—the quality of customer care, of course, but also advertising, packaging, product and service features, ease of use, and reliability (Meyer; Schwager, 2007).

Dolganova (2021) also affirms that empathy and personalization are other important aspects of a positive customer experience and increased customer loyalty, which are difficult to achieve with artificial intelligence technologies.

Among the tasks most frequently implemented with the support of AI, one can single out the management of incoming content, the implementation of simple sales processes, the analysis of information about the client and the formation of personalized offers for him (Dolganova, 2021).

From the perspective of Marinova *et al.* (2017), chats and bots improve efficiency and effectiveness by substituting for and complementing frontline employees through technology-mediated learning, which makes them critical for advancing frontline experiences in service. Furthermore, “Chatbots are interactive conversational agents that can engage in dialogue with human users. Natural language processing and machine learning algorithms allow chatbots to understand user input and formulate relevant responses” (Watrianthos; Ahmad; Muskhir, 2023, p. 237).

2.2.3 Customer Service & Bot support

For a more expressive customer experience, he can experience and receive verbal and non-verbal communication from what he is purchasing. Different tools of customer management can contribute to increasing the knowledge about clients around one company. It

is important to have an overview of customer representatives' performance and analyze data to offer them appropriate products and more personalized service to their lifestyle.

The various variables relating to cognitive and affective experiences demonstrate at least three elements of value that service robots bring to customers (Figure 3): functional value (e.g., utility), emotional value (e.g., enjoyment and novelty), and social interaction value (e.g., interactivity and courtesy). The ubiquity of emotional value (Luan; Lin; Li, 2023) assumes that the value of service robots in the hotel context is currently limited to functional elements.



Figure 3 - Customer Experience & Service Robots Invitations
Source: adapted by Huang *et al.* (2021)

There are many solutions and ways to follow and know the customers more deeply. The most sophisticated solutions for search insights take advantage of the fine-grained offers of a platform for customer service hosted in the cloud, also called Zendesk between another's options for solutions in the customer journey.

Service robots can enhance the value of the service experience through support (supporting employees), substitution (replacing employees) (Huang *et al.*, 2021), differentiation (automation for novelty), improvement (automation for better products), and upskilling (automation for better jobs).

Service robots demonstrate a clear advantage over human employees in performing repetitive tasks and have various functional benefits, such as 24/7 availability for guests, efficiency, and quality control (Huang *et al.*, 2021).

2.2.4 How ChatGPT can impact the customer experience

It is important to emphasize at the very beginning that all the successful AI we are describing today relies entirely on digital technology to function. Digitalization is, therefore, the very first step toward any AI application (Holzinger *et al.*, 2023).

In many cases, AI systems are integrated with other digital technologies such as sensors, actors (cyber-physical systems (CPS), often just called robots), and technology to enable the automation of tasks and the collection and analysis of data (Holzinger *et al.*, 2023).

According to Giglio and Costa (2023):

ChatGPT works with prompts and knowing some of them as related to scientific writing may be especially useful to maximize its output toward a desired goal. For instance, before loading the text of a paper or a section of it to ChatGPT within quotation marks, we can ask the AI program to proceed with several tasks through prompts that we type in the chatbot window. For example, we can ask ChatGPT to summarize the following paper ‘paste the text of the paper here’ (Giglio; Costa, 2023, p. 03).

Although it was created recently, the ChatGPT has friendly usability and can be adapted to the routine of a company for different areas. Starting our tests of usability as part of this article were asked: How the ChatGPT could revolutionize the entire journey-building process as well as customer interaction?

The ChatGPT contributes with its point of view and, the answers provided, presents benefits applied empirically, as shown below:

About 24/7 availability, was said: “*GPT chat can be programmed to operate 24/7, providing customers with the option to get answers to their queries or concerns at any time of the day, regardless of whether or not customer service agents are available. This can improve customer satisfaction by providing a faster and more convenient way for customers to get help*” (GTP, 2023).

In the matter of personalized responses, it said: “*GPT chat can be trained to provide personalized responses to customers based on their previous interactions with the company. This can create a more positive customer experience by showing customers that the company values their business and cares about their needs*” (GTP, 2023).

Relating to Quick Response Time, it was pointed that: *“GPT chat can provide immediate responses to customer inquiries, reducing response times and increasing efficiency. This can help to improve customer satisfaction by ensuring that customers receive timely and accurate information”* (GTP, 2023).

And concerning the Increased Productivity: *“GPT chat can handle a large number of customer inquiries simultaneously, freeing up customer service agents to handle more complex issues. This can help to increase productivity within the company by reducing the workload on customer service agents”* (GTP, 2023).

3 RESEARCH METHODOLOGY

This study was conducted in two stages, separated by different years, namely, 2023 and 2024. With this time gap between the two searches, an increase in publications on topics related to ChatGPT can be observed. This increase in publications is a result of the evolution and popularization of ChatGPT following its launch at the end of 2022.

In accordance with Imran and Almusharraf (2023, p. 01): “Since its release in November 2022, ChatGPT has become the most debated topic among scholars and is also being used by many users from different fields. Many articles, reviews, blogs, and opinion essays have been published in which the potential role of ChatGPT as a writing assistant is discussed”.

The process of systematic review and its associated procedure, meta-analysis, has been developed over the last decade and now plays a major role in evidence-based practices. Whereas systematic review identifies key scientific contributions to a field or question, metaanalysis offers a statistical procedure for synthesizing findings in order to obtain overall reliability unavailable from any single study alone (Tranfield; Denyer; Smart, 2003).

This qualitative study was extracted from a literature review. Looking to achieve the research aim, an integrative review of information was collected from articles found in the repositories of research, especially, the Web of Science (WOS - Clarivate) and Scopus (Elsevier) in different years, mentioned previously. The first one was collected by 2023, in the first semester from March to June. The second one was collected exactly one year later, by 2024 in the same couple of months using the same guide.

Scopus and WOS databases are the most commonly used database for bibliometric studies in management and it has provided bibliographic data such as indexed documents, including article title, article type, authors, authors' institutional affiliation, key-words,

abstract, number of citations, journal name, publisher's name and address, year of publication, volume and issue number, and a list of cited references is available for analysis (Zupic; Cater, 2015).

However, as this subject still is an incipient subject in the academic environment, a considerable number of scientific articles were not found in the collections of journals in the repositories above mentioned which naturally makes more difficult to build a more appropriate and robust literature review. Hence, the search was split in 2 times in different years.

Complementing this search, it was necessary to extract secondary data from specialized websites, magazines, and posts in blogs. It was done because there are many limitations in official articles due to the small amount available in repositories, mainly when is crucial to analyse some data statistics.

In summary, this review has been built focused on 3 phases: on the phase 1 of the research design, are described the article search strategies like the Boolean Operators, the databases and the keyword used; on the phase 2, is discusses how the process of inclusion and exclusion of articles in the systematic review took place; and on the phase 3, finally, we present the prism review flowchart, where the entire process described in the previous topics is summarized.

3.1 PHASE 1 RESEARCH DESIGN

Boolean Operators: Articles related to the ChatGPT were searched in the SCOPUS database and 20 related articles were found using the keyword “ChatGPT” OR “ChatGPT” and “Artificial Intelligence” using the boolean operators “AND” and “OR”. After reading the title, abstract, and introduction, 13 articles were selected for the development of this study. Using the Keyword expression “Customer Experience” AND “ChatGPT” OR “ChatGPT” not found articles.

Articles related to the ChatGPT were searched in the SCOPUS database and 20 related articles were found using the keyword “ChatGPT” OR “ChatGPT” and “Artificial Intelligence” using the boolean operators “AND” and “OR”. After reading the title, abstract, and introduction, 13 articles were selected for the development of this study. Using the Keyword expression “Customer Experience” AND “ChatGPT” OR “ChatGPT” not found articles.

To complete the first stage of searches available in journal databases, articles were also searched in the Web of Science (WOS) database. Initially, 41 articles were found, with the same expressions used in the Scopus database as: “ChatGPT” OR “ChatGPT” and Artificial Intelligence using the Boolean operators “AND” and “OR”.

In addition, the keyword “customer experience” was used along with the first expressions mentioned above. In the second step, a simple filter was made to separate articles from publications and, finally, 25 articles were left for reading.

In both repositories, only published articles were selected, disregarding any gray study that could be included with scientific studies. It was done because this topic (ChatGPT) is still recent in academic research and this paper intends to present studies that have already been scientifically evaluated.

Having presented the databases used and the search terms, in the next session, we explain the process of systematic screening of the articles founded, presenting the software used for systematization and the details of this process.

3.2 PHASE 2 RESEARCH DESIGN

According to Ouzzani *et al.* (2016), systematic reviews are a summary of the literature, prepared using explicit methods to systematically search, critically evaluate and synthesize the available data on a given subject.

This process has designated steps to identify primary studies and the methods which will be employed to assess their methodological quality, how data will be extracted, and the statistical techniques that will be used in the synthesis and reporting of that data (Ouzzani *et al.*, 2016).

The Intelligent Systematic Review or Rayyan Software, mentioned by Ouzzani *et al.* (2016) – use for the last selection of eligible studies. This software supports through high technology part of the automation of systematic reviews.

It has been driven by a necessity to expedite the availability of current best evidence for policy and clinical decision-making as much as engaging with technology to allow review authors to redirect their focus to other aspects.

In sheets excel was organized 41 papers in total, all found in the first analysis in databases and were transferred to Rayyan organized in an Excel spreadsheet divided by title, abstract, and keywords extracted from the repositories.

In the Rayyan software, the first selection was to detect duplicate articles. The articles found in duplicate totaled 10, in the ends 31 papers. After completing that step of exclusion of

duplicate articles, the author selects from reading the title and abstract of the studies from software, in a total of 25 papers such as from Scopus 10 studies and Web of Science 15.

The important highlight was selected recent publications, from 2020 to the present. Additionally, a filter was applied extracting only articles approved and eliminating the gray literature. The gray literature is composed of: reviews, editorials, conference papers, among others.

The last step of this selection was to read the title, abstract, and keywords to understand if those papers were relevant and significant for this study.

Nevertheless, the 25 final articles were used in this construct, in the first step. In all these papers there is expressive data around AI and ChatGPT, mainly because the keywords used were very specific. Another important point is about the dialogue with ChatGPT. This is integrated with this study and completes the perception that the tool with itself points to view out its contribution and limitations around your functionality.

In 2024, the search utilized the same parameters used in the previous year to ensure the research was as accurately standardized as possible. After the selection process, the following results were 53 articles were found; 10 were duplicated by Ryyan, finishing with 43. After read the main points each article like title and abstract, 25 articles were selected excluding 18. At the end of the research conducted in different years, we achieved a total of 25 articles in 2023 and 25 articles in 2024. This paper has worked with 50 references to this review literature.

3.3 PHASE 3 RESEARCH DESIGN

The current systematic review was conducted as per the PRISMA guidelines- Evidence from observational studies suggests that use of the PRISMA 2009 statement is associated with more complete reporting of systematic reviews, although more could be done to improve adherence to the guideline (Page *et al.*, 2021).

Summarizing graphically the systematic search and review, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram was applied (Figure 4), as proposed by (Petza *et al.*, 2023) for new systematic reviews which include searches of databases, registers, and other sources.

Therefore, the curatorship for the development of this research also was mostly made from secondary data available in editorials, magazines, and newspapers on the internet, in addition to scientific articles recently published in the databases mentioned already.

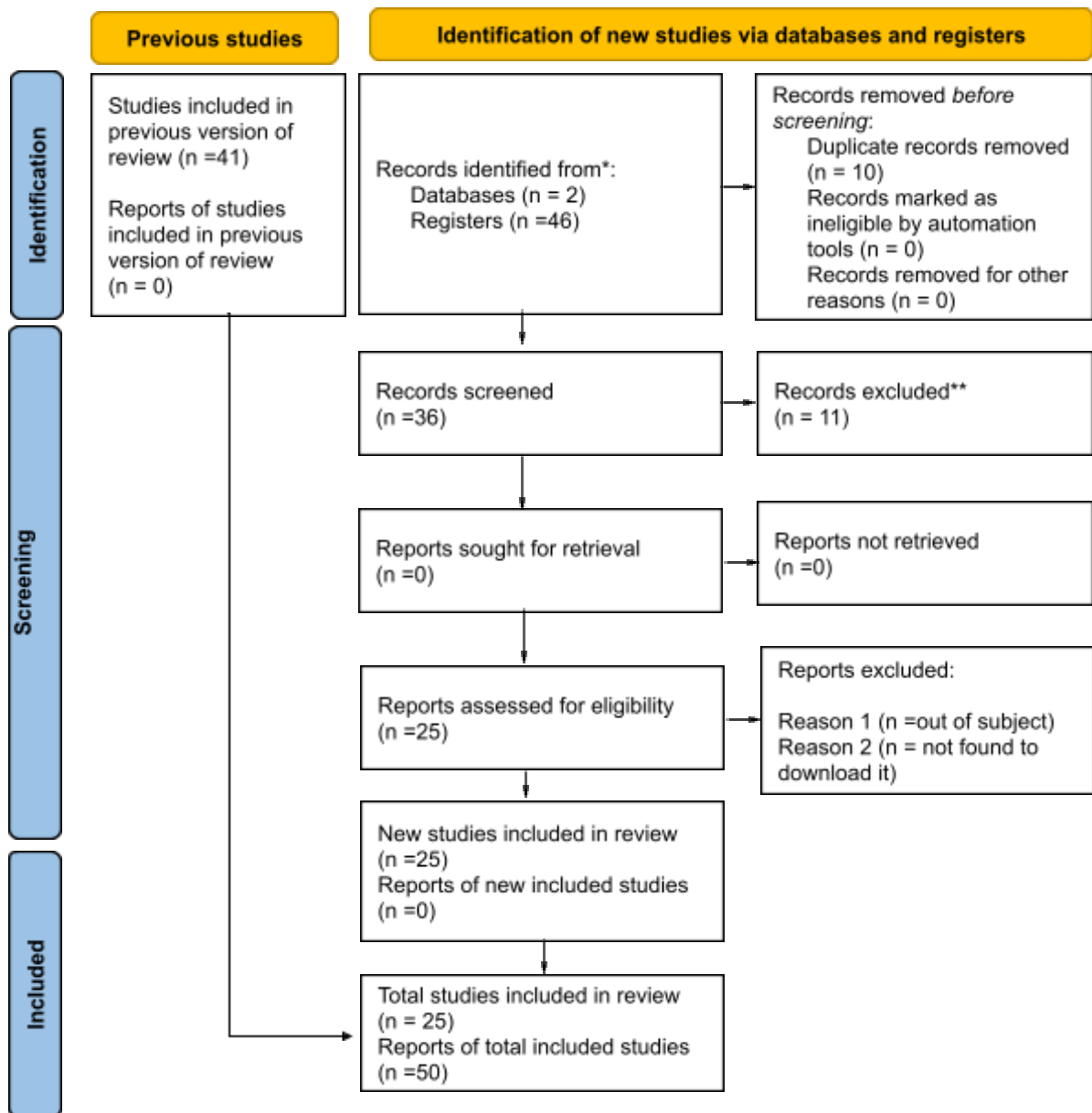


Figure 4 – PRISMA Diagram
Source: Adapted by Page *et al.* (2021)

3.4 EXPLORING HOW CHATGPT HAS WORKED

Emphasizing the area explored in this article and with the aim of better understanding the behavior of the chat for this study, the following questions were asked for the chat (Zhang, 2023). We utilized ChatGPT 3.5 legacy (Version Jan 30, OpenAI) to generate this interview paper to address this gap by conducting a systematic review of the existing literature on the use of ChatGPT since the emergence of the tool framework, a range of studies were examined to answer the following research questions (Schopow et al,2023).

Initially, it was asked to Chat with GPT about how it defines itself. In the next section, I present my insights about using ChatGPT as a more knowledgeable (Stojanov, 2023). For

these responses go to the ChatGPT tool, which can be accessed at <https://chat.openai.com/chat>. For this question, was given the following answer:

“Hello! I'm ChatGPT, a large language model developed by OpenAI using the GPT-3.5 architecture. I have been trained on a massive amount of text data from the internet, including books, articles, and websites, allowing me to understand and generate natural language.

My primary purpose is to communicate with people and provide information, answer questions, and assist with various tasks using natural language processing. I can generate responses to a wide range of topics, including science, history, current events, entertainment, and more. Overall, my goal is to provide helpful and informative responses to people's queries and to continually improve my abilities through ongoing learning and updates from my developers” (GPT, 2023).

3.4.1 WHAT ETHICAL ISSUES SHOULD BE CONSIDERED WHEN USING CHATGPT WITHIN THE CUSTOMER EXPERIENCE FIELD OF STUDY?

ChatGPT: Several ethical issues should be considered when using ChatGPT within the customer experience field of study, including:

Data Privacy: When interacting with customers, ChatGPT may collect and store personal data, such as their name, address, and contact details. It is important to ensure that this data is collected and stored following data protection laws and that customers are informed about how their data will be used.

Bias: ChatGPT may reflect the biases of the data it was trained on, potentially perpetuating existing biases and prejudices. It is important to ensure that the data used to train ChatGPT is diverse and inclusive and that steps are taken to mitigate any bias that may be present.

Transparency: Customers should be informed when they are interacting with ChatGPT, rather than a human customer service representative. It is also important to ensure that ChatGPT's responses are transparent and clear and that customers understand how the system works.

Accuracy: ChatGPT's responses should be accurate and reliable, and the system should be regularly monitored to ensure that it is providing correct information to customers.

Deception: It is unethical to use ChatGPT to deceive customers or misrepresent the capabilities of the system. It is important to be transparent about what ChatGPT can and

cannot do and to provide appropriate support when the system is unable to assist with a customer's request.

Overall, it is important to ensure that ChatGPT is used ethically within the customer experience field of study, with a focus on transparency, accuracy, and the protection of customer data and privacy.

3.4.2 CAN CHATGPT REPLACE A CUSTOMER EXPERIENCE MANAGER INSIDE THE COMPANY?

ChatGPT: ChatGPT can assist with customer experience management within a company, but it cannot fully replace a customer experience manager. A customer experience manager is responsible for overseeing the overall customer experience strategy, designing and implementing customer-focused initiatives, and ensuring that customer needs and expectations are met.

ChatGPT, on the other hand, is a tool that can be used to help manage customer interactions and provide assistance to customers. While it can be programmed to handle a wide range of customer inquiries and concerns, it cannot replace the human touch that a customer experience manager can provide.

A customer experience manager can understand customer feedback and make changes to improve the overall customer experience. They can also work with different departments within the company to ensure that the customer experience is consistent across all touchpoints.

In summary, ChatGPT can be a valuable tool in helping to manage customer interactions, but it cannot replace the expertise and insight of a customer experience manager. The best approach would be to combine the capabilities of ChatGPT with the skills and knowledge of a customer experience manager to provide the best possible customer experience.

In the incipient literature, studies were found still focused on themes such as the construction, language, and usability of ChatGPT. Some of these studies present analyses originating from ChatGPT itself and its impact on certain areas such as tourism, medicine, and also academic research.

As it is a recently developed robot (according to the development date of this article) there are still questions and discussions about its real positive, negative, and ethical impact on specialized areas. Given the above, this study also seeks to bring the same issues mentioned

above linked to the field of customer experience or customer success that exists within companies. Emphasizing the area explored in this article and with the aim of better understanding the behavior of the chat for this study, the following questions were asked for the chat.

Also, was asked to Chat with GPT about how it defines itself. For these responses goes to the ChatGPT tool, which can be accessed at <https://chat.openai.com/chat>. For this question, was given the following answer:

“Hello! I'm ChatGPT, a large language model developed by OpenAI using the GPT-3.5 architecture. I have been trained on a massive amount of text data from the internet, including books, articles, and websites, allowing me to understand and generate natural language.

My primary purpose is to communicate with people and provide information, answer questions, and assist with various tasks using natural language processing. I can generate responses to a wide range of topics, including science, history, current events, entertainment, and more. Overall, my goal is to provide helpful and informative responses to people's queries and to continually improve my abilities through ongoing learning and updates from my developers” (GPT, 2023).

3.4.3 WHAT PROBLEMS CAN CHATGPT CAUSE IN CUSTOMER SERVICE FROM A COMPANY'S PERSPECTIVE?

ChatGPT: While ChatGPT can be a valuable tool in improving customer service, it can also cause several problems from a company's perspective, including:

Lack of Personalization: While ChatGPT can be trained to provide personalized assistance to customers, it may not be able to provide the same level of personalized service as a human customer service representative. This can lead to a lack of connection and dissatisfaction among customers who value personalized interactions.

Limited Capabilities: While ChatGPT can handle a wide range of customer inquiries, it may not be able to handle complex or unique situations that require a human touch. This can lead to frustration among customers who are unable to get the help they need.

Technical Errors: ChatGPT is a machine-learning algorithm that requires continuous maintenance and updates. Technical errors, such as system failures or glitches, can lead to customer frustration and dissatisfaction.

Data Privacy: As mentioned earlier, ChatGPT may collect and store personal data from customers. Companies have a responsibility to ensure that this data is collected and stored securely under data protection laws. Any data breaches or misuse of customer data can cause significant damage to a company's reputation.

Misinterpretation of Customer Intent: ChatGPT may misinterpret the intent behind customer inquiries, leading to inaccurate or irrelevant responses. This can lead to frustration and dissatisfaction among customers who feel that their needs are not being met.

Overall, ChatGPT can cause problems for companies in terms of customer service if it is not implemented and maintained properly. Companies need to ensure that they have the right resources and expertise to manage ChatGPT effectively and address any issues that arise.

In general, there is a concern with issues of ethics, transparency, and privacy of customer and user data, since ChatGPT is still a bot with mechanisms unknown to people. Obviously, due to the bot's recent impact, the regulatory bodies in the areas that may use the chat still built an ethical position for this use.

Also analyzing what is in the recent literature, it is clear that “bots” can contribute, but still not replace human contact in the research and corporate field. How a tremendous potential to revolutionize healthcare and make it more efficient by improving diagnostics, detecting medical errors, and reducing the burden of paperwork, however, chances are it will never replace physicians. Algorithms perform relatively well on knowledge-based tests despite the lack of domain-specific training.

4 REVIEW LITERATURE – DATA FOUND HIGHLIGHTS

This analysis starts with the organization of all final articles selected from the mentioned steps of the methodology. The Table 3 presents the survey of all papers selected, listing their titles, objective, year of publication, authors, as well as the publication journal

Table 3 - Papers found after steps and filters during review process

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|-------------------------------------|--|---|----------------------------|
| 1 | 2020 | Luciano Floridi & Massimo Chiriatti | GPT-3: Its Nature, Scope, Limits, and Consequences | Discuss the nature of reversible and irreversible questions, that is, questions that may enable one to identify the nature of the source of their answers. We then introduce GPT-3, | Minds and Machines |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|-------------------------|--|--|--|
| | | | | a third-generation, autoregressive language model that uses deep learning to produce human-like texts, and use the previous distinction to analyse it | |
| 2 | 2020 | Thomas Davenport et al. | How artificial intelligence will change the future of marketing | The authors propose a multidimensional framework for understanding the impact of AI involving intelligence levels, task types, and whether AI is embedded in a robot. Prior research typically addresses a subset of these dimensions; this paper integrates all three into a single framework | Journal of the Academy of Marketing Science |
| 3 | 2021 | Robert Dale | GPT-3: What's it good for? | Question for this study: What kind of practical applications can we expect to see, and can they be trusted? | Natural Language Engineering |
| 4 | 2021 | Dan Huang et al. | Customer-robot interactions: Understanding customer experience with service robots | Through a qualitative content analysis of online review data, this study seeks a comprehensive and grounded understanding of customer experience with service robots in hospitality and tourism settings | International Journal of Hospitality Management |
| 5 | 2021 | Olga I. Dolganova | Improving customer experience with artificial intelligence by adhering to ethical principles | The purpose of this article is to determine the ethical principles and methods, the observance and implementation of which would increase confidence in artificial intelligence systems among client of a particular organization | Business Informatics |
| 6 | 2022 | Liss Jenneboer et al. | The Impact of Chatbots on Customer Loyalty: A Systematic Literature Review | This study provides insight into the influence of chatbots on customer loyalty. System quality, service quality, and information quality are crucial dimensions that a chatbot must meet to give a good customer experience. | Journal of Theoretical and Applied Electronic Commerce Research |
| 7 | 2022 | Pasquale Del Vecchio | Phygital technologies and environments for breakthrough innovation in customers' and citizens' journey. A critical literature review and future agenda | At this aim, a critical literature review is performed to identify how the customer experience is undergoing a renaissance due to the Covid-19 pandemic that forced organisations to improve the customer experiences. Our findings allow to identify main trends in the academic debate as grouped into five main clusters. | Technological Forecasting and Social Change Volume 189, April 2023, 122342 |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|-------------------------|---|--|---|
| 8 | 2023 | Elisa L. Hill-Yardin | A Chat (GPT) about the future of scientific publishing | Discussing about Chat(GPT) and the future of scientific publishing. | Brain Behavior and Immunity |
| 9 | 2023 | Mike Perkins | Academic Integrity considerations of AI Large Language Models in the post-pandemic era: ChatGPT and beyond | Exploring and describing and demonstrate the potential that these tools have in creating original, coherent text that can avoid detection by existing technological methods of detection and trained academic staff alike, demonstrating a major academic integrity concern related to the use of these tools by students. | Journal of University Teaching and Learning Practice |
| 10 | 2023 | Gizem Karaali | Artificial Intelligence, Basic Skills, and Quantitative Literacy | As we continue to focus on higher-level skills and habits of mind that make up quantitative literacy (QL) and quantitative reasoning (QR), we should not forget that basic literacy and numeracy are still foundational building blocks | Numeracy Advancing Education in Quantitative Literacy |
| 11 | 2023 | Matthias Rilling et al. | Risks and Benefits of Large Language Models for the Environment | Discuss about the mains risks and Benefits of Large Language Models for the Environment | Environment al Science & Technology |
| 12 | 2023 | Ju Yoen Lee | Can an artificial intelligence chatbot be the author of a scholarly article? | Discussing different perspectives about the artificial intelligence chatbot as an author of a scholarly article | Science Editing |
| 13 | 2023 | Quintans-J únior et al. | ChatGPT: the new panacea of the academic world | The topic is novel and "controversial," and prestigious journals are debating the role of ChatGPT and similar systems in the scientific literature | Journal of the Brazilian Society of Tropical Medicine |
| 14 | 2023 | Takanobu Hirose et al. | Diagnostic Accuracy of Differential-Diagnosis Lists Generated by Generative Pretrained Transformer 3 Chatbot for Clinical Vignettes with Common Chief Complaints: A Pilot Study | This study evaluated the accuracy of differential-diagnosis lists generated by ChatGPT-3 for clinical vignettes with common chief complaint | International Journal of Environmental Research and Public Health |
| 15 | 2023 | Lingfei Luan et al. | Exploring the Cognitive Dynamics of Artificial Intelligence in the Post-COVID-19 and Learning 3.0 Era: A Case Study of ChatGPT | The objective of this study is to instigate a scholarly discourse on the interplay between technological advancements in education and the evolution of human learning patterns, raising the question of whether technology is driving human evolution or vice versa. | Computer Science > Computers and Society |
| 16 | 2023 | Weng Marc Lim | Generative AI and the future of education: Ragnarok or reformation? A paradoxical perspective | This article endeavors to offer a seminal rejoinder that aims to (i) reconcile the great debate on Generative AI in order to (ii) lay the foundation for | The International Journal of Management Education |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|-------------------------------------|--|--|--|
| | | | from management educators | Generative AI to co-exist as a transformative resource in the future of education | |
| 17 | 2023 | Maad M. Mijwil & Mohamma d Aljanabi | Towards Artificial Intelligence-Based Cybersecurity: The Practices and ChatGPT Generated Ways to Combat Cybercrime | In this report, the most significant practices, sound, and good strategies will be studied to stop cybercrime and make a digital environment that guarantees data transfers between electronic devices safely and without the presence of malicious software | Research Gate |
| 18 | 2023 | Andrej Thurzo et al. | Impact of Artificial Intelligence on Dental Education: A Review and Guide for Curriculum Update | The aim was to provide an up-to-date overview of the upcoming changes and a brief analysis of the influential advancements in the use of AI in dental education since 2020. In addition, this review provides a guide for a dental curriculum update for undergraduate and postgraduate education in the context of advances in AI applications and their impact on dentistry. | Education Sciences |
| 19 | 2023 | John E. Hallsworth | Scientific novelty beyond the experiment | This paper highlight the intrinsic need for human engagement in scientific innovation, an issue pertinent to the ongoing controversy over papers authored using/authored by artificial intelligence | Microbiology International |
| 20 | 2023 | Ahmed Tlili et al. | What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education | The findings of this study provide several research directions that should be considered to ensure a safe and responsible adoption of chatbots, specifically ChatGPT, in education. | Springer Open Journal |
| 21 | 2023 | Seongseop (Sam) Kim et al. | Preference for robot service or human service in hotels? Impacts of the COVID-19 pandemic | This research provides a number of theoretical and managerial implications by improving the understanding of technology acceptance during a health crisis. | International Journal of Hospitality Management |
| 22 | 2023 | Andreas Holzinger et al. | AI for life: Trends in artificial intelligence for biotechnology | Providing an overview of open research issues and challenges for each of the topics addressed in this special issue. Potential authors can directly use this as a guideline for developing their paper. | International Journal of Hospitality Management |
| 23 | 2023 | Rebecca Johninke et al. | Reclaiming the technology of higher education for teaching digital writing in a post-pandemic world | Exploring the story of digital writing pedagogy during the pandemic became the story of a constant push and pull with the technologies that created digital writing itself | Journal of University Teaching and Learning Practice (JUTLP) |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|---------------------------|---|---|---|
| 24 | 2023 | Leona Cilar Budler et al. | Review of artificial intelligence-based question-answering systems in healthcare | The aim of this advanced review was to assess the use and effectiveness of conversational agents in various fields of health care. | WIREs Data Mining and Knowledge Discovery. |
| 25 | 2023 | Michele Salvagno | Can artificial intelligence help for scientific writing? | This paper discusses the use of Artificial Intelligence Chatbot in scientific writing | BioMed Central |
| 26 | 2023 | Michael Dowling | ChatGPT for (Finance) Research: The Bananarama Conjecture | This study pretend clear advantages for idea generation and data identification | Finance Research Letters |
| 27 | 2023 | Yun et al. | A comprehensive evaluation of ChatGPT consultation quality for augmentation mammoplasty: A comparative analysis between plastic surgeons and laypersons | This study aims to assess the answers provided by ChatGPT during hypothetical breast augmentation consultations across various categories and depths. | International Journal of Medical Informatics |
| 28 | 2023 | Bagde et al. | A systematic review and meta-analysis on ChatGPT and its utilization in medical and dental research | This review's main goal was to offer a thorough and fact-based evaluation of ChatGPT's potential as a tool for medical and dental research, which could direct subsequent research and influence clinical practices. | Heliyon |
| 29 | 2023 | Zhang & Tur | A systematic review of ChatGPT use in K-12 education | Aims to address this gap by conducting a systematic review of the existing literature on the use of ChatGPT in K-12 education since the emergence of the tool. To answer the following research questions: <ul style="list-style-type: none"> • RQ1: What are the strengths, weaknesses, opportunities, and threats (SWOT) in incorporating ChatGPT in K-12 education contexts? • RQ2: What are the current or possible practices of ChatGPT implementation in K-12 education contexts? • RQ3: What are the future directions and practical recommendations for utilising ChatGPT in K-12 education? | European Journal of Education |
| 30 | 2023 | Sohail et al. | Decoding ChatGPT: a taxonomy of existing research, current challenges, and possible future directions | Present a comprehensive review of over 100 Scopus-indexed publications on ChatGPT, aiming to provide a taxonomy of ChatGPT research and explore its applications | Journal of King Saud University-Computer and Information Sciences |
| 31 | 2023 | Imran & Almusharraf | Analyzing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the literature | This study examines the role of ChatGPT as a writing assistant in academia through a systematic literature review of the 30 most relevant articles. Since its release in November 2022, ChatGPT has | Contemporary Educational Technology |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----------|-------------|------------------------------|--|---|--|
| | | | | become the most debated topic among scholars and is also being used by many users from different fields. | |
| 32 | 2023 | Schopow, Osterhoff & Baur | Applications of the Natural Language Processing Tool ChatGPT in Clinical Practice: Comparative Study and Augmented Systematic Review | This study aimed to evaluate the reliability between ChatGPT and human researchers in extracting key information from clinical articles, and to investigate the practical use of NLP in clinical settings as evidenced by selected studies. | JMIR Medical Informatics |
| 33 | 2023 | Watrianthos, Ahmad & Muskhir | Charting the growth and structure of early ChatGPT-education research: A bibliometric study. | The purpose of this article is to provide an overview and analysis of the emerging research landscape surrounding the integration of ChatGPT into education. The main problem appears to be that this is a new, rapidly developing research area for which there is no comprehensive synthesis of the current literature. The aim of the article is to fill this gap by conducting a timely bibliometric study to map publication trends, influential works, themes, and opportunities, thus representing the growth and structure of ChatGPT educational research. | Journal of Information Technology Education: Innovations in Practice |
| 34 | 2023 | Frederico | ChatGPT in Supply Chains: Initial Evidence of Applications and Potential Research Agenda | As a novel and initial contribution, this article aims to provide a viewpoint with the main applications and other issues regarding ChatGPT in supply chains, based on the initial discovered evidence | Logistics |
| 35 | 2023 | Chiu | The impact of Generative AI (GenAI) on practices, policies and research direction in education: A case of ChatGPT and Midjourney. | This qualitative study aims to investigate how GenAI changes our school education from the perspectives of teachers and leaders. It used four domains – learning, teaching, assessment, and administration – as the initial framework suggested in a systematic literature review study on AI in education. | Interactive Learning Environments |
| 36 | 2023 | Klang et al. | Evaluating the role of ChatGPT in gastroenterology: a comprehensive systematic review of applications, benefits, and limitations | The primary goal of this systematic review is to assess the various applications, ascertain the benefits, and identify the limitations of utilizing ChatGPT within the realm of gastroenterology. | Therapeutic Advances in Gastroenterology |
| 37 | 2023 | Garg et al. | Exploring the role of ChatGPT in patient care (diagnosis and treatment) and medical research: A systematic review | Aimed to review published article and explore the potential of ChatGPT in facilitating patient care, medical research and medical writing. Also focus | Health Promotion Perspectives |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|-----------|-------------|--|---|--|---|
| | | | | on ethical issues associated with usage of ChatGPT. | |
| 38 | 2023 | Tustumi, Andreollo, & Aguilar-Nascimento | Future of the language models in healthcare: the role of chatGPT | The purpose is to gather the most medical knowledge to construct an orientation for practice. Evidence-based guidelines follow several main characteristics of a systematic review, including systematic and unbiased search, selection, and extraction of the source of evidence. | Arquivos Brasileiros de Cirurgia Digestiva |
| 39 | 2023 | Tiwari et al. | Implications of ChatGPT in public health dentistry: A systematic review | The goal of the present investigation was to investigate ChatGPT's potential applications as an outstanding instance of large language models (LLMs) in the fields of public dental health schooling, writing for academic use, research in public dental health, and clinical practice in public dental health based on the available data. The goals of the current review included locating any drawbacks and issues that might be connected to using ChatGPT in the previously mentioned contexts in healthcare settings | Cureus |
| 40 | 2023 | Stojanov | Learning with ChatGPT 3.5 as a more knowledgeable other: An autoethnographic study | The autoethnographic study aimed to explore the experiences of using ChatGPT as a more knowledgeable other and explain how ChatGPT works, technically. | International Journal of Educational Technology in Higher Education |
| 41 | 2023 | Burger et al. | On the use of AI-based tools like ChatGPT to support management research | The article discusses the current relevance of artificial intelligence (AI) in research and how AI improves various research methods. This article focuses on the practical case study of systematic literature reviews (SLRs) to provide a guideline for employing AI in the process. | European Journal of Innovation Management |
| 42 | 2023 | Sallam | ChatGPT utility in healthcare education, research, and practice: systematic review on the promising perspectives and valid concerns | The aim of the current review was to explore the future perspectives of ChatGPT as a prime example of LLMs in health care education, academic/scientific writing, health care research, and health care practice based on the existing evidence. The current review objectives extended to involve the identification of potential limitations and concerns that could be associated with the application of ChatGPT in the aforementioned areas in health care settings. | Healthcare |
| 43 | 2023 | Angheliescu et al. | PRISMA systematic literature review, | The review focused on the pleiotropic effects of Actovegin in | Biomedicine s |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----|------|--------------------------------|--|--|--|
| | | | including with Meta-analysis vs. Chatbot/GPT (AI) regarding current scientific data on the Main effects of the calf blood Deproteinized Hemoderivative medicine (Actovegin) in ischemic stroke | relation to the injury pathways of ischemic stroke. Our specific aim was to emphasize Actovegin's well-known beneficial and therapeutic effects, which either directly or indirectly interfere with the morbidity pathways of ischemic stroke | |
| 44 | 2023 | Roman, Al-Sharif & Gharyani | The expanding role of ChatGPT (Chat-Generative Pre-Trained Transformer) in neurosurgery: a systematic review of literature and conceptual framework | The objective of this study is to explore the use of ChatGPT (Chat-Generative Pre-Trained Transformer) in neurosurgery and its potential impact on the field. The authors aim to discuss, through a systematic review of current literature, how this rising new artificial intelligence (AI) technology may prove to be a useful tool in the future, weighing its potential benefits and limitations. | Cureus |
| 45 | 2023 | Giglio & Costa | The use of artificial intelligence to improve the scientific writing of non-native english speakers | Briefly describe how AI-based programs can help with the preparation of research papers, especially considering how they can help improve scientific writing skills. | Revista da Associação Médica Brasileira |
| 46 | 2023 | Tragaris et al. | Machine learning applications in spine surgery | This literature review sought to identify and evaluate the current applications of artificial intelligence (AI)/machine learning (ML) in spine surgery that can effectively guide clinical decision-making and surgical planning. The aim of this literature review was, on the one hand, to bring the nonexpert reader closer to its terminology and principles and, on the other hand, to elucidate their applications and outcomes regarding spine surgery. | Cureus |
| 47 | 2023 | Ruksakulpiwat, Kumar & Ajibade | Using ChatGPT in medical research: current status and future directions | This review aims to evaluate the current evidence on the use of the Generative Pre-trained Transformer (ChatGPT) in medical research, including but not limited to treatment, diagnosis, or medication provision. Therefore, this review seeks to provide insights into the current trends of utilizing this technology in medical research and offer suggestions for future research. | Journal of Multidisciplinary Healthcare |
| 48 | 2023 | Hochstein et al. | Customer success management, customer health, and retention in B2B industries | Demonstrate the adoption of CS management across a wide range of B2B settings and unpack how the implementation of a CS strategy can complement existing sales and | International Journal of Research in Marketing |

| N | Year | Author | Title | Main aims or question of paper | Magazine I Journals |
|----|------|------------------|---|---|---------------------|
| | | | | service efforts to increase customer retention. | |
| 49 | 2024 | Crompton & Burke | The educational affordances and challenges of ChatGPT: State of the field | The purpose of this study is to examine early literature, from November 2022 through to August 2023, on ChatGPT to determine how it can be used to support learning and the misuses and limitations in the educational context. | TechTrends |
| 50 | 2024 | Younis et al. | A Systematic Review and Meta-Analysis of Artificial Intelligence Tools in Medicine and Healthcare: Applications, Considerations, Limitations, Motivation and Challenges | Approach explored AI's transformative potential in healthcare, highlighting ChatGPT's versatile applications, limitations, motivation, and challenges. | Diagnostics |

Source: Elaborate for the author (2023)

4.1 CITATIONS NUMBER

Table 4 presents, in descending order, the articles with the most citations in the collection of this study. It should be noted that the 2 most cited articles are also the articles published in 2020, more than 2 years from the date of construction of this study, which may explain its notably higher number of citations.

The article by Floridi & Chiriatti (2020) with 268 citations reveals the first discoveries of the then-unknown ChatGPT and predicts the impacts of its use and provides a solid theoretical basis on GPT Chat that seeks to make the reader aware of what the new AI tool is, its contribution capacity and how it has been built bringing technical definitions about the bot GPT-3 (Generative Pre-trained Transformer) is a third-generation, autoregressive language model that uses deep learning to produce human-like text (Floridi; Chiriatti, 2020).

The article written by Davenport *et al.* (2020) - "How artificial intelligence will change the Future of marketing" - brings important reflections on Artificial Intelligence for the Marketing area, highlighting its importance for the development and agility of bots in the relationship with the client. The study points out that commercial areas and areas such as customer relations use AI technology to get to know their customers better, monitor their behavior and, finally, be able to offer a more personalized and assertive service. Artificial Intelligence (AI) is likely to substantially change both marketing strategies and customer behaviors.

It is possible to infer that these articles served as a theoretical basis for the articles that were built later, since there is still not a large and robust amount of articles published in this area and also there is not a considerable number of literature reviews on this subject. It is noted that according to Table 3 – Related Articles – only 4 articles assume the position of Literature Review using the name “ChatGPT” as a keyword in the construction and as a search tool.

Table 4 - Papers with more citations

| N | Year | Authors | Title | Citations |
|----------|-------------|-------------------------------------|---|------------------|
| 1 | 2020 | Thomas Davenport et al. | How artificial intelligence will change the Future of Marketing | 522 |
| 2 | 2020 | Luciano Floridi & Massimo Chiriatti | GPT-3: Its Nature, Scope, Limits, and Consequences | 268 |
| 3 | 2023 | Seongseop (Sam) Kim et al. | Preference for robot service or human service in hotels? Impacts of the COVID-19 pandemic | 213 |
| 4 | 2021 | Robert Dale | GPT-3: What’s it good for? | 61 |
| 5 | 2023 | Michele Salvagno | Can artificial intelligence help with scientific writing? | 39 |
| 6 | 2022 | Liss Jenneboer et al. | The Impact of Chatbots on Customer Loyalty: A Systematic Literature Review | 39 |

Source: Elaborate by Author

4.2 CONCENTRATION AREA

The Figure 5 shows the distribution of studies by area of concentration. The fields of study that published the most so far were the areas of Computer Science with 19% of the applications of a total of 26 articles followed by the area of Medicine with 15%, generating in number 5 and 4 articles found respectively. Interestingly, areas related to health such as Dentistry, Biology are next as areas with more publications so far. One of the areas with fewer publications, only 1 representing 4% of the graph, is the Business & Management area, which leaves open the opportunity for further research on AI in this area.

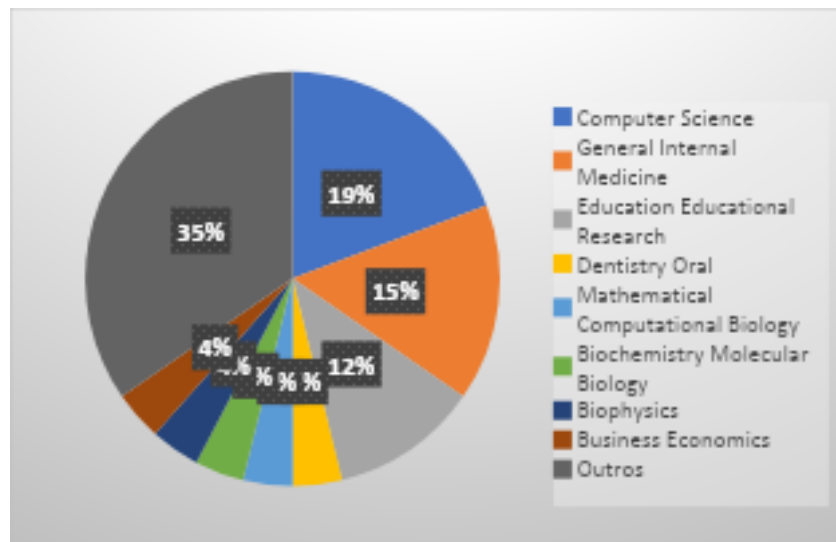


Figure 5 – Area of study represented in Pie Chart
Source: Elaborate for the author

6 RESULTS & DISCUSSIONS

It is interesting to note the rapid growth of publications since November 2022 in the two main search databases. These studies are mostly focused on the impacts on science and research conduction, educational systems, medical applications, computers and artificial intelligence and other applied science applications (Frederico, 2023)

As a result, this analysis of the articles has been conducted on the 50 papers (Prisma Diagram Flow mentioned) to identify bibliographic trends. Has been analyzed the timing of publication, research areas, Scopus database, geographic localization of the contributions, citations, and thematic areas of specialization.

This topic has been registered for the last 2 years beginning as AI, but in 2021 started the first publication about ChatGPT. In 2023 a meaningful increment to expect number of papers and related citations will increase as a consequence of the launch of the tool in the previous year.

Every article has been published in English language and The main thematic areas by to clustering the papers mainly on Education (35%), Computer Science (19%) and Health Care (15%).

Starting from theorization, the paper of Olga Dolganova (2021) contributes to the understanding of the impact of digital technologies on customer experience through a reflection realized with many papers in your review of the literature. Dolganova (2021) relies mainly on principles of ethics, important and a little explored for research. For the author:

People are paying more attention to how well brands are behaving about their ethical and social obligations. Many researchers note that this contributes to the long-term success of the company in maintaining customer loyalty. However, feelings like fear, and misunderstanding of the mechanisms of functioning of systems in which AI technologies are embedded can significantly reduce the potential positive effects of their use (Dolganova, 2021, p. 38).

Mijwil *et al.* (2022) conclude with Dolganova's opinion affirming that:

All companies must have unique mechanisms for combating cyber-attacks by utilizing modern and advanced technologies based on artificial intelligence to create defenses against spying, data theft, and prevent entry to unauthorized individuals or malicious software (Mijwil *et al.*, 2022, p. 68).

In other words, Mijwil *et al.* believes strongly that AI can support companies combating cyber-attacks while Dolganova affirms that clients cannot be loyal to a brand when their data and information can be exposed.

Otherwise, Perkins (2023) affirms that principles of ethics in education area can be decrease academic integrity as: "The use of ChatGPT-3 in education also raises some ethical concerns. There are concerns that the use of chatbots like ChatGPT-3 could lead to a decrease in academic integrity, as students may be tempted to use the tool to generate entire papers rather than doing the work themselves" (Perkins, 2023, p. 04).

Other results are the basis of the study about trends of AI in several areas. Holzinger *et al.* (2023) defends the use of AI in biotechnology, as in this example. "These technologies can also be applied to identify new crop phenotypes that are more efficient in resource use and resistant to highly variable climate conditions. Phenotyping has become a key discipline of plant sciences in the last decade" (Holzinger *et al.*, 2023, p. 18).

Perkis (2023) assumed the definition that Tools using Artificial Intelligence (AI) to support the creation of original text have emerged in recent years, in the form of Large Language Models (LLMs). "Overall, ChatGPT-3 is a powerful tool that has the potential to revolutionize the way we approach education. It can generate original text and assist students in the writing process, but it is important to consider the potential ethical implications of its use" (Perkis, 2023, p. 05).

Again, Dolganova (2021) defends robos to client interaction but ponders data attacks and brand perceptions from a company failure. "Using the artificial intelligence (AI) technologies when interacting with customers provides significant economic potential, but requires solving problems with data security, transparency of algorithms for machine behavior, and trust in such tools" (Dolganova, 2021, p. 35).

Thurzo et al (2023) conducted a brief study of the significant improvements in the application of AI (ChatGPT) in dentistry education, including public health dentistry, since 2020, as well as a current summary of the impending changes. It was found that, naturally, the majority of educators in dentistry lack the understanding and skills necessary to evaluate applications based on AI because they weren't taught how to do so. Additionally, AI technology has advanced rapidly in the past few years. In the age of generative AI, factual accuracy and prospects with Open AI Inc.'s ChatGPT are seen as crucial turning points.

According to Tiwari et al (2023), the clinical fields of dentistry will inevitably require updating as improved deep-learning algorithms transform the diagnosis, treatment scheduling, leadership, and telemedicine surveillance. It was concluded that interaction with patients will alter as a result of recent developments in AI models of language, and the fundamentals of dental education, such as writing essays, theses, and scientific papers, will need to change as well.

In the area of health care education, ChatGPT appears to have a massive transformative potential. The need to rethink and revise the current assessment tools in health care education comes in light of ChatGPT's ability to pass reputable exams (e.g., USMLE) and possibility of ChatGPT misuse, which would result in academic dishonesty. (Sallam, 2023). Such a result highlights the need to focus on questions involving the assessment of critical and problem-based thinking.

Additionally, the utility of ChatGPT in health care education can involve tailoring education based on the needs of the student with immediate feedback. Interestingly, a recent preprint by Benoit showed the promising potential of ChatGPT in rapidly crafting consistent realistic clinical vignettes of variable complexities that can be a valuable educational source with lower costs. Thus, ChatGPT can be useful in health care education including enhanced communication skills given proper academic mentoring (Sallam, 2023)

Another theoretical contribution to the advancement of the debate can be identified in Maganize which author Mann (2023) Discusses the Role of Artificial Intelligence in Translational Medicine. AI algorithms can be used to analyze patient data, including genomic data, and to identify personalized treatment approaches that are likely to be most effective for individual patients.

AI is also being used in the development of new drugs and treatments. By analyzing large datasets of chemical compounds, AI algorithms can identify potential candidates for drug development, and can also help to identify potential side effects or interactions with

other drugs. This can help to speed up the drug development process and reduce the cost of bringing new drugs to Market (Mann 2023).

In the same direction, Luan, Lin, and Li (2023) agree that ChatGPT expands the options available to all users, whether it is through the introduction of new technologies or changes to the educational system. Individuals are addicted to continually investigating new uses of ChatGPT and implementing them in practice, such as resume writing and cover letter evaluation.

Evidence shows that ChatGPT can benefit supply chains through many applications such as route optimization, predictive maintenance, order shipment, customer and supplier relationships, data analysis, ordering process, automating invoices, reducing waste, and workforce training and guidance, amongst others (Frederico, 2023). Therefore, the evidence demonstrates that ChatGPT can support, but it cannot replace, the whole ability of supply chain experts in the decision-making process (Frederico, 2023).

On the other hand, Quintans-Júnior (2023) researches AI's impact on academy qualification. AI and its resources are valuable in science, but they cannot replace the researcher's critical and reflective thinking, or their ability to interpret results, discuss their findings based on the best available evidence, and communicate with readers.

Imran and Almusharraf (2023) summarize five points, from information published in journal articles, blogs and web essays, to get more ChatGPT writing functions and help understand the use of this AI tool as a writing assistant.

These points are: 1 - Greater efficiency (ChatGPT reduces the time and effort needed to generate coherent and well-structured texts on any topic); 2 - Idea generation (ChatGPT can suggest topics, themes and new perspectives for students to prepare their essays); 3 - Language translation (ChatGPT is capable of translating text from one language to another, what can help students write articles in different languages accurately and grammatically correct); 4 - More accurate and consistent content (ChatGPT has access to vast information, making identifying and eliminating errors easier); 5 - Improved collaboration (ChatGPT can also facilitate collaboration among students and educators).

Using AI to generate content allows multiple people to work on a project simultaneously, allowing for more efficient collaboration. ChatGPT can proofread and edit student writing by suggesting corrections for grammar, syntax, and spelling errors. This can help students improve the quality of their writing and reduce errors (Geher, 2023; Holmes et al., 2022; McMurtrie, 2022).

ChatGPT relies on pre-existing content and lacks the analytical capabilities of humans, such as the ability to weigh values and draw on sensory experiences to make technical and scientific decisions in the current context. Despite their importance, researchers must acknowledge that technologies are not infallible, with their creators recognizing various drawbacks such as incorrect or nonsensical answers, says the study by Quintans-Júnior (2023).

6.1 OPPORTUNITIES AND LIMITATIONS

Indeed, the use of intelligence can reduce costs and assertively accelerate the path taken by the customer within the company after acquiring the product or service in the first stage of the pipeline. In summary, some considerations were organized in the table below, clarifying the main points extracted from this paper.

Table 5: Positive and Negative points summarized

| NEGATIVES POINTS | POSITIVES POINTS |
|--|--|
| Cost Reduction - These applications can potentially generate strategic outcomes in terms of cost reduction and processes performance. | Ethics & Cyber Security Treatment - Clients cannot be loyal to a brand when their data and information can be exposed. |
| Process Otimization - Evidence shows that ChatGPT can benefit supply chains through many applications such as route optimization, predictive maintenance, order shipment, customer and supplier relationships, data analysis, ordering process, automating invoices, reducing waste, and workforce training and guidance, amongst others (Frederico, 2023). | Opinion biases - One of the main limitations is that GPT models are based on a statistical approach that learns patterns from a large dataset of text, which can perpetuate biases and stereotypes present in the data (Dale, 2021). |
| Humanized Service - Artificial Intelligence has been described as a part of computational science dedicated to the development of intelligent machines, capable of thinking and acting like humans | Plagiarism - There are concerns that the use of chatbots like ChatGPT-3 could lead to a decrease in academic integrity, as students may be tempted to use the tool to generate entire papers rather than doing the work themselves" (Perkins, 2023, p. 04). |
| Time reduction - GPT chat can provide immediate responses to customer inquiries, reducing response times and increasing efficiency. This can help to improve customer satisfaction by ensuring that customers receive timely and accurate information" (GTP, 2023). | Data Leaks - is crucial to emphasize the importance of ethical and cybersecurity studies to dive on the treatment of confidential data of the client and the company, information security issues, and data processing. |
| Assertiveness - As an advanced and disruptive process, this field of work and recent field of study related to customer service after the purchase and acquisition phases of a product uses AI to gain speed in service, assertiveness in approaching customers, and in collecting important data about them and cost reduction. | Lack of laws for Ai & Bots - Data Privacy: When interacting with customers, ChatGPT may collect and store personal data, such as their name, address, and contact details. It is important to ensure that this data is collected and stored following data protection laws and that customers are informed about how their data will be used. |

| | |
|---|--|
| <p>Customization - is capable of holding highly sophisticated and nuanced conversations on a wide range of topics. It can also generate human-like text and provide users with personalized responses based on their input (Naurez, 2023).</p> | |
|---|--|

Source: Elaborate by Author

In the incipient literature, studies were found still focused on themes such as the construction, language, and usability of ChatGPT. Some of these studies present analyses originating from ChatGPT itself and its impact on certain areas such as tourism, medicine, and also academic research.

As it is a recently developed robot (according to the development date of this article) there are still questions and discussions about its real positive, negative, and ethical impact on specialized areas. Additionally, this study also seeks to bring the same issues mentioned above linked to the field of customer experience or customer success within companies.

The different types of bots can support reducing costs, understanding more about the customer's feelings, and integrating and engaging faster than humans, but it is not possible to affirm the future of work between machines and people.

It can be considered that from the use of a chat, one can measure customers' feelings, perceptions, and opinions. This information allows companies to promote more targeted products, services, and advertisements to achieve their business goals and objectives.

This paper brings examples of the usability of the GPT chat in practice by asking questions and the tool bringing answers and showing the reader and researcher how it works in practice and how it can contribute to this study and companies in technology integration.

However, it is possible to start a discussion about ethics around this type of customer service and for other areas or fields of study. Invariably, there is a group of customers who may feel insecure when interacting with robots, opting for companies and services with human assistance and, in some cases, face-to-face. For sure, it is essential to develop another study about this subject.

Another point of view beginning here, is about the dissemination of customer data can lead to cyber insecurity. The known company Google has also formulated seven principles of artificial intelligence in the creation and use of such technologies linking to ethical issues, listed as follows:

- AI should be socially useful;
- It is necessary to strive to avoid unfair influence on people;
- Application of best security practices;

- Responsibility for the actions of AI in front of people;
- Ensuring guarantees of confidentiality, proper transparency, and control over the use of data;
- Maintaining standards of excellence;
- Limiting the use of potentially harmful and offensive software products.

This article may be useful for organizations, professionals, and researchers that pretend to understand more about the impact of ChatGPT in the customer experience journey.

However, there is still little literature about the new interaction but since, at the time of the construction of this study, there are many publications available as already mentioned above in the methodology.

As it was recently developed, there are still not many discussions about chat usability processes, as well as ethical tool processes such as transmission, disclosure, and storage of user and organization data, among others. people's lives, who become customers and in the companies that witnessed getting to know and retain more and more of their consumers.

But it is necessary to move forward in discussions such as ethics, and humanized care versus care reddened by the perspective of quality of services provided and costs. Managerial-level professionals as well as researchers can benefit from the trends in this study.

Similarly, the GPT technology is a powerful tool for natural language processing tasks, but it does have its limitations. One of the main limitations is that GPT models are based on a statistical approach that learns patterns from a large dataset of text, which can perpetuate biases and stereotypes present in the data (Dale, 2021).

Despite the relevant results extracted from ChatGPT, other opinions highlighted the tool's possible shortcomings. For Thorp (2023), in a publication for Science.org, “Machines play an important role, but as tools for the people posing the hypotheses, designing the experiments, and making sense of the results. Ultimately the product must come from—and be expressed by—the wonderful computer in our heads” (Thorp, 2023, p. 313).

When asked about the ethical and privacy implications of using ChatGPT in academic settings, for example, the GPT itself responds (Lund; Wang, 2023).

It says: *“There are several ethical and privacy implications to consider when using ChatGPT or other major language models in academic settings”* (GTP, 2023).

One concern is the potential for bias in the model responses, as it may reflect biases present in the training data. Additionally, there are concerns about the privacy of the individuals whose data was used to train the model, as well as the potential for the model to be used for nefarious purposes.

The concept of “ethical” is very multifaceted, it can refer to both a process and a result or a value. When considering the ethics of the process, we will talk about the internal procedures and actions that the company implements. The ethical values dimension refers to a set of parameters for an organization’s interaction with its customers.

In this case, we are talking about the transparency of information interaction, fairness of pricing, confidentiality of personal data, among others. The ethics of the results are related to the properties of the output of the AI system, non-discrimination, fairness, and objectivity (Dolganova, 2021).

Some countries already develop rules and regulations surrounding usability and possible cybercrime situations. The companies also there your rules, as well as entities, to support the companies with information, training, data security, among others. Each jurisdiction is directly related to the type of crime according to the region, country, and company (Dolganova, 2021).

However, is crucial to remember that the fundamental idea behind CJM (Customer Journey Map or Customer Success Journey) is relatively simple; it is a visual depiction of the sequence of events through which customers may interact with a service organization during an entire purchase process. CJM lists all possible organizational touchpoints customers may encounter during the service exchange process. By clearly understanding customer touchpoints, senior management can work with cross-functional team members to employ tactics that foster service innovation. The goal of these tactics is to enhance customer service provider interactions by improving the customer experience associated with each touchpoint (Rosenbaum, 2016).

7 CONCLUSIONS

In conclusion, this paper intends to collect and present analysis data from several searches previous about its notary and recent subject that desperate the curiosity of scientists and users.

Realizing that the Customer Experience area has been highlighted in recent years by companies around the world. As we have more personalized products and services, it is also necessary to continue mapping all consumer needs bringing more revenue and loyalty for the companies. The advance of Artificial Intelligence (AI) and some bot tools like ChatGPT have significant contribution points to enhance this area and this field of study as well.

Overall, the known ChatGPT original from AI might contribute to the customer experience within a company by providing fast, personalized, and efficient customer service, which can help to increase customer satisfaction and loyalty as it has done in another business area. This paper sought to present the areas and activities where ChatGPT can act with the aim of improving processes, generating more assertiveness, reducing costs and enhancing the process.

However, it is crucial to emphasize the importance of ethical and cybersecurity studies to dive on the treatment of confidential data of the client and the company, information security issues, and data processing. Moreover, another limitation of this topic is about a few studies exploring customer experience and others business areas using the benefits of ChatGPT. The number of studies in this area tends to increase in the next years from the tool evolution and AI.

It is also known and can be used in a variety of ways, including in model parameterization, data analysis, and interpretation. This technology can provide researchers answers for any situation and give innovative inputs to those who use them.

This paper aims to contribute to science with news discussions, and relevant information extracted from quantitative reviews as well which in this study it is little explored.

Limitations: Future research should compare customer experiences and ChatGPT across different contexts as service, logistics and operations and demonstrate more details about quantitative researches. Comparative topics between negative and positive points about each item or task about ChatGTP working in the company can be explored. Real experiments also are important to understand this tool application and its results tangibly.

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